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EDITOR OF THE LOON: Robert B. Janssen, 14321 Prince Place, Minnetonka, Minnesota 55343. (phone 612-938-7464), The editor invites articles, short notes, and black/white illustrations about birds and nature. See back cover for details.

"The Season" section of **The Loon** publishes reports of bird sightings throughout Minnesota. We particularly invite reports from parts of the state that have been neglested or covered lightly in past reports. To become a contributor to "The Season," request the report forms from the **EDITOR OF "THE SEASON," Mrs. Janet Green, 9773 North Shore Drive, Duluth, Minnesota 55804. (phone 218-525-5654).**

EDITOR OF THE MOU NEWSLETTER: Mrs. Marlyn Mauritz, 6810 Tecumseh Lane, Excelsior, Minn. 55331. Publishes announcements and reports about activities of the MOU and its affiliated clubs. (Club officers should keep both MOU editors informed.)

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AN EDDIE T. ORIOLE OPINION

Readers familiar with **The Loon** should (but perhaps not necessarily) notice a change here. For many years this magazine has opened with a message from the M.O.U. president, followed by, in the last two years, various and sundry thoughts from Bert Lystor and his cohorts. But perhaps it is time for a change. Even recent M.O.U. presidents themselves have admitted that writing their comments has been a difficult, if not unpleasant, chore, and that most, if not all, readers manage to finish reading **The Loon** without the slightest idea of what page 3 had to say (and even if they knew they probably wouldn't care). Also Bert Lystor is finding his inspirations few and far between lately, and is beginning to wonder if readers have any reaction at all (even negative would be nice) to his efforts.

So Editor Bob Janssen and I (whoever that is) have decided to move Bert from Kanaranzi to Mizpah (way up in Koochiching County) and change his name to Eddie T. Oriole (one of the more northern Orioles, that is, with relatives in Maryland's largest city, and with cousins down in La Crescent who own an apple orchard). Why? In an effort to make **The Loon** more open and receptive to its readers . . . which is a nice way of saying that for all we know most M.O.U. members must be apathetic and uninformed readers. Bob Janssen has received very few letters over the years about what people think of the magazine, and I can't imagine why. After all, Bob is a harmless enough guy, no one to be afraid of (even little Dickie Birdlover is probably taller than he is), and though a very capable editor, he still manages to screw things things up once in awhile. So there must be plenty to gripe about (or even to compliment him on), isn't there? What we want are more letters to the editor and even guest editorials from the readers — more dialogue with those of us who print **The Loon** and run the M.O.U. What do you think about the increase recently in your M.O.U. dues, and what is all that money being spent on? Is a color cover worth the extra expense, and should there be more or fewer of them? Do you agree with (or even read) all those book reviews, and are those long seasonal reports worth the long hours it takes to write them? Do you like the President's Page and Bert Lystor after all? What good is the 300 Club? Should **The Loon** be more scientific or less, more environmentally-minded or less? Should M.O.U. field trips be more or less frequent, better led and organized, a learning experience for beginners, or abolished? And just who does the Minnesota Ornithological Records Committee think it is setting itself up as judge, jury and executioner for all bird sightings?

So let's hear from you! Because if we don't, we'll just go on telling ourselves how perfect **The Loon** and the M.O.U. must be. We'll force Henry Kyllingstad back to the unsavory task of writing his quarterly (two-bit?) column. And worst of all, we'll have to go back to more bad jokes from Bert Lystor. Address your letters, editorials or whatever to me, Eddie T. Oriole, c/o **The Loon** or the M.O.U. or anywhere except Mizpah (most post offices forward Mizpah mail to Outer Mongolia or Afghanistan).

MYSTERY BIRD AT MARSHALL

Henry Kyllingstad

On November 13, 1977, a small bird appeared on the ground beneath a "Droll Yankee" feeder just outside our dining room window. By its size, general coloration, posture, and the fact that it walked and did not hop, I took it to be a Water Pipit. When I tried to approach closely for a better look it flew away and did not return until two days later.

On the fifteenth it remained about the feeder most of the day, and my wife and I had a good opportunity for close observation and comparing notes. I had left my camera at the office, but I made the accompanying rough sketch from our notes and believe it to be accurate enough to allow identification by anyone familiar with the species.

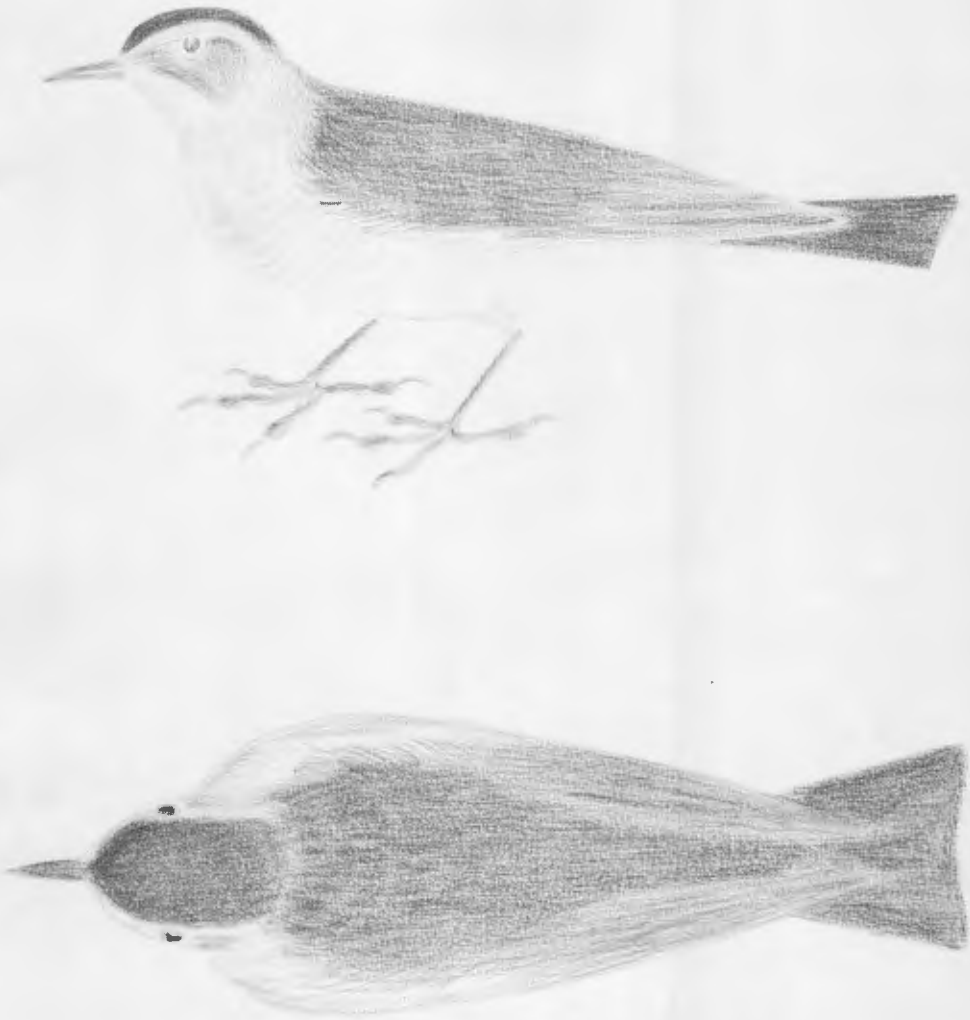
The bird is slightly larger than a House Sparrow, overall, but the tail is shorter so that body bulk is nearly twice that of the sparrow. General appearance is of a brown, lark-like bird with no prominent markings except the buffy superciliary. The back and wings are brown with the shafts of the back feathers slightly darker and the primaries narrowly edged with buff. The tail is darker brown than the back, slightly notched and without any white or other flash marks. The bill is pipit-like, slender, pointed, slightly decurved and nearly black at the tip and brownish at the base. The iris is dark. The feet and legs are dark, nearly black, and lack the extra long claws of the longspurs or larks. The crown is reddish brown, almost maroon, and the brownish cheek patches are separated from the nape by the buffy color of the throat which extends up the sides of the neck. Underparts are generally grayish buff, the chin almost white, the flanks unstreaked but with the feather edges slightly dark giving a slightly scaly appearance close up.

The bird was feeding on the ground with House Sparrows which it resisted successfully by charging them while spreading the tail and extending the wings. It did not teeter like a pipit or wagtail. Its posture was less erect than a thrush, horizontal like a Horned Lark.

On the thirteenth the ground was freshly covered with snow. On the fifteenth some bare ground was showing and the bird walked along the edges of puddles in the alley, still without any teetering. On one occasion it flew up into a tree. Flight was direct and not undulating.

We observed the bird through the window at a distance of eight feet or less for many minutes at a time and also outside at twenty feet with eight power pinoculars. We think this bird was blown in by a storm on the tenth and eleventh. It disappeared when the weather moderated.

Editor's Note: So far no one has been able to identify Henry's "mystery bird." The details and drawing have been looked at by many people including Dr. Tordoff and Dr. Warner from the Bell Museum, Dr. Storer from the University of Michigan. Hopefully with the publication of these details someone will be able to come up with an answer. We will keep you informed on any answer to the bird's identity.



Mystery Bird — Drawn by Henry Kyllingstad

OBSERVATION OF NEST DECORATION AND FOOD HABITS OF RED-TAILED HAWKS

Robert T. Bohm

In the past few years I have made a number of interesting and sometimes unusual observations on nest decoration and food habits of Red-tailed Hawks in central Minnesota (primarily in Benton and Morrison Counties). Red-tails and other nest-building falconiforms often place sprigs of fresh green vegetation on their nests. Although this practice, nest decoration, is poorly understood, a number of possible explanations have been suggested. Olendorff (1971) summarized many of them in a paper on falconiform reproduction. Some observers have speculated that the added material somehow provides comfort, shade, or protection to the eggs and/or young. I have noted, however, that nests were often decorated before any eggs were laid, and on at least a couple of occasions, after young had fledged. By covering decaying prey remains, decoration may function in nest sanitation. Other interesting possibilities have been suggested. Nest decoration may be a displacement activity by nesting birds when attempts to incubate (when no eggs have yet been laid) or to continue brooding (after the young are too large to brood) are frustrated. Perhaps it is an evolutionary remnant of a reptilian trait of covering eggs with vegetation. It may, in some way, reinforce the pair bond between nesting raptors. Nest decoration is most prevalent in species that construct their own nests. Although it seems to occur more frequently early in the nesting cycle, it it probably a daily activity.

Before the development of deciduous leaves, central Minnesota Red-tails used conifer sprigs and catkins of aspen and willow to decorate their nests. They used a variety of leaves later in the season; there appeared to be no preference of material at several nests that I observed on a regular basis. I was somewhat surprised to find that corn cobs (without kernals) and sections of corn stalks were used at several nests. The fact that these items continued to appear at active nests throughout the nesting season seemed to discount possible activity by squirrels. On one occasion I found a scrap of paper in a Red-tail nest. At another nest I made an unusual discovery: an oriole nest had been added. Hamerstrom (1927) mentions that oriole nests have been found in the nests of Red-shouldered Hawks; I know of no accounts in the literature of Red-tails doing this.

Red-tailed Hawk nest — containing an oriole nest, corn cob, aspen catkins and willow twigs.

The most frequently occurring prey remains that I found in Red-tail nests (in 1976 and 1977) were chipmunks, pocket gophers, Red-winged Black birds, and thirteen-lined ground squir-

rels (Table 1). Although my sample of prey items is quite small (91), it probably gives a fairly accurate representation of their overall diet. The numbers and types of prey that I found during both nesting seasons were similar although in 1977 there

Table 1. Prey items found at Red-tailed Hawk nest sites in central Minnesota in 1976 and 1977.

Species	1976	1977	Total
Chipmunk	14	8	22
Pocket gopher	8	4	12
Red-winged Blackbird	10	1	11
Thirteen-lined ground squirrel	7	2	9
Meadow mouse	4	4	8
Fox squirrel	3	4	7
Gray squirrel	3	4	7
Common Crow	3	0	3
Cottontail rabbit	2	0	2
Red squirrel	1	1	2
Virginia Rail	2	0	2
American Coot	2	0	2
Mallard	1	0	1
Meadow jumping mouse	1	0	1
Ruffed Grouse	1	0	1
Woodchuck	0	1	1

were noticeably fewer avian items. It appeared as though Red-tails were not hesitant to stock-pile prey items when the hunting was good. On one occasion a single nest contained a young woodchuck, a gray squirrel, a pocket gopher, and a meadow mouse, and all were still fresh. Another nest contained three recently captured chipmunks. Two fresh carcasses per nest were common. Red-tails probably caught more small prey items, such as mice, than Table 1 indicates. It seems logical that small items would be eaten more quickly and entirely than larger ones. I found no evedence of Red-tails preying on any type of domestic fowl. I sometimes found regurgitated pellets among the nest debris, however, I did not attempt to thoroughly analyze them. Errington (1932) found that hawk pellets were usually unreliable indicators of food habits. This was due primarily to

Red-tailed Hawk nest — containing parts from two pocket gophers, aspen leaves and jack pine needles used for decoration. The young bird is 21 days old.

strong digestive processes that left few identifiable remains.

Although individual prey preferences may exist, Red-tails feed mainly on what is available and most readily captured. One nest that I checked at weekly intervals contained chipmunks on four consecutive weeks. Another nest contained Common Crow remains on three occasions. A third nest contained the carcasses of Virginia Rails on two consecutive weeks. This, however, was perhaps an example of opportunism rather than of prey preference. Although California ground squirrels were the favorite prey of Red-tails in California, they also consumed small amounts of reptiles, arthropods, and carrion (Fitch et al. 1946). Favorite prey of Red-tails were Uinta ground squirrels in Wyoming (Craighead and Craighead 1956), Ringnecked Pheasants and cottontails in Wisconsin (Orians and Kuhlman 1956), young woodchucks in New York (Hagar 1957), and snowshoe hares in Alberta, Cannada (Luttich et al. 1970).

Red-tails often hunt from perches near woodlot edges, especially during crepuscular hours, when air currents are perhaps less condusive to soaring. Considering the numbers of chipmunks that I found, this hunting method may have been extremely productive. Pocket gophers, which are generally nocturnal, were probably also caught most often during these dawn and dusk hours. I was somewhat surprised by the number of Red-winged Blackbirds that I found in Red-tail nests, as one would probably not expect that they would be captured with the regularity that they were.

LITERATURE CITED

Craighead, J. J., and F. C. Craighead. 1956. Hawks, owls, and wildlife. Harrisburg, Pennsylvania, Stackpole Co. 443 pp.

Errington, P. L. 1932. Technique of raptor food habits study. Condor 34:75-86.

Fitch, H. S., F. Swenson, and D. F. Tillotson. 1946. Behavior and food habits of the red-tailed hawk. Condor 48:205-237.

Hagar, D. C. Jr. 1957. Nesting populations of red-tailed hawks and horned owls in central New York State. Wilson Bull. 69:263-272.

Hamerstrom, Frances. 1972. Birds of Prey of Wisconsin. Department of Natural Resources, Madison, Wisconsin. 64 pp.

Luttich, S. N., D. H. Rusch, E. C. Medlow, and L. B. Keith. 1970. Ecology of red-tailed hawk predation in Alberta. Ecology 51(2):190-203.

Olendorff, R. R. 1971. Falconiform Reproduction: A Review. Part 1. Raptor Research Foundation, Raptor Research Report No. 1, 111 pp.

Orians, G., and F. Kuhlman. 1956. Red-tailed hawk and horned owl populations in Wisconsin. Condor 58:371-385.

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THE M.O.U. "300 CLUB"

The ink was hardly dry for the "300 Club" in the last issue when the totals began to change. Ray Glassel finally saw his first Boreal Owl and moved up to 340. Plus this we added Jerry Gresser and Wally Jiracek to the "300 Club" list as our 19th and 20th members. Here are the totals as of April 1, 1978.

Ray Glassel	340	Dick Ruhme	322
Bob Janssen	339	Don Bolduc	321
Harding Huber	338	Karol Gresser	319
Bill Pieper	336	Jo Blanich	317
Ron Huber	334	Bill Litkey	316
Kim Eckert	330	Jerome Gresser	312
Paul Egeland	329	Evelyn Stanley	310
Liz Campbell	327	Gary Otnes	308
Jan Green	327	Wally Jiracek	307
Terry Savaloja	325	Henry Kyllingstad	302

Bob Janssen - Editor

THE SUMMER SEASON (June 1, - July 31, 1977)

Kim Eckert

After three summers in a row of devastating drought and extremely high July temperatures, Summer 1977 was a welcome change. While July was a bit on the warm side, it was easily tolerable after a generally cool June. And moisture was back up to being closer to normal, resulting in healthier prairie pothole levels and virtually no major grass or forest fires. Birding conditions, therefore, were generally pleasant, and the 47 contributors to this report found plenty to keep them in the field. A total of 261 species was reached, probably the highest ever for any summer, though it must be admitted that an unusual variety of shorebirds lingering into June accounted for part of this exceptional total. But nesting evidence was gathered for 155 species, only one short of last summer's excellent total, so there were still a lot of birds around.

Leading the list had to be the variety of herons at Pelican Lake and Big Stone N.W.R. Not only did Cattle Egrets and Little Blues occur at both rookeries, but also Snowy Egrets turned up at both locations, with the first Minnesota confirmed nesting at Big Stone. Even more exciting to most listers were the Louisiana Herons at Pelican Lake, since there had been only two previous state records. All of this makes it easy to overlook the Yellow-crowned Night Herons at Big Stone and the population boom in Green Heron and Least Bittern. Also interesting from the western part of the state were two Ferruginous Hawk reports, a survey of good numbers of Greater Prairie Chickens, and reports of the always elusive King Rail and the even more elusive Burrowing Owl that even successfully nested. Bobwhite numbers are encouraging in the southeast, but on the other hand we may have seen the last of the Chukars at Ely. As mentioned above, migrant shorebirds seemed all over the place in June, the probable result of an influx of observers in pursuit of rarities in western Minnesota. No less than 29 species of shorebirds were found into June, including possible nesting Piping Plover on Lake of the Woods, a Ruff at the Moorhead sewage ponds, and almost unbelievable numbers of American Avocets. The best bird of the season, also from western Minnesota, had to be the second state record Western Wood Pewee in Roseau Co. which even included a nest with three young! Also nesting and of interest were a pair of Mockingbirds at Blue Mounds St. Pk., also (you guessed it!) in the western part of the state. But warblers are a specialty of eastern Minnesota, and of special note here were the unprecedented reports of Blue-winged in the North Woods, Tennessees turning up in most unlikely numbers and places, a singing male Kentucky near the Twin Cities, and continued mid-summer reports of Wilson's which suggest the first Minnesota nest of this species is a future probability. Also probable is that White-winged Crossbills have managed to nest without detection in Minnesota, since huge numbers of adults and juveniles were found in the northeastern counties. Of final note, appropriately enough back on the prairies, was the return to Felton of Baird's Sparrows, an event somewhat dampened by the lack of Sprague's Pipits here.

Common Loon

Nested in Cass, Itasca, Lake, Otter Tail, Wright, Pope and Anoka; also reported from 19 other counties south to Kandiyohi and Wabasha (7-15 to 7-24, DWM).

Red-necked Grebe

Nested in Marshall, Roseau, Lake of the Woods, Beltrami, Cass, Becker

and Wright; also reported from Otter Tail, Pope and Anoka.

Horned Grebe

Reported from Marshall, Roseau and Duluth (6-3, DA).

Eared Grebe

Nested in Roseau, Lac Qui Parle and Pope; also reported from Marshall (peak of **120** on 6-10, KE), Clay, Big Stone and Lyon.

Western Grebe

Nested in Otter Tail and Lac Qui Parle; also reported from 10 other counties east to Meeker (7-9, RJ) and Carver 6-26, DA); more reported than usual, though thought to be down at Agassiz N.W.R.

Pied-billed Grebe

Nested in Marshall, Lake of the Woods, Beltrami, Cass, Roseau, Becker and Wright; also reported from 14 other counties throughout the state.

White Pelican

Nested at Marsh L., Big Stone Co.; also reported from Marshall, Lake of the Woods, Roseau, Otter Tail, Traverse, Grant, Lac Qui Parle, Swift, Pope and Anoka; more reports of non-breeding birds than usual.

Double-crested Cormorant

Nested in Grant, Pope and Lac Qui Parle; also reported from Marshall, Otter Tail, Aitkin, Duluth, Lincoln, Anoka, Wright and Hennepin.

Great Blue Heron

Nested in Hubbard, Grant, Pope, Lac Qui Parle, Anoka and Winona; also reported from 30 other counties throughout the state.

Northern Green Heron

Nested in Otter Tail (4 juv. until 7-15, Aurdahl Twp., GO), Lac Qui Parle and Anoka; also reported from **35** other counties north to Marshall (SV, KE), Clearwater (DGW), Hubbard, Cass, Aitkin and St. Louis (6-12, Floodwood, DM); continues to increase, especially in northern Minn.

Little Blue Heron

Possibly nested at Big Stone N.W.R. (2 ad. at empty nest on 7-19, CMB) and Pelican L., Grant Co. (many reports all summer; peak of 10 seen).

Cattle Egret

Nesting confirmed at Big Stone N.W.R. (10 nests found, B. Ehlers; 6 pr. with avg. 3 young each on 7-24, CMB); possibly nested again at Pelican L., Grant Co. (many reports from 6-19 to 7-17, with a peak of 8 seen here and at nearby L. Christina); another seen on 6-1 at Larsmont, **Lake Co.** (T. Murphy).

Great Egret

Nested in Grant, Pope, Lac Qui Parle and Winona; also reported from 15 other counties north to Marshall (SV).

SNOWY EGRET

First confirmed nesting for the state at Big Stone N.W.R. (10 nests found, B. Ehlers; 6 pr. with 7 young on 7-19 and 7-24, CMB); also seen twice in July near Pelican L., Grant Co. (GO, S. Millard).

LOUISIANA HERON

On 6-20 C. Bergman found 3 at Pelican L., Grant Co. (4 seen later that day by GO), which resulted in many (but not all) observers seeing this species here into July (last seen on 7-24 in nearby Otter Tail Co., S. Millard); only the third state record.

Black-crowned Night Heron

Nested in Aitkin, Grant, Lac Qui Parle and Anoka; also reported from 15 other counties north Marshall and Roseau.

Yellow-crowned Night Heron

No less than **7** reports from Houston (2 at La Crescent), Ramsey (2 at St. Paul, 7-11 to 7-25), Hennepin (7-21, OJ), Olmsted (7-4, JF), **Lac Qui Parle** (7-9 to 7-19, Big Stone N.W.R.), **Otter Tail** (7-25, GO, GW) and **Cass** (6-28, L. McGinty, M. Loss).

Least Bittern

Reported from **14** counties north to

Roseau (5 on 6-13, KE) with a peak of 8 on 7-27 in Hennepin Co. (VL); much more common than usual.

American Bittern
Nested in Lake of the Woods; also reported from 16 other counties throughout the state; continues less common than formerly.

Whistling Swan
Late migrant on **6-18** in Duluth (RJ).

Canada Goose
Nested in Marshall, Roseau, Otter Tail, Douglas, Big Stone, Lac Qui Parle, Anoka, Hennepin and Ramsey; also reported from Cook, St. Louis, Grant and Olmsted; fewer reports than usual.

Snow Goose
Late migrants **6-11** Duluth (B. Hojnacki) and **6-14** Lake of the Woods (KE); also a possibly injured bird was seen at Agassiz N.W.R., Marshall Co. from **7-15** on (SV).

Mallard
Nested in Marshall, Hubbard, Itasca, St. Louis, Cook, Big Stone, Pope, Benton, Isanti, Anoka, Hennepin, Washington, Dakota, Olmsted, Morrison and Lac Qui Parle; also reported from 17 other counties throughout the state.

Black Duck
Nested in Lake and Ramsey (7 young on 6-1, Bald Eagle L., EC); also reported from Marshall, Lake of the Woods, Roseau, St. Louis, Cook and Anoka (6-5 to 6-12, KL).

Gadwall
Nested in Marshall and Yellow Medicine; also reported from Roseau, Big Stone, Lac Qui Parle, Lincoln, Anoka and Hennepin.

Pintail
Nested in Marshall and Lyon; also reported from 11 other counties throughout the state.

Green-winged Teal
Reported from 14 counties south to Lincoln, Lyon and Hennepin; more reports than usual.

Blue-winged Teal
Nested in Marshall, St. Louis, Lake, Lac Qui Parle, Lyon, Anoka, Hennepin and Ramsey; also reported from 22 other counties throughout the state.

American Wigeon
Nested in Marshall, Itasca and Lac Qui Parle (Big Stone N.W.R.); also reported from Roseau, Lake of the Woods, Otter Tail, Douglas, Swift, Anoka and Hennepin; more reports than usual.

Northern Shoveler
Nested in Marshall and Pope; also reported from 10 other counties throughout the state; also more common than usual.

Wood Duck
Nested in Marshall, Pennington, Red Lake, Itasca, Crow Wing, Lake, Clay, Grant, Douglas, Lac Qui Parle, Lyon, Wright, Kandiyohi, Anoka, Hennepin, Ramsey, Olmsted, Morrison, Wabasha and Houston; also reported from 17 other counties throughout the state; continues to increase.

Redhead
Nested in Marshall and Lyon; also reported from 11 other counties east to Anoka and Hennepin.

Ring-necked Duck
Nested in Marshall; also reported from 10 other counties south to Pope and Hennepin.

Canvasback
Nested in Marshall and Douglas; also reported from Traverse, Big Stone, Swift, Pope, Chisago and Hennepin.

Greater Scaup
Late migrant **6-13** at Roseau (KE).

Lesser Scaup
Nested in Marshall (broods seen at Agassiz N.W.R., SV); also reported from Lake of the Woods, Duluth, Clay, Big Stone, Lyon, Anoka, Hennepin and Dakota.

Common Goldeneye
Nested in Crow Wing, Itasca and Cook; also reported from Marshall, Roseau, Lake of the Woods, Hubbard, St. Louis and Chisago (6-26, BE).

Bufflehead
Late migrant **6-14** Marshall (KE).

White-winged Scoter
Late migrant 6-9 Lake (GO).

Ruddy Duck
Nested in Marshall, Lyon and Ramsey; also reported from 14 other counties east to Aitkin and Washington.

Hooded Merganser
Nested in Marshall, Clay, St. Louis, Lake, Morrison and Houston; also reported from Cook, Crow Wing, Big Stone and Hennepin.

Common Merganser
Nested in St. Louis; also reported from Lake.

Red-breasted Merganser
Nested in Lake; also reported from St. Louis and Lake of the Woods (6-13, KE).

Turkey Vulture
Reported from 13 counties including Renville (7-3, PE).

Goshawk
2 reports: 6-18 Hoyt Lakes, St. Louis Co. (LP); 7-30 Itasca (PM).

Sharp-shinned Hawk
Reported from Lake of the Woods, Otter Tail, Lake, Cook and Houston.

Cooper's Hawk
Reported from Lake of the Woods, Otter Tail, Big Stone, Crow Wing, Aitkin, Duluth and Houston.

Red-tailed Hawk
Nested in Roseau, Lac Qui Parle and Houston; also reported from 32 other counties throughout the state.

Red-shouldered Hawk
Reported from Sherburne, Anoka, Wabasha, Winona and Houston.

Broad-winged Hawk
Nested in Marshall and Anoka; also reported from 20 other counties west to Big Stone.

Swainson's Hawk
Nested in Wilkin (2 adults at nest into June, GO), Rock (2 adults at nest into June, KE) and Steele (7-9, 2 young in nest, JF); also reported from Kittson, Big Stone, Lac Qui Parle, Renville, Dodge and Dakota.

FERRUGINOUS HAWK
2 reports: 6-3 Blue Mounds St. Pk., Rock Co., 1 imm. (KE); 7-9 L. Traverse, Traverse Co., 2 adults (KE, PE).

Bald Eagle
Nested in Crow Wing, Itasca and St. Louis; also reported from Lake of the Woods and **Washington** (July, Woodbury, BSH).

Marsh Hawk
Reported from 17 counties throughout the state; continues to be less common than in former years.

Osprey
Reported from Roseau, Lake of the Woods, Hubbard, Crow Wing, Mille Lacs, Itasca, St. Louis, Lake and Cook.

Merlin
2 reports: 7-17, Bloomington, **Hennepin Co.** (G. Carpentier); 7-25, Burntside L., St. Louis Co., **5** (B. and D. Campbell).

American Kestrel
Nested in Lac Qui Parle, Wright, Anoka and Hennepin; also reported from 38 other counties throughout the state.

Spruce Grouse
Nested in Lake of the Woods (7-5, female and 1 young, G. Hodnefield) and Cook (6-29, adult with 1 young, T. Kemp); also seen near Babbitt, St. Louis Co. (LP, T. Hargy).

Ruffed Grouse
Nested in Marshall, Lake of the Woods, Cass, Aitkin, Itasca, St. Louis, Lake, Cook, Anoka and Olmsted (Kalmar Twp., 12 young on 6-1, JF); also reported from Otter Tail, Crow Wing, Carlton, Pine, Wright, Washington,

Winona and Houston.

Greater Prairie Chicken

T. Wolfe surveyed 67 booming grounds and found a total of 875 birds in Polk, Red Lake, Norman, Mahnomen, Becker, Cass, Clay, Wilkin and Otter Tail; this species is often missing in the summer report.

Sharp-tailed Grouse

Reported only from Marshall and Aitkin.

Bobwhite

No less than **10** coveys reported from Fillmore and Houston (fide RJ); also 7-10 and 7-23, Winnebago Twp., Houston Co. (EMF); this species refuses to give up on Minnesota.

Ring-necked Pheasant

Nested in Duluth, Morrison, Lac Qui Parle, Lyon, Cottonwood, Wright, Anoka, Hennepin, Ramsey and Washington; also reported from 16 other counties north to Roseau (6-11, RJ).

Chukar

One seen on 7-16 at Ely (KE); this may well have been the last sighting of this introduced species; at the time of this writing (March 1978) there have been no reports by local residents since last summer.

Gray Partridge

Nested in Lac Qui Parle, Yellow Medicine, Lyon and Sibley; also reported from 14 other counties (including 8 seen in **Duluth** on 7-3 and 7-17 by DM; the origin of these birds is open to question); more reports than usual.

Turkey

Recorded from 6-2 to 6-16, Winnebago Twp., Houston Co. (EMF); it has been reported that there are more wild turkeys in Houston Co. than in Whitewater W.M.A.

Sandhill Crane

Nested in Pennington (2 eggs in May, A. Gustafson); also reported from Kittson, Roseau, Marshall, Lake of the Woods, Beltrami, Polk, Mahnomen, Becker, Aitkin, Morrison and Anoka (Carlos Avery W.M.A.) (all fide C. Henderson); many more reports than usual thanks to a D.N.R. survey of this species.

KING RAIL

One seen and heard on 6-2, Gabriel L., Lyon Co. (PE).

Virginia Rail

Nested in Morrison, Chippewa, Wright and Hennepin; also reported from Roseau, Marshall, Otter Tail, Aitkin, Anoka and Houston.

Sora

Nested in Lac Qui Parle and Hennepin; also reported from 13 other counties throughout the state.

Yellow Rail

Again reported in Aitkin Co. at Rice Lake N.W.R. (until early June) and McGregor (all summer) by JB and T. Savaloja.

Common Gallinule

Nested in Houston (La Crescent), Washington (6-13, Oakdale Twp., 4 young, EC, DGW), Ramsey (6-27, 2 young, JF) and Hennepin (7-28 to 7-30, Wood L., 3 broods, BE, RJ); also reported in Anoka (Carlos Avery W.M.A., KL); more reports than usual for the second summer in a row.

American Coot

Nested in Marshall, Lac Qui Parle, Swift, Anoka, Hennepin and Washington; also reported from 14 other counties northeast to Duluth.

Semipalmated Plover

Late migrants 6-1 Duluth and 6-12 Anoka.

Piping Plover

Nested in Duluth; 3 also seen on Pine I., **Lake of the Woods** on 6-13, 2 of which appeared to be in territorial conflict (KE, T. Savaloja); there have been no breeding records away from Duluth since 1941, when breeding was last recorded on Lake of the Woods.

Killdeer

Nested in Marshall, Hubbard, Cass,

Lac Qui Parle, Cottonwood, Stearns, Anoka, Hennepin and St. Louis; also reported from 28 other counties throughout the state.

American Golden Plover
Late migrants 6-5 Anoka, 6-9 Lyon and **6-18** Duluth (RJ).

Black-bellied Plover
Late migrants 6-3 Duluth, 6-4 Crow Wing and 6-6 Anoka.

Ruddy Turnstone
Late migrants 6-9 Lake, 6-12 Clay and 6-13 Lake of the Woods.

American Woodcock
Nested in Lake of the Woods; also reported from 13 other counties including Lac Qui Parle (7-17, Big Stone N.W.R., CMB).

Common Snipe
Reported from 22 counties south to Lyon and Hennepin.

Whimbrel
Seen only at Duluth on 6-11 (DA, B. Hojnacki).

Upland Sandpiper
Nested in Rock and Stearns; also reported from Kittson, Marshall, Norman, Clay, Otter Tail, Aitkin, Big Stone, Yellow Medicine and Stevens.

Spotted Sandpiper
Nested in St. Louis and Anoka; also reported from 18 other counties throughout the state; down in numbers the past two summers.

Solitary Sandpiper
Late migrants **6-4** Fillmore (JD) and **6-18** Olmsted (JF, WE).

Lesser Yellowlegs
Late migrants **6-7** Anoka (KL), **6-15** Clay and Lyon (KE) and **6-19** Stearns (S. Hansen).

Willet
2 reports: 6-3 Duluth (ES); 6-14 Marshall (KE).

Red Knot
2 reports: 6-3 Duluth (ES); 6-12 **Clay** (RJ).

Pectoral Sandpiper
Late migrants 6-8 Clay, 6-9 Lyon and 6-12 Lac Qui Parle.

White-rumped Sandpiper
Late migrants 6-12 Anoka and Clay; 6-14 Roseau, Lake of the Woods and Marshall.

Baird's Sandpiper
Late migrants 6-3 Lac Qui Parle. 6-4 Pope and **6-12** Clay (RJ).

Least Sandpiper
Late migrants 6-3 Duluth and Lac Qui Parle; 6-5 Otter Tail.

Dunlin
Late migrants 6-6 Otter Tail and Anoka; 6-13 Roseau and Lake of the Woods.

Semipalmated Sandpiper
Late migrants 6-13, 14 and 15 Roseau, Lake of the Woods, Marshall and Clay; 6-17 Olmsted; 6-18 Duluth.

Sanderling
Late migrants 6-14 Marshall and **6-18** Duluth (S. Schon).

Stilt Sandpiper
Late migrant 6-8 Clay.

Marbled Godwit
Nested in Clay and Big Stone; also reported from 11 other counties south to Lac Qui Parle, Pope and Stearns.

Hudsonian Godwit
Late migrant **6-13** Lake of the Woods (KE, T. Savaloja).

RUFF
A female present at Moorhead, Clay Co. until 6-4 was seen by many observers; formerly only accidental, this species is now well established on the Minnesota casual list.

American Avocet
Nested at **Wells, Faribaut Co.** (2 pair with 7 young; J. Smith); also reported from Clay (until 6-15, Moorhead, many observers), Marshall (6-8 and 7-5, Agassiz N.W.R., SV), 7-17 Grant (GO), Lac Qui Parle (until 7-23, Salt L., peak of 6, many observers) and Traverse (an amazing concentration of **76** on

7-9 at Mud L., KE, PE); easily the best summer for this species in memory!

Wilson's Phalarope
Reported from 16 counties east to Aitkin and Anoka; more reports than usual.

Northern Phalarope
Late migrants 6-1 Anoka, 6-5 Otter Tail and 6-8 Clay.

Herring Gull
Nested in St. Louis, Lake and Cook; also reported from Lake of the Woods and Roseau.

Ring-billed Gull
Nested at Duluth (573 nests at M.P. & L. plant, 234 at Port Terminal; J. Niemi); also reported from 18 other counties throughout the state; non-breeding birds summering in the state continue to increase.

Franklin's Gull
Nested in Lac Qui Parle; also reported from 18 other counties east to Stearns and Nicollet; the formerly thriving nesting colony at Agassiz N.W.R. was again abandoned this summer.

Bonaparte's Gull
Late migrant 6-3 Duluth (ES); early migrants 7-29 Marshall (SV) and Mille Lacs (DGW).

Forster's Tern
Nested in Lac Qui Parle; also reported from 15 other counties east to Anoka and Wabasha; may be back to normal numbers after the drought of the past two summers.

Common Tern
Nested in Duluth; also reported from Roseau, Lake of the Woods, Mille Lacs, Crow Wing, Otter Tail, Big Stone and Pope.

Caspian Tern
6 reports from Roseau, Mille Lacs, Aitkin, Otter Tail, Stevens and Pope; this formerly rare summer visitant may be increasing like the Ring-billed Gull.

Black Tern
Nested in Roseau, Lac Qui Parle, Pope and Anoka; also reported from 29 other counties northeast to Itasca and Duluth.

Rock Dove
A write-in candidate from only 2 counties.

Mourning Dove
Nested in Roseau, Marshall, Polk, St. Louis, Lac Qui Parle, Lyon, Cottonwood, Anoka and Ramsey; also reported from 28 other counties northeast to Lake.

Yellow-billed Cuckoo
Reported from 15 counties north to Duluth (6-11, DA) and Lake (6-17, GO).

Black-billed Cuckoo
Nested in Clearwater, St. Louis, Anoka and Rock; also reported from 33 other counties throughout the state; more reports than usual.

Screech Owl
Nested in Cottonwood and Hennepin; also reported from Otter Tail, Big Stone, Wright and Washington.

Great Horned Owl
Nested in Grant and Anoka; also reported from 16 other counties throughout the state.

BURROWING OWL
Nested in Prior Twp., Big Stone Co. (3 young raised; fide B. Ehlers); first summer record since another nesting record 3 years ago.

Barred Owl
Nested in Crow Wing, Ramsey and Washington; also reported from 12 other counties west to Grant, Big Stone and Kandiyohi.

Great Gray Owl
Nested again in Roseau Co. (4 total nests, 3 successful with 6 total young; R. Nero; also reported from Koochiching (7-18, Loman, D. Goodermote) and St. Louis (until 7-6, Lakewood Twp., G. Maxham).

Long-eared Owl
2 reports: 6-11 Lake of the Woods

(KE); 6-25 to 7-21 Otter Tail (GO).

Short-eared Owl
Reported from Roseau, Lake of the Woods and Aitkin.

Saw-whet Owl
2 reports: 6-11 Lake of the Woods (KE); 6-4 Cass (JB).

Whip-poor-will
Reported from 10 counties including Lake and Big Stone.

Common Nighthawk
Reported from 29 counties throughout the state.

Chimney Swift
Reported from 31 counties throughout the state.

Ruby-throated Hummingbird
Nested in Roseau; also reported from 23 other counties throughout the state.

Belted Kingfisher
Nested in Anoka; also reported from 31 other counties throughout the state.

Common Flicker
Nested in Hennepin and Wabasha; also reported from 34 other counties throughout the state.

Pileated Woodpecker
Nested in Hennepin; also reported from 20 other counties southwest to Lac Qui Parle.

Red-bellied Woodpecker
Nested in Hennepin, Ramsey and Olmsted; also reported from Wright, Anoka, Washington, Scott, Goodhue, Wabasha, Winona and Houston.

Red-headed Woodpecker
Nested in Clay, Isanti, Anoka, Ramsey and Lac Qui Parle; also reported from 31 other counties throughout the state.

Yellow-bellied Sapsucker
Nested in Cass, Otter Tail and Lac Qui Parle; also reported from 22 other counties southwest to Rock (6-25, DGW); more reports than usual.

Hairy Woodpecker
Nested in Lake of the Woods, Hubbard. Lac Qui Parle, Hennepin, Ramsey, Olmsted and Fillmore; also reported from 23 other counties throughout the state.

Downy Woodpecker
Nested in Hubbard, Lac Qui Parle, Anoka, Hennepin, Ramsey and Washington; also reported from 22 other counties throughout the state.

Black-backed Three-toed Woodpecker
Nested in Lake of the Woods (6-13, Norris Camp, pair at nest hole, KE) and St. Louis (6-15, Tease L., female feeding young at nest, JG); also reported from Cook (6-29, T. Kemp) and St. Louis (6-18, Echo Trail, D. Baker; June, Babbitt, LP).

Eastern Kingbird
Nested in St. Louis, Morrison, Cass and Murray; also reported from 38 other counties throughout the state.

Western Kingbird
Nested in Otter Tail, Traverse, Stearns, Anoka, Pipestone, Murray and Rock; also reported from 18 other counties east to Hennepin and Sibley.

Great Crested Flycatcher
Nested in Hubbard, Cass, Morrison, Anoka and Hennepin; also reported from 25 other counties including Lake and Cook.

Eastern Phoebe
Nested in Roseau, Cass, Clearwater, Kanabec, Morrison, Anoka and Pipestone; also reported from 26 other counties throughout the state.

Yellow-bellied Flycatcher
Nested in Aitkin (2 nests found, JB); also reported from Lake of the Woods, St. Louis, Lake and Cook; migrants seen 6-1 Hennepin (DB) and 7-29 Washington (banded, DMB).

Acadian Flycatcher
Nested at Beaver Creek Valley St. Pk., Houston Co. (6-19, 2 nests found, FL); again seen at Franconia, Chisago Co. (6-19, DGW).

Willow Flycatcher
Reported from Clay, Anoka, Washington, Dakota, Nicollet, Olmsted and Houston.

Alder Flycatcher
Reported from 11 counties south to Cass and Aitkin; late migrants seen 6-3 Rock (KE) and 6-11 Anoka (KL).

Least Flycatcher
Nested in Anoka; also reported from 25 other counties throughout the state.

Eastern Wood Pewee
Reported from 30 counties throughout the state.

WESTERN WOOD PEWEE
After the initial sighting on 5-29 by D. Paulson at Pelan, Roseau Co., many observers saw a female build a nest and incubate eggs during June; a second bird, the presumed male, was only seen on 6-9 and 6-10; photos were taken and a tape of the calling female was recorded (KE); the last report was on 7-8 when DGW observed the female feeding 3 young near the nest; only the second state record.

Olive-sided Flycatcher
Reported from Roseau, Lake of the Woods, Aitkin, Itasca, St. Louis, Lake and Cook; down again for the third summer in a row.

Horned Lark
Nested in Hennepin; also reported from 24 other counties throughout the state.

Tree Swallow
Nested in Marshall, Lake of the Woods, Hubbard, St. Louis, Lac Qui Parle, Sherburne, Anoka, Morrison and Olmsted; also reported from 26 other counties throughout the state.

Bank Swallow
Nested in St. Louis, Wright, Anoka, Hennepin and Rock; also reported from 21 other counties throughout the state.

Rough-winged Swallow
Reported from 22 counties throughout the state.

Barn Swallow
Nested in Lake of the Woods, Marshall, Itasca, Sherburne, Anoka, Hennepin, Dakota and Le Sueur; also reported from 32 other counties throughout the state.

Cliff Swallow
Nested in Roseau, Marshall, Lake of the Woods, Beltrami, Hubbard, Cass, Big Stone, Lac Qui Parle, Sherburne and Hennepin; also reported from 20 other counties throughout the state.

Purple Martin
Nested in Roseau, Lake of the Woods, Lac Qui Parle, Swift, Pope, Cottonwood, Rock, Isanti, Anoka and Olmsted; also reported from 25 other counties throughout the state.

Gray Jay
Nested in Lake of the Woods and Itasca; also reported from Roseau, Aitkin, St. Louis, Lake and Cook.

Blue Jay
Nested in Hubbard, Clay, Lac Qui Parle, Anoka, Hennepin and Olmsted; also reported from 31 other counties throughout the state.

Black-billed Magpie
4 reports from Marshall (pair all summer at Agassiz N.W.R., SV), Lake of the Woods (6-14, KE), Roseau and Pennington (6-11, RJ), and Duluth (2 in July, J. Fitzgibbons).

Common Raven
Reported from Lake of the Woods, Itasca, St. Louis, Lake and Cook.

Common Crow
Nested in Lac Qui Parle, Ramsey and Olmsted; also reported from 34 other counties throughout the state.

Black-capped Chickadee
Nested in Hubbard, Cass, Crow Wing, Lac Qui Parle, Cottonwood, Anoka, Washington, Olmsted and Otter Tail; also reported from 21 other counties throughout the state.

Boreal Chickadee
Nested in Clearwater (7-2, nest with 5 young, D. Pearson); also reported from St. Louis, Lake and Cook.

Tufted Titmouse
Nested in Wabasha (7-9, 3 young first seen, B. Nass); also reported from Fillmore (6-4, JD, WE) and Houston (6-2 to 6-19, EMF, FL, KE); continues scarce.

White-breasted Nuthatch
Nested in Roseau, St. Louis, Hennepin, Ramsey, Washington and Olmsted; also reported from 29 other counties throughout the state.

Red-breasted Nuthatch
Reported from Marshall, Lake of the Woods, Hubbard, St. Louis, Lake and Cook.

Brown Creeper
Nested in Lake of the Woods; also reported from Hubbard, Itasca, St. Louis, Lake, Cook and Anoka (Carlos Avery W.M.A., KL).

House Wren
Nested in Marshall, Itasca, Morrison, Lac Qui Parle, Cottonwood, Wright, Anoka, Hennepin, Dakota and Olmsted; also reported from 22 other counties throughout the state; fewer reports than usual.

Winter Wren
Reported from Lake of the Woods, Cass, Itasca, St. Louis, Lake, Cook and Chisago (6-19 and 7-6, Franconia; DGW, RJ).

Long-billed Marsh Wren
Nested in Roseau; also reported from 28 other counties throughout the state; more reports than usual.

Short-billed Marsh Wren
Reported from 19 counties throughout the state.

Mockingbird
A pair, seen by many observers in June at Blue Mounds St. Pk., Rock Co., eventually **nested** in July, raising 2 young (S. Herje, B. Anderson); only the second state nesting record.

Gray Catbird
Nested in Clay and Ramsey; also reported from 34 other counties throughout the state.

Brown Thrasher
Nested in Clay, Morrison, Lac Qui Parle, Hennepin, Dakota and Wabasha; also reported from 26 other counties throughout the state.

American Robin
Nested in Itasca, Lac Qui Parle, Cottonwood, Anoka, Hennepin and Ramsey; also reported from 33 other counties throughout the state.

Wood Thrush
Nested in St. Louis (6-24, L. Vermilion, nest with 4 eggs; C. Thompson) and Anoka; also reported from 14 other counties including Cook, Clay and Lac Qui Parle.

Hermit Thrush
Reported from Lake of the Woods, Aitkin, Itasca, St. Louis, Lake and Cook.

Swainson's Thrush
Reported from Lake of the Woods, Cass, St. Louis, Lake, Cook and a late migrant in Hennepin (6-1, BE).

Veery
Nested in Clearwater, Cass, Morrison and Anoka; also reported from 24 other counties west to Kittson, Marshall, Clay and Otter Tail.

Eastern Bluebird
Nested in Lac Qui Parle, Sherburne, Anoka and Olmsted; also reported from 24 other counties throughout the state.

Blue-gray Gnatcatcher
Nested in Anoka and Wabasha; also reported from Carver, Washington, Goodhue, Olmsted, Winona, Houston and Chisago (7-22, PF).

Golden-crowned Kinglet
Reported from St. Louis, Lake and Cook.

Ruby-crowned Kinglet
Reported from St. Louis, Lake and Cook; a very late migrant was also seen **6-7** Houston (EMF).

Cedar Waxwing
Nested in Cass, Anoka, Washington and Dakota; also reported from 27 other counties throughout the state.

Loggerhead Shrike
Nested in Anoka and Dakota; also reported from Clay, Wright, Sherburne, Lac Qui Parle and Rock; not quite as many as last summer.

Starling
Nested in Itasca, Anoka and Olmsted; also reported from 22 other counties throughout the state.

Bell's Vireo
Again reported near Kellogg, Wabasha Co. until 7-13 (DGW, KE, RJ).

Yellow-throated Vireo
reported from 15 counties northeast to Duluth.

Solitary Vireo
Reported from Lake of the Woods, St. Louis, Lake and Cook.

Red-eyed Vireo
Nested in Cass; also reported from 28 other counties throughout the state.

Philadelphia Vireo
Migrants reported 6-3 Lac Qui Parle (CMB), 6-4 Anoka (KL) and **7-28** Houston (EMF); no reports from the northeast.

Warbling Vireo
Reported from 24 counties northeast to Itasca and Lake.

Black-and-white Warbler
Nested in Cass and Lake; also reported from Roseau, Lake of the Woods, Marshall, Itasca, St. Louis, Cook, Otter Tail (6-17, GO) and Anoka (7-7, JH).

Prothonotary Warbler
Nested in Houston; also reported from Winona.

Golden-winged Warbler
Nested in Clearwater and Anoka; also reported from Cass, Itasca, Crow Wing, Mille Lacs, Otter Tail (6-2, GW) and St. Louis (Duluth, DA; Babbitt, LP, T. Hargy).

Blue-winged Warbler
Reported from Goodhue, Olmsted, Winona, Fillmore, Houston, Anoka ("Brewster's" seen 6-11, JH), **Lake-Cook Co.** line (6-11, Co. Rd. 7, C. Bergman), and **Lake of the Woods** (7-4, G. Hodnefield).

Tennessee Warbler
Apparently nested in **Otter Tail** (6-3 to 6-20, Aurdahl and Long Lake Twps., adults carrying food; GO, S. Millard); also reported from Clearwater, Itasca, St. Louis, Lake and Cook; migrants seen 6-1 Hennepin, **6-11** Lac Qui Parle (CMB), **7-13** Stearns (S. Hansen), and 7-25 Washington (DMB).

Nashville Warbler
Nested in Lake of the Woods, Clearwater and Cass; also reported from Itasca, Mille Lacs, St. Louis, Lake, Cook and Anoka (Cedar Creek Nat. Hist. Area, JH); migrants seen 6-1 Houston and 7-26 Washington.

Northern Parula
Nested in Cass; also reported from Lake of the Woods, Itasca, St. Louis, Lake and Cook.

Yellow Warbler
Nested in Cass, Otter Tail, Itasca and St. Louis; also reported from 26 other counties throughout the state.

Magnolia Warbler
Nested in Clearwater and Lake; also reported from Lake of the Woods, St. Louis and Cook.

Cape May Warbler
Reported from St. Louis, Lake and Marshall (7-23 on, SV; migrant?).

Black-throated Blue Warbler
Again reported by many observers at Heartbreak Hill, Cook Co.; also reported 6-18 Lake (GO) and in June, Itasca St. Pk., Clearwater Co. (B. Fall).

Yellow-rumped Warbler
Reported from Lake of the Woods, Clearwater, Cass, Itasca, Marshall, St. Louis, Lake and Cook.

Black-throated Green Warbler
Nested in Clearwater; also reported from Roseau, Lake of the Woods, Cass, Itasca, St. Louis, Lake and Cook.

Cerulean Warbler
Reported from Chisago, Goodhue, Olmsted, Fillmore, Winona and Houston.

Blackburnian Warbler
Reported from Roseau, Lake of the Woods, Clearwater, Cass, Itasca, St. Louis, Lake and Cook.

Chestnut-sided Warbler
Reported from 12 counties south to Anoka.

Bay-breasted Warbler
Nested in Lake; also reported from Cook and Clearwater (7-14, B. Fall).

Pine Warbler
Reported from Lake of the Woods, Cass, Crow Wing and Itasca.

Palm Warbler
Reported from Lake of the Woods and St. Louis; late migrant 6-4 Fillmore (JD).

Ovenbird
Nested in Lake of the Woods, Anoka and Washington; also reported from 17 other counties west to Marshall and Otter Tail.

Northern Waterthrush
Reported from Clearwater, St. Louis, Lake and Cook.

Louisiana Waterthrush
Nested in Winona (6-2, Elba Twp., adult carrying food; JF); also reported from Chisago (Franconia, many observers) and Houston (Beaver Creek Valley St. Pk.).

KENTUCKY WARBLER
A singing male was found at Afton St. Pk., Washington Co. from 6-17 to 6-19 (R. Glassel).

Connecticut Warbler
Nested in Aitkin (2 nests found, JB); also reported from Roseau, Lake of the Woods, St. Louis, Lake and Pine (6-18, St. Croix St. Pk., R. Kneeskern); migrants seen 6-1 Hennepin and **7-21** Clay (LCF).

Mourning Warbler
Nested in Clearwater; also reported from 10 counties south to Washington (3 banded in June, J. Olyphant); late migrant 6-1 Hennepin.

Common Yellowthroat
Nested in Anoka and Olmsted; also reported from 31 other counties throughout the state; fewer reports than usual.

Wilson's Warbler
Migrants seen 6-1 Hennepin, 6-11 Lac Qui Parle and Duluth; possible summering birds seen 6-15 and **6-30** in St. Louis Co. (Babbitt, T. Hargy; Echo Trail, T. Kemp), and **7-13** in Clearwater Co. (Itasca St. Pk., B. Fall).

Canada Warbler
Nested in Clearwater and Lake; also reported from Lake of the Woods, Cass, St. Louis and Cook; late migrants **6-11** Nicollet and **6-22** Hennepin (both DB).

American Redstart
Nested in Roseau, Cass, Mille Lacs, Hennepin and Olmsted; also reported from 12 other counties southwest only to Otter Tail and Anoka; fewer reports than usual.

House Sparrow
Nested in Lac Qui Parle and Anoka; also reported from 29 other counties throughout the state.

Bobolink
Nested in Aitkin: also reported from 36 other counties throughout the state.

Eastern Meadowlark
Reported from 18 counties west to Lake of the Woods, Cass and Blue Earth.

Western Meadowlark
Reported from 32 counties northeast to Itasca and Aitkin.

Yellow-headed Blackbird
Nested in Itasca, Aitkin, Lac Qui Parle, Anoka, Washington and Wabasha; also reported from 31 other counties northeast to Duluth.

Red-winged Blackbird
Nested in Marshall, St. Louis, Lac Qui Parle and Anoka; also reported from 35 other counties throughout the state.

Orchard Oriole
Nested in Big Stone, Rock and Wabasha; also reported from Norman, Clay, Lac Qui Parle, Grant, Yellow Medicine, Pope, Pipestone, Murray and Houston.

Northern Oriole
Nested in Hubbard, Cass, Itasca, Crow Wing, Stearns, Hennepin, Morrison, Ramsey and Olmsted; also reported from 29 other counties throughout the state.

Brewer's Blackbird
Nested in Lake of the Woods, St. Louis and Hennepin; also reported from 16 other counties south to Big Stone, McLeod, Dakota and Houston.

Common Grackle
Nested in Hubbard, Lac Qui Parle, Cottonwood, Anoka and Olmsted; also reported from 33 other counties throughout the state.

Brown-headed Cowbird
Nested in Hubbard (parasitized Evening Grosbeak and Chipping Sparrow), Rock (Orchard Oriole) and Anoka (Ovenbird and Common Yellowthroat); also reported from 35 other counties throughout the state.

Scarlet Tanager
Nested in Anoka; also reported from 22 other counties southwest to Big Stone and Lac Qui Parle.

Cardinal
Nested in Hennepin, Ramsey and Olmsted; also reported from 11 other counties west to Grant (6-9, KE), Big Stone (BSRP) and Rock (6-29, KE).

Rose-breasted Grosbeak
Nested in Clay, Lac Qui Parle, Anoka, Ramsey, Washington and Olmsted; also reported from 28 other counties throughout the state.

Blue Grosbeak
Reported from Murray (6-9 on, Chandler, 1 male; AD), Nobles (6-27, Adrian, 2 males; KE), and Rock (7 singing males in June, KE; 3 on 7-16, BE).

Indigo Bunting
Nested in Anoka and Washington; also reported from 30 other counties throughout the state.

Dickcissel
Nested in Olmsted; also reported from 26 other counties north to Otter Tail (6-1, GO) and Kittson (6-11, RJ).

Evening Grosbeak
Nested in Hubbard and Crow Wing; also reported from Lake of the Woods, Clearwater, St. Louis, Lake and Cook.

Purple Finch
Reported from 13 counties south to Anoka (7-1, JH) and Olmsted (6-8, JD).

Pine Siskin
Reported from Lake of the Woods, Marshall, St. Louis, Lake and Cook.

American Goldfinch
Reported from 36 counties throughout the state.

Red Crossbill
Reported from Marshall, Clear-

water, Lake, Cook and Hennepin (7-4, RJ).

White-winged Crossbill
One of the largest summer invasions ever, and a prelude to the tremendous numbers later in the fall; reported from Marshall (7-21 on, SV), Clearwater (D. Pearson), Itasca (7-22, MS), St. Louis, Lake and Cook (seen by many observers from 6-18 on with a peak of **200** seen in Cook Co. on 7-31 (RJ).

Rufous-sided Towhee
Reported from Wadena, Cass, Duluth, Sherburne, Anoka, Washington, Wabasha, Winona and Houston.

Lark Bunting
2 reports: 7-12, Collegeville, **Stearns Co.** (S. Hansen); 7-17 Rock (2, BE); probably post-breeding wanderers.

Savannah Sparrow
Nested in Olmsted; also reported from 31 other counties throughout the state.

Grasshopper Sparrow
Reported from 23 counties northeast to Cass.

BAIRD'S SPARROW
After 2 or 3 were found on 5-29 at the Felton prairie by T. Savaloja, many observers added this elusive sparrow to their lists in early June; last seen on 6-18 (JB).

Henslow's Sparrow
Up to 8 seen by many observers at O. L. Kipp St. Pk., Winona Co.; nesting confirmed on 7-10 when 1 young was seen with 2 adults (S. Greenfield).

Le Conte's Sparrow
Reported only from Marshall ("harder to find", SV), Pennington and Aitkin; fewer reports than usual.

Sharp-tailed Sparrow
2 reports: 2 until 7-15 at Agassiz N.W.R., Marshall Co. (SV); "present" all summer at McGregor, Aitkin Co. (JB), plus 2 on 7-15 at Grayling W.M.A. (KE).

Vesper Sparrow
Nested in Polk and Anoka; also reported from 35 other counties northeast to Itasca and Aitkin.

Lark Sparrow
Nested in Renville (7-4, Minnesota R., 4 adults and 5 young; PE); also reported from Sherburne, Anoka and Wabasha.

Dark-eyed Junco
Nested in Lake of the Woods; also reported from Hubbard, Aitkin, St. Louis, Lake, Cook and Otter Tail (6-2 to 7-12, GO).

Chipping Sparrow
Nested in Hubbard and Ramsey; also reported from 36 other counties throughout the state.

Clay-colored Sparrow
Reported from 22 counties south to Pipestone (6-3, KE) and Olmsted (JF).

Field Sparrow
Nested in Anoka, Winona, Otter Tail (until 6-15, Aurdahl Twp., adult seen carrying nest material; GO); also reported from 12 other counties north to Lac Qui Parle and Sherburne.

White-throated Sparrow
Nested in Clearwater; also reported from 12 other counties south to Anoka (Cedar Creek and Carlos Avery, JH, KL); more reports than usual.

Lincoln's Sparrow
Reported from Koochiching, St. Louis, Lake, Cook and Lake of the Woods.

Swamp Sparrow
Nested in Olmsted; also reported from 20 other counties throughout the state.

Song Sparrow
Nested in Itasca, St. Louis and Anoka; also reported from 31 other counties throughout the state.

Chestnut-collared Longspur
Reported from the Felton prairie, Clay Co.

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A NESTING STUDY OF RUFFED GROUSE AT THE CEDAR CREEK NATURAL HISTORY AREA, MINNESOTA

Stephen J. Maxson

During a radio-telemetry study of female Ruffed Grouse in three breeding seasons (1971-73) I documented activity patterns, home range and habitat use, and nesting information. This study was conducted at the Cedar Creek Natural History Area about 48 km north of Minneapolis. In general the topography of the area is flat to slightly rolling. Uplands consist primarily of oak forests and old fields with scattered areas of aspen and birch. Lowlands are made up of mixed hardwood forests and alder, tamarack, or white cedar swamps.

This paper presents nesting chronologies, characteristics of nest sites, and TV observations of an incubating hen, while other aspects of my study are reported elsewhere (Maxson 1977, in press).

METHODS

Twenty female Ruffed Grouse (6 adults — 22 months or older, 13 yearlings, 1 unknown) were captured by baited lily-pad traps (Gullion 1965), nest traps (Weller 1957), or by night-lighting (Huempfner **et al.** 1975). All birds were weighed, aged (Davis 1969), leg-banded and equipped with a 24-26 gram radio transmitter similar in harness design to one described by Brander (1968). When properly fitted, the transmitters had no noticeable effects on the bird's behavior. Radio-marked grouse were continuously monitored with an automatic radio-tracking system (Cochran **et al.** 1965).

One to five persons made systematic searches for nests of unmarked hens resulting in six nests being found in 1971 but none in 1972, although the search effort was about the same each year. The six hens were nest trapped and fitted with transmitters. Two nests were found in 1973 but these hens were not marked. Nests of 14 incubating radio-marked hens were found with a hand-held portable receiver to determine exact locations as well as clutch sizes.

A small TV camera was placed near the nest of Hen 2219 for 16 days. A TV monitor in the laboratory made possible day time observations of this bird's incubation behavior.

RESULTS AND DISCUSSION

Nesting data for the 12 hens having the most complete records are presented in Table 1. For nine hens, the telemetry record indicated the date the first egg was laid as well as the pattern of egg laying. For nine other hens whose date of incubation onset could not be determined, the egg laying rates and dates of first eggs were calculated based on rates determined in this study, i.e., 10-11 eggs = 14 days and 12-13 eggs = 17 days. Dates first eggs were laid ranged from 19-28 April (1971—8 nests), 24 April - 3 May (1972—8 nests), and 21-24 April (1973—2 nests). In each year adults averaged about two days earlier in onset of laying than yearlings. Details of the laying rhythm are discussed in Maxson (1977). Bump **et al.** (1947) reported an average egg laying rate of two eggs every three days. Kupa (1966) found a laying rate of .67 eggs per day. Barrett (1970) reported laying rates of nine eggs in 10 days and 10 eggs in 14 days for two nests. Although some individual variation was evident in my study, the determined rates of laying were somewhat faster than reported by Bump **et al.** (1947).

Clutch sizes ranging from 7-14 eggs (average 11.1) were comparable to the findings of other researchers, e.g.,

Table 1. Nesting data.

Bird No.	Age	Date of first egg	Egg-laying period (days)	Clutch size	Incubation onset	Incubation period (days)	Hatch date	No. eggs hatched	Remarks
1657	Y			11	8 May 71	26	3 Jun	11	Left nest approx. 08:45
1690	Y	28 Apr	15	10	12 May 71	24	5 Jun	10	Left nest approx. 10:15
1691	A	23 Apr	19	12	11 May 71	25	5 Jun	12	Left nest approx. 09:16
1695	Y	25 Apr	25*	8	20 May 71	24	13 Jun	8	Left nest approx. 11:36
2210	Y	29 Apr	17	12	15 May 72				Killed by pred. 24 May
2219	Y	1 May	14	11	14 May 72	26	8 Jun	2	Nest destroyed 2 Jun, 2 eggs hatched in incubator
2235	A			12	13 May 72	24	6 Jun	10	Left nest approx. 06:46, 2 eggs addled
2238	Y	30 Apr	17	13	16 May 72	25	10 Jun	11	Left nest approx. 14:06, 2 eggs addled
2239	Y	30 Apr	14	10	13 May 72	25	7 Jun	9	Left nest approx. 11:00, 1 egg addled
2241	Y	24 Apr	17	13	10 May 72				Nest destroyed 26 May
2246	A	28 Apr	17	13	14 May 72	25	8 Jun	13	Left nest approx. 10:38
2248	Y			12	19 May 72	24	12 Jun	12	Left nest approx. 18:25

*Includes laying time for first and second clutches combined.

Bump **et al.** 1947 — 11.5, Fallis and Hope 1950 — 12.2, Kupa 1966 — 9.9, Rusch and Keith 1971 — 11.6, Cringan 1970 — 11.4. There was no difference in average clutch size between adults and yearlings.

Three nests had small clutches (7-8 eggs) and were probably renests. Two of these (including Hen 1695 — Table 1) were started later than the other hens. Maxson (1977) presented evidence based on egg laying patterns that Hen 1695 began laying a first clutch on 25 April and laid up to 10 eggs which were probably destroyed by a predator on 8 May before incubation started. On 9 May the second nest of eight eggs was started in a new location. None of six hens that were already incubating when their eggs were destroyed attempted to renest. Bump **et all.** (1947) and Edminster (1947) discuss renesting in Ruffed Grouse, although these authors apparently did not have marked birds at their disposal. Clutch sizes for their presumed renesting birds averaged 7.5 and 7.9 eggs respectively. Cringan (1970) assumed that late hatching clutches, which averaged 8.5 eggs, were renests. Porath and Vohs (1972) stated that renesting has not been convincingly proven in this species. However, Barrett (1970) reported that a radio-marked yearling hen, which had lost its first clutch of four eggs to a predator prior to incubation onset, laid a second clutch of four eggs.

Incubation periods, i.e. the interval from the onset of incubation until the hen left the nest with the brood, ranged from 24 to 26 days. Bump **et al.** (1947) reported an average incubation period of 23.5 days under game-farm conditions. Barrett (1970) reported incubation periods of 24 to 25 days for two nests, and Schladweiler (1965) recorded a 26-day incubation period for one nest. Variation in incubation periods may be influenced by the proportion of time a hen spends on the nest and environmental temperatures during the incubation period.

Hatching dates at Cedar Creek averaged four days later in 1972 (8 June) than in 1971 (4 June). The two 1973 nests of 11 and 14 eggs hatched on 27 May and 4 June respectively. There appears to be a general tendency for nests of Ruffed Grouse to hatch earlier in the more southerly portions of its range than in localities further north. Porath and Vohs (1972) reported the peak of hatching occurred during the last week of May in northeastern Iowa. Bump **et al.** (1947) stated that most nests in New York hatched during the last week of May and the first week of June. Cringan (1970) recorded mean hatching dates from 29 May - 4 June during 1964 - 1969 in Southern Ontario. Hale and Wendt (1951) reported 61 percent of 42 broods hatching between 27 May - 9 June in northern Wisconsin, whereas Thompson (1958) reported average Wisconsin hatching dates from 1 June - 10 June during 1952 - 1957. Kupa (1966) stated that nests at Cloquet, Minnesota, hatched between 4 June and 20 June with 75 percent hatching by 12 June.

The telemetry record indicated that hens left the nest with their newly hatched chicks at various times between 06:46 - 18:25 (C.S.T.). None departed the nest during the hours of darkness. Broods did not travel far the first day but thereafter roamed widely compared to broodless hens (Maxson, in press).

Nest failures were similar during 1971-72. In 1971 two hens were killed by predators during incubation while three had clutches destroyed. One hen was killed and three clutches destroyed in 1972. Thirteen of 22 (59%) nests hatched which is similar to the figure of 61 percent reported by Bump **et al.** (1947). Gullion (1970) stated that normally 68 percent of the eggs laid could be expected to hatch. In my study 144 of 244 (59%) eggs (excluding those hatched in an incubator) hatched. One egg (1971) and five eggs (1972) were addled. Examination indicated that these eggs were either infertile or the embryos had died at an early stage.

Table 2. Characteristics of nest sites.

Bird No.	Habitat nest located in	Relationship of nest to solid object		Habitat opening near nest	Distance from nest to opening (m)	% standing water within 10x10m quadrat
		Species	DBH (cm)			
1657	tamarack	Am. elm	8	none		20
1684	oak	oak deadfall		open meadow	6	0
1690	mixed hdwds	alder	6	none		85
1691	oak	none		open field	6	10
1695	mixed hdwds	aspen	13	county road	7	0
1697	oak	red oak	27	open meadow	7	0
1698	oak	red oak	19	none		0
1699	mixed hdwds	red maple	19	none		60
2200	mixed hdwds	white birch	12	none		0
2201	oak	red oak	29	dirt road	4	0
2202	oak	red oak	21	open field	2	0
2210	mixed hdwds	white birch	14	none		5
2219	white birch	white birch	14	none		0
2235	oak	red oak	24	county road	1	0
2238	mixed hdwds	white birch	13	none		35
2239	mixed hdwds	none		none		0
2241	oak	red oak	19	none		0
2245	mixed shrubs	none		none		50
2246	mixed hdwds	alder	5	open field	10	0
2248	mixed hdwds	white birch	13	none		35
"A"	aspen	aspen		open field	5	0
"B"	aspen	aspen		none		0

Characteristics of nest sites are presented in Table 2. Seventeen nests were in mixed hardwood or oak habitats and in areas relatively open at ground level at the time of nest initiation. Placement of nests in open areas has been noted by other workers (e.g. Bump **et al.** 1947, Kupa 1966, Moulton 1968). The openness apparently enables the hen to observe potential predators and gives her an avenue of escape. By the time of hatching, nests in mixed hardwoods were surrounded by new herbaceous growth (mostly ferns) up to 1 meter in height. Oak habitats remained relatively open. Most nests were placed at the base of a hardwood tree. The species and size of tree selected varied (Table 2) and appeared to depend largely on what was available in the nesting area. One nest was placed under the brushy end of an oak deadfall. Three were not placed near trees or other solid objects. In relation to the tree or to slope when the nest was not at the base of a tree, nests faced all directions. However, eight nests faced south or southwest suggesting a slight preference for these exposures.

Bump **et al.** (1947) and Edminster (1947) reported that many nests were within 100 feet (30.5 m) of an opening in the woods. In my study nine nests were within 10 meters of openings. Ruffed Grouse are generally considered to nest in upland habitats but I found seven nests in areas containing considerable amounts (10 - 85%) of standing water within a 10 x 10 meter quadrat around the nest. There appeared to be no shortage of upland sites if hens had chosen to use them.

Hen 2219 was observed by a TV monitor leaving its nest to feed and returning after feeding periods a total of 12 and 17 times respectively. Departures from the nest were markedly uniform. In each case the hen stood up, walked a short distance in the same direction each time, and flew to a feeding site, usually a clone of female aspens 55 meters from the nest. These flights began 0.5 meters (8 times), 0.8 meters (3 times) and 1.2 meters (once) from the nest. No attempt was made to cover the eggs. Eggs were also left uncovered at all other nests observed while the hen was absent.

Return trips to the nest were much less uniform. Thirteen times the hen walked into the TV field of view (an area of about 1.5 meters on either side and in front of the nest), likely after having landed near the nest outside the picture area. Twice the bird landed within 0.6 meters of the nest and three times within 1.2 - 1.5 meters. During these returns the hen approached the nest from various directions. Typically, the hen walked directly to the nest and settled on the eggs within a period of 30 seconds. The incubating hen usually remained completely motionless. Occasionally it shuffled around on the eggs for a few seconds, and at times was observed to turn an egg or two. In general these observations agree with those of Bump **et al.** (1947), who observed two nests over a three-day period.

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LITERATURE CITED

Barrett, R. W. 1970. Behavior of ruffed grouse during the breeding and early brood periods. Ph.D. Thesis, Univ. Minnesota. 265 pp.

Brander, R. B. 1968. A radio-package harness for game birds. J. Wildl. Manage. 32:630-632.

Bump, G., R. W. Darrow, F. F. Edminster, and W. F. Crissey. 1947.

The ruffed grouse: life history, propagation, management. New York State Conserv. Dept., Albany, 915 pp.

Cochran, W. W., D. W. Warner, J. R. Tester, and V. B. Kuechle. 1965. Automatic radio-tracking system for monitoring animal movements. BioScience 15:98-100.

Cringan, A. T. 1970. Reproductive biology of ruffed grouse in southern Ontario, 1964-1969. J. Wildl. Manage. 34:756-761.

Davis, J. A. 1969. Aging and sexing criteria for Ohio ruffed grouse. J. Wildl. Manage. 33:628-636.

Edminster, F. C. 1947. The ruffed grouse, its life story, ecology and management. The Macmillan Company, New York. 385 pp.

Fallis, A. M. and C. E. Hope. 1950. Observations of ruffed grouse in southern Ontario with a discussion of cycles. Canadian Field Naturalist 64:82-85.

Gullion, G. W. 1965. Improvements in methods for trapping and marking ruffed grouse. J. Wildl. Manage. 29:109-116.

Gullion, G. W. 1970. The ruffed grouse in northern Minnesota. Revised version. Univ. Minnesota, Forest Wildlife Relations Project. 37 pp. (multilith).

Hale, J. B., and R. F. Wendt. 1951. Ruffed grouse hatching dates in Wisconsin. J. Wildl. Manage. 15:195-199.

Huempfner, R. A., S. J. Maxson, G. J. Erickson, and R. J. Schuster. 1975. Recapturing radio-tagged ruffed grouse by nightlighting and snowburrow netting. J. Wildl. Manage. 39:821-823.

Kupa, J. J. 1966. Ecological studies of the female ruffed grouse (**Bonasa umbellus** L.) at the Cloquet Forest Research Center, Minnesota. Ph.D. Thesis, Univ. Minnesota. 101 pp.

Maxson, S. J. 1977. Activity patterns of female ruffed grouse during the breeding season. Wilson Bull. 89: 439-455.

———. in press. Evidence of brood adoption by ruffed grouse. Wilson Bull.

———. in press. Spring home range and habitat use by female ruffed grouse. J. Wildl. Manage.

Moulton, J. C. 1968. Ruffed grouse habitat requirements and management opportunities. Wis. Dept. Nat. Resources Res. Dept. 36. 32 pp.

Porath, W. R., and P. A. Vohs, Jr. 1972. Population ecology of ruffed grouse in northeastern Iowa. J. Wildl. Manage. 36:793-802.

Rusch, D. H., and L. B. Keith. 1971. Seasonal and annual trends in numbers of Alberta ruffed grouse. J. Wildl. Manage. 35:803-822.

Schladweiler, P. 1965. Movements and activities of ruffed grouse (**Bonasa umbellus** L.) during the summer period. M. S. Thesis, Univ. Minnesota. 107 pp.

Thompson, D. R. 1958. Ruffed grouse inventory: brood observations. Wis. Wildl. Research 16:22-23.

Weller, M. W. 1957. An automatic nest-trap for waterfowl. J. Wildl. Manage. 21:456-457.

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BLACK HAWK FOUND IN BEMIDJI

by Laddie Elwell and
John and Ann Mathisen

Black Hawks (**Buteogallus anthracinus**) are found in parts of Texas, New Mexico, and Arizona, but the major portion of their range extends south through Mexico to northern Columbia and includes Cuba and certain other Carribean islands. Some records exist for Utah and Florida, but there seem to be no records of wild Black Hawk sightings in any northern states.

It came as quite a suprise then when a gravely injured Black Hawk was brought to John Mathisen and Laddie Elwell on September 18, 1976. The bird had flown up in front of a pickup truck being driven along the Power Dam Road (State Aid Highway #12) seven miles east of Bemidji. The driver, "Bud" (Claude) Roberts of Brainerd, had seen the bird along the roadside, apparently picking at some gravel, and had thought it was a crow until it suddenly took wing and collided with his truck. Upon walking back to see if there was anything he could do for the bird, Roberts was interested to see that it was an unfamiliar hawk and he picked up the dazed bird with the intention of finding someone to care for it. The young female Black Hawk was badly injured: she was bleeding from the mouth, was unable to stand, and respirations could be heard coming through the exposed end of a fractured humerus. She died before she could be flown to the raptor rehabilitation facility at the Veterinary College of the University of Minnesota in St. Paul. She remained alert up to the moment of her death.

The hawk was measured and mounted by Diane Morris, the curator-naturalist at Bemidji State University. Autopsy revealed a multiply-fractured pelvis and an empty digestive tract; the ovary contained developing follicles and the bird appeared to be in a normal nutritional state. Because the bird had regurgitated food given her during the day and a half interval between her accident and death (and had been observed defecating), it was not surprising that the digestive tract contained only traces of the fluids that had been administrered to her.

Because she was partway through a molt and because of excessively worn and frayed secondaries and breast feathers, the Black Hawk is not a very impressive mount. Fret marks are visible in secondaries, coverts, and tail feathers. There is no obvious wear at the tips of the tail or primary feathers and no traces of jesses (leather thongs frequently placed on the legs of raptors by falconers) can be seen. The condition of the bill and talons appear comparable to those of wild birds in our collection. The mounted specimen was taken to the raptor clinic of the University of Minnesota Veterinary College where it was examined by Dr. Pat Redig and Mark Fuller who were unable to find any clear signs that the bird had been in captivity. Fret marks are signs of dietary or other stress and can be found in both wild and captive birds.

The Black Hawk weighed approximately 700 grams, was 519mm long and had a wingspan of 1159mm. Other measurements were: tail 219mm, tarsus 90mm, wing 374mm, eye 13mm, and ovary 14.7 x 6.7mm. Black feathers were coming in on the breast and ventral surfaces of the wings, but the longer remiges were amber-brown or banded brown and white and there was considerable white in the proximal portions of the primaries. The white band and edging on the black tail were very distinct and provided the first clues to the identity of this bewitching bird. The specimen is on display at Bemidji State University, vertebrate collection accession number BSC3867.

Fig. 1. Black Hawk — Dorsal Surface

Fig. 2. Black Hawk — Ventral Surface

It is interesting that Mr. and Mrs. Roberts remembered driving along the same road the week previous to the accident and seeing "a very dark hawk" which prompted Mr. Roberts, who is a birder, to remark that he had never seen a hawk like that before.

The site of the incident, section 1 of township 146N, range 32W, is about two miles from the Power Dam Road crossing over the Mississippi River and a mile and a half from a closer bend of the River. Swenson Lake lies about a half mile south. Several authorities (May, 1935; Bent, 1937; Phillips et al., 1964) state that Black Hawks are most typically found near running water, often in forested areas near streams. In the Caribbean the bird is called the "Crab Hawk" because of its habit of feeding chiefly on crabs (Bond, 1974). Bent (1937) lists a variety of food preferences including crabs, fish, small birds, reptiles, insects and frogs.

Although the incident was picked up by the **Bemidji Pioneer**, the Duluth **News-Tribune,** and by Jim Kimball of the Minneapolis **Tribune,** we have been unable to gain any additional information about the bird and will probably never find out how it happened to be approximately 1200 to 1400 miles from the nearest potrions of its expected range in the United States. There appear to be three possibilities to consider, either separately or combined: (1) it had been in captivity and escaped or was released, (2) it was accidently trapped in a boxcar, truck, or other carrier and escaped or was freed elsewhere, and (3) it flew to Minnesota under its own power. What happened is anyone's guess, though the absence of feather wear typical of captive birds and the behavior of the bird make us think it may very well have been wild. Dr. Clayton White (personal communication) of Brigham Young University states that the Black Hawk "is really not given to wandering as are some species" and does not think it "made its way to Minnesota by natural means. Helen Snyder (personal communication) of Palmdale, Florida, who also is interested in Black Hawks, thinks that it may indeed be a wild bird and indicates that heavy wear on the secondaries is a characteristic of wild Black Hawks.

The fact that Black Hawks are found on certain Caribbean Islands, Florida, and certain isolated portions of the United States southwest indicates that some Black Hawks have wandered. An investigation of weather patterns during late August and early September in 1976 revealed that southerly winds were most common, though there was no unusual weather pattern that could have been implicated realistically in the bird's presence so far north of its normal range. Although subsequent events may prove us wrong, we think it is reasonable that a restless young bird may have taken advantage of prevailing southerly winds to make its way to northern Minnesota.

REFERENCES

Bent, A. C. 1937. Life histories of North American birds of prey, part 1. U.S. National Museum Bulletin No. 167.

Bond, J. 1974. Birds of the West Indies. Collins Clear Type Press, St. James Place, London.

Graff, J. V. 1978. National Oceanic and Atmospheric Administration, National Weather Service Forecast Office, Minneapolis. Personal letter summarizing weather data for August and September 1976. February 21, 1978.

May, J. B. 1935. The hawks of North America. New York, The Moore Press Inc.

Phillips, A., J. Marshall, and G. Monson. 1964. The birds of Arizona. Tucson, The University of Arizona Press.

Snyder, H. 1978. Box 99, Palmdale, Florida. Letter summarizing feather wear and other aspects relating to Black Hawks. February 17.

White, C. M. 1976. Department of Zoology, Brigham Young University, Provo, Utah. Letter confirming species indentification from pictures and discussing range of Black Hawks. November 19.

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STATE ANIMAL RECORDS REQUESTED BY THE DEPARTMENT OF NATURAL RESOURCES

One of the goals of the Department of Natural Resources nongame program is to learn more about the distribution and abundance of a variety of uncommon wildlife species. Minnesota Ornithologists' Union members can help by sending in their observations of the following species: cougar, lynx, bobcat, wolverine, pine marten, opossum, least weasel, long-tailed weasel, mule deer, pronghorn, Franklin's ground squirrel, Richardson's ground squirrel (flickertail), spotted skunk (civet cat), blue-tailed skink (known only from Redwood and Yellow Medicine Counties), massasauga (known only from Wabasha County), Blanding's turtle, false map turtle, wood turtle, common (redspotted) newt, red-backed salamander, six-lined racerunner, blue-spotted salamander, smooth green snake, and ring-necked snake. Observations should include the date, general location and habitat, species, number of individuals, section number (if known), township, range, county, and observer's name and address. Key identifying marks should also be described to help verify the record.

LOON RESEARCH CONFERENCE

The North American Conference on Common Loon Research and Management, sponsored by the National Audubon Society and hosted by Syracuse University, was held 12-14 August 1977 at the Minnowbrook Conference Center, Blue Mountain Lake, N.Y. Priorities determined by the participants included: (1) establishment of an informal working group to serve as a clearinghouse for information on research and management efforts, (2) collection of historical loon nesting records for assessment of recent range contraction or expansion by this species, (3) coordination and standardization of breeding surveys and an effort to document the current breeding status of the loon, particularly in the northeastern U.S., and (4) expanded research, including increased banding efforts and initiation of a winter banding program.

The working group, consisting of Judith W. McIntyre of Syracuse University, Richard L. Plunkett of the National Audubon Society, and Rawson L. Wood of the Loon Preservation Committee of the Audubon Society of New Hampshire, plans another meeting next year. Requests for conference summaries and other inquiries may be directed to the coordinator, **Judith W. McIntyre, Biology Department, Syracuse University, Syracuse, N.Y. 13210.**

MAY BIG DAY IN THE DULUTH AREA

Scott Lounsbury

The spring migration of birds always brings high ambitions and a refreshing outlook to those interested in birds. During the 1977 spring migration Jerry Niemi, JoAnn Hanowski, and I had been watching the migration build since the first hints of spring. JoAnn and I had been afield working with Jerry in a bird inventory of the Duluth-Superior harbor area. The project was conducted through the University of Minnesota-Duluth, Department of Biology and the Lake Superior Basin Studies Center. In conjunction with this inventory we decided to organize the third May Big Day in the Duluth area. May 20 was selected with the hope of hitting the migration peak.

Two previous years Jerry and others held Big Day counts within the south St. Louis County area (**Loon** 47:156-59, **Loon** 48:53); however, this year we decided to restrict ourselves to a geographic area and not to political boundaries. Thus, we settled on the St. Louis River estuary. This was particularly relevant for the Duluth area and for the project we were working on. This year's count would then cross into Wisconsin as well as Minnesota, but stay within the immediate area of the river.

Jerry, in previous counts, had set a goal of 150 species. This being my first Big Day I felt fairly confident or at least quite ambitious. However, the count of last year was a somewhat disappointing 120 species.

The morning of the count arrived. Out of bed at 1:30 a.m. and on our way by 2:00 a.m., our first stop was the Allouez Bay area which includes Wisconsin Point. Here we picked up a few unexpected species for this hour — the Swamp Sparrow, Sora, and Virginia Rail. But, despite Jerry's calling, no owls were heard. Next we went to Jay Cooke Park where we felt sure of hearing at least the Barred Owl. But, probably due to heavy fog, we were unsuccessful again despite all our efforts (e.g. calling, tape playback). Our start was less than encouraging, but dawn was approaching and now, hopefully we would be adding new species fast. From dawn through the afternoon we added new species at a moderate but steady pace. Highlights included many groups of warblers in full breeding plumage. By mid-afternoon we had identified a total of 23 species of warblers and all five of the vireos likely for this area. In addition, 20 species of shorebirds had been tallied. Among them were the Piping Plover, Solitary Sandpiper, Hudsonian Godwit, and Wilson's Phalarope. Success for a Big Day is dictated to a large degree by hitting the warblers and shorebirds at their migration peak. Luckily our timing this year was just right.

On a return trip to Wisconsin Point we found a Gray Jay, a Black Duck, a Pintail drake, a hen Canvasback, and as we were leaving the area we spotted an Osprey perched high on a dead pine in the marsh. Sighting these five species which could easily be missed in our count area was a good omen and luck now seemed to be going our way.

Later in the afternoon, we hopped into the boat to look for ducks we had not yet recorded. This proved successful since our boat observations included a Black and Surf Scoter, Horned Grebe, and Ruddy Duck. The day wore on and now the real work began. We had topped 140 species with still a few common species lacking, but each new one now was a milestone. We reached 146 and felt certain we could find an American Wigeon which we had seen the previous day, but this was not to be and time was slipping by ever faster. By 6:30 p.m. we decided we were stuck at 146 — an excellent total for the estuary area (Jay

Cooke Park to Minnesota and Wisconsin Points). However, we felt confident we could reach our goal of 150 species if we visited some suburban feeder areas and some farmland.

After a quick meal and getting our second wind, we decided to head up into Duluth and go for the 150 mark. In the eastern end of Duluth we found the Purple Finch and Evening Grosbeak, but missed one we felt sure of finding — the Pine Siskin. This put us to 148. The sun was slipping low quickly and 150 looked further and further away. Now, quickly over the hill we went into farm country. Here we picked up a Vesper Sparrow. One more to go! With a scream from JoAnn came 150, an Eastern Bluebird which flew a circle and lit on its nest box. Soon afterwards a meadowlark sp. was spotted for 151.

Now in darkness and renewed memories of the morning's unsuccessful attempts for owls, our first stop brought an American Woodcock. In the stillness of the night we listened to their courtship performance. By a stroke of luck we heard the Saw-whet Owl at the same spot, number 153. With many doubts, JoAnn and I decided to give Jerry one more chance to hoot for the Barred Owl. Arriving at our last stop we got a response, than another, and soon four Barred Owls were calling excitedly on both sides of us. After a short time, one of the owls flew up next to the road and lit. Silhouetted against the star filled sky above us, the bird provided an enchanting conclusion to a good day afield.

Total of 154 species. Weather: Morning fog, occasional light drizzle, calm; afternoon fog clearing, intermittent showers; evening, clearing. Little or no wind all day. Temp: 50 to 65 degrees F. Miles by car: 45; walking: 4, boat: 10. Man-hours: 61.

Total	species
3	Common Loon
1	Horned Grebe
5	Pied-billed Grebe
68	Double-crested Cormorant
28	Great Blue Heron
8	Northern Green Heron
3	American Bittern
122	Mallard
1	Black Duck
1	Pintail
4	Green-winged Teal
97	Blue-winged Teal
13	Northern Shoveler
59	Wood Duck
8	Redhead
1	Canvasback
4	Greater Scaup
211	Lesser Scaup
4	Common Goldeneye
2	Bufflehead
1	Surf Scoter
1	Black Scoter
1	Ruddy Duck
3	Red-breasted Merganser
3	Sharp-shinned Hawk
1	Broad-winged Hawk
1	Osprey
3	American Kestrel
3	Ring-necked Pheasant
3	Virginia Rail
1	Sora
22	American Coot
34	Semipalmated Plover
1	Piping Plover
62	Killdeer
4	Black-bellied Plover
98	Ruddy Turnstone
3	American Woodcock
2	Common Snipe
20	Spotted Sandpiper
2	Solitary Sandpiper
20	Lesser Yellowlegs
2	Pectoral Sandpiper
14	White-rumped Sandpiper
4	Baird's Sandpiper
32	Least Sandpiper
96	Dunlin
15	Semipalmated Sandpiper
3	Sanderling
4	Dowitcher sp.
11	Hudsonian Godwit
1	Wilson's Phalarope
237	Herring Gull
786	Ring-billed Gull
610	Bonaparte's Gull
3	Forster's Tern
378	Common Tern
12	Caspian Tern
22	Black Tern

35 Rock Dove
11 Mourning Dove
4 Black-billed Cuckoo
4 Barred Owl
1 Saw-whet Owl
6 Common Nighthawk
10 Chimney Swift
1 Ruby-throated Hummingbird
6 Belted Kingfisher
13 Common Flicker
1 Yellow-bellied Sapsucker
1 Hairy Woodpecker
2 Downy Woodpecker
19 Eastern Kingbird
14 Great Crested Flycatcher
1 Eastern Phoebe
2 Alder Flycatcher
19 Least Flycatcher
1 Eastern Wood Pewee
100 Tree Swallow
80 Bank Swallow
8 Rough-winged Swallow
10 Barn Swallow
61 Cliff Swallow
16 Purple Martin
1 Gray Jay
8 Blue Jay
11 Common Crow
5 Black-capped Chickadee
5 House Wren
1 Winter Wren
1 Long-billed Marsh Wren
3 Short-billed Marsh Wren
11 Gray Catbird
5 Brown Thrasher
69 American Robin
1 Wood Thrush
1 Hermit Thrush
2 Swainson's Thrush
32 Veery
1 Eastern Bluebird
1 Golden-crowned Kinglet
7 Ruby-crowned Kinglet
5 Cedar Waxwing
60 Starling
1 Yellow-throated Vireo
1 Solitary Vireo
8 Red-eyed Vireo
1 Philadelphia Vireo
8 Warbling Vireo
10 Black-and-white Warbler
1 Golden-winged Warbler
6 Tennessee Warbler
12 Nashville Warbler

1	Northern Parula
27	Yellow Warbler
2	Magnolia Warbler
6	Cape May Warbler
8	Yellow-rumped Warbler
6	Black-throated Green Warbler
10	Blackburnian Warbler
16	Chestnut-sided Warbler
6	Bay-breasted Warbler
1	Blackpoll Warbler
4	Palm Warbler
6	Ovenbird
6	Northern Waterthrush
1	Connecticut Warbler
2	Mourning Warbler
23	Common Yellowthroat
3	Wilson's Warbler
4	Canada Warbler
26	American Redstart
9	House Sparrow
4	Bobolink
1	Meadowlark sp.
5	Yellow-headed Blackbird
84	Red-winged Blackbird
12	Northern Oriole
33	Brewer's Blackbird
47	Common Grackle
46	Brown-headed Cowbird
3	Scarlet Tanager
7	Rose-breasted Grosbeak
4	Evening Grosbeak
1	Purple Finch
23	American Goldfinch
24	Savannah Sparrow
1	Vesper Sparrow
13	Chipping Sparrow
15	Clay-colored Sparrow
16	White-throated Sparrow
2	Lincoln's Sparrow
6	Swamp Sparrow
38	Song Sparrow
4418	Total

% of species identified:
Niemi 98%
Lounsbury 98%
Hanowski 97%

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THE COMMON LOON: PART III

Population in Itasca State Park Minnesota 1957-1976

Judy McIntyre

There have been several recent papers declaring a decline in Common Loon (**Gavia immer**) reproductive success and/or population numbers (Ream 1976, Hammond and Wood 1976, LaBastille 1977, Williams 1978) but few data have been presented to substantiate these claims. A major problem in assessing the current state of avian populations is paucity of reliable past records. This is particularly difficult for non-game species and for birds that hold large territories and are therefore widely spaced on the breeding grounds.

Itasca State Park, Minnesota has been studied extensively by biologists and foresters during the past several decades through the summer research program at the University of Minnesota Lake Itasca Forestry and Biology Field Station. Loon censuses were conducted in the park from 1957 to 1976 (Krause and Chambers 1957, Chambers 1958, Eberly and Dunstan 1968, this study 1972 and 1976).

Negative response of an avian population to increased human recreational use in nesting areas has not been documented, yet these pressures are frequently given as the cause for loon declines. Thus, data on loon population and productivity over time at a site where recreational use has not substantially changed nor lakeshore development increased are particularly helpful to use for comparison with similar data from locations where these changes have been considerable. This paper presents data from a Common Loon population in a state park where there has been no lakeshore

development nor additional access to lakes for recreational use during a 20-year period.

STUDY AREA AND METHODS

Fig. 1 is Itasca State Park with outlines delineating lakes within the park boundaries. I surveyed 54 and 66 lakes in 1972 and 1976 respectively; fewer lakes were censused in other years, not always the same ones in each study. However, 19 lakes were included in all surveys; these are shown in black.

I surveyed lakes during June, and in July and August lakes with territorial pairs were checked further to determine hatching and fledging success. Lakes were checked in the middle of the day because loons are often absent from territories early in the morning and late in the afternoon but they are generally on territory between approximately 10:00 and 16:00.

Boats were used on larger lakes; smaller ones (less than 12 ha) could be surveyed from shore using a 40x spotting scope and 7 x 50 binoculars. Loons respond to an imitation short whistled call (the Yowp vocalization), by swimming to the center of the territory. If a pair responded, they were counted as a non-nesting pair; if a single responded, the lake was investigated further for the presence of a nest; if no loons appeared, and the lake was larger than 12 ha, it was checked by boat.

RESULTS

Table 1 gives survey results. Nineteen lakes were included in all surveys, and comparisons over time are based on analysis of data from these 19. The increase in numbers of adults has been slight since 1957, but not significant (F-value 1.83, df=4 and 72, $P > .05$; Figure 2). The young/pair ratio fluctuated from year to year but there was at no time a statistically significant increase or decrease in productivity (a 2 x 5 contingency Chi-square has a probability of $P > .05$ for these data).

The 19 lakes reported in all surveys were always included because they were the easiest to get to, but all lakes with human activity were part of this complement. Therefore, I wondered if it was valid to assume the results applied to the entire Park. Four lakes, Elk, Itasca, Mary, and Squaw, are used extensively for boating and fishing, but the other 15 incur no human intrusion, nor do any of the other lakes in the park. Productivity on these four over the combined five surveys was .24 young/pair. Other lakes checked in the five censuses had an overall ratio of .41, not a significantly higher value ($t=1.1959$, df=91, $P > .05$).

Productivity in Itasca Park is similar to that found in other surveys conducted two or more years on the same complement of lakes (Table 2).

DISCUSSION

The population of Common Loons in Itasca State Park has remained stable during the past 20 years with a slight, but statistically insignificant increase. Territorial pairs have increased from three to four and single residents vary annually from two to four on Lake Itasca.

The early surveys indicate there was no pair on Deming. However the Deming pair does move back and forth between Deming and East Twin, utilizing East Twin for auxiliary feeding and nesting on Deming. It is questionable if the 1957 survey should not indicate there was a pair on Deming rather than a single on Deming and another single on East Twin. There has been a territorial pair on this lake every year since I began my studies in 1968, and young were raised there in 1970 and 1974. Both members of the Deming pair were killed in separate accidents in 1973 and a new territorial pair was in residence before the end of the summer. Each year since then there has been a resident pair, and the nest site has been the same one used in 1972. This indicates that a nest site good for one loon is good for another, and use of the

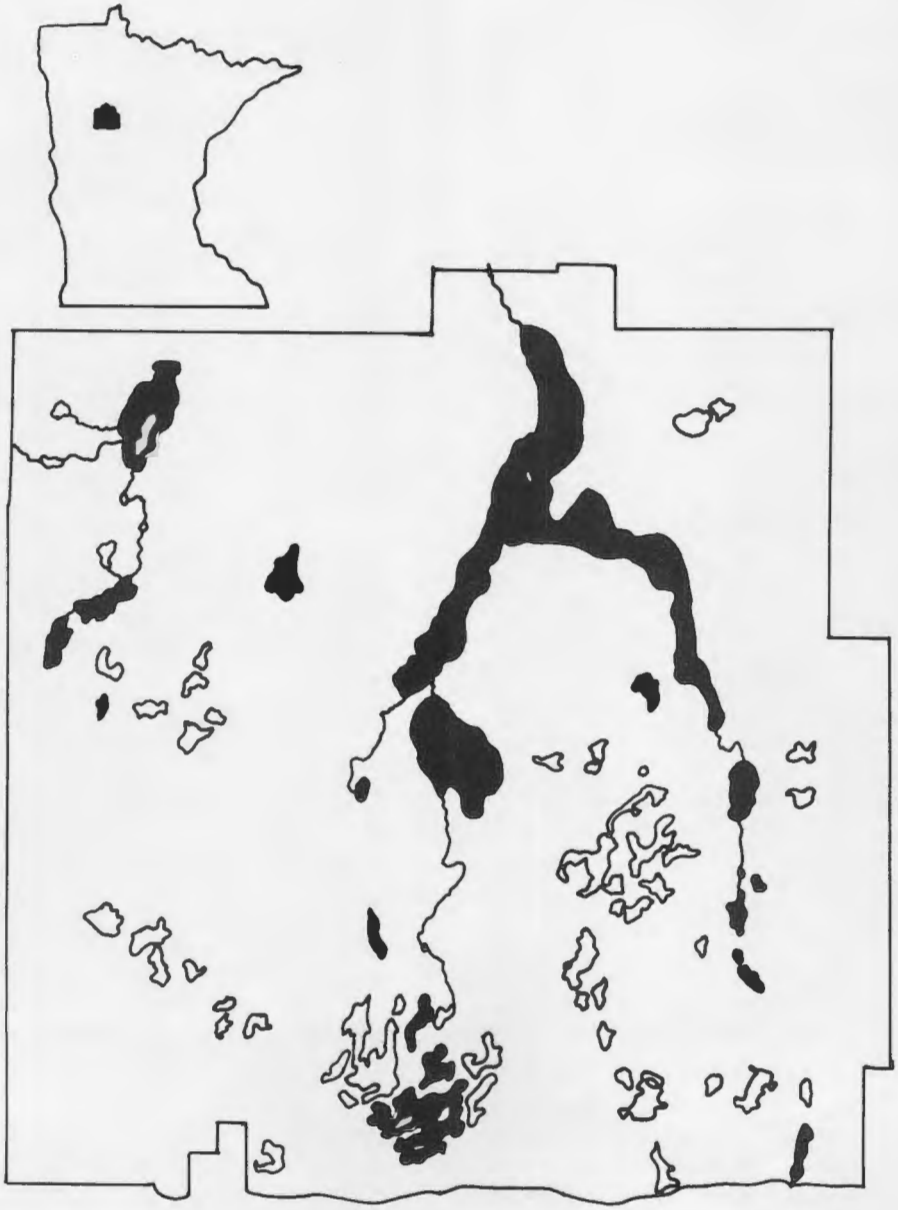

Fig. 1. Lakes in Itasca State Park. Population data are available from all survey years for lakes in black; outlined lakes were included in some, but not all, surveys.

TABLE 1

Common Loon Surveys, Itasca State Park, Minnesota, 1957-1976

Lake	Size (hectares)	Adults/Young 1957[1]	1958[2]	1968[3]	1972	1976
Arco	1.6	0	0	0	0	0
Bohall	15	2/2	2	2/2	2/2	2
Dead Beaver	1	0	0	0	0	0
Deming	6	1	0	2	2	2
DeSoto	55	4	2	2/1	2	2/1
East Twin	4	1	1	0	0	0
Elk	124	4/2	3	2/1	3/1	3
Itasca	440	7	6/2	10	12	10
Josephine	4	1	0	0	0	1
Little Elk	7	1	1	2	2	2
Little Mantrap	17	0	0	2	0	2
Lyendecker	8	1	0	0	2/1	1
Mary	26	2	2	2/1	2	2
Mikenna	8	1	0	0	2/1	1
Nicollet	4	0	0	2	2	0
North Twin		0	2	2	0	2
South Twin	36	0	1	0	2	0
Squaw	76	3	2	2/1	2	2
Whipple	12	1	1	2/1	0	2
[Ratio young/pair		.40	.22	.44	.29	.07]
Allen	9	1	0		2	0
Augusta	4				0	2
Becky	6					2/2
Budd	4				2	0
Clarke	16					2
Deer Park	7				4	2
East Picard	6				1	0
Frazier	5	0		0	0	0
Gilfillan	15				0	
Ice Tongs	8					2/1
Iron Corner	4				0	1
Kasy	4			0	1	0
Kirk	9		2	0		2
Little Triplet	4					0
Mangose	6			0	2/1	2
McKay	13				2	2
Mink	8				0	
Moose	4					1
Morrison	25	3	3		3	0
Myrtle (NW)	5				0	2
Myrtle (S)	6				2	2
Old Boot	6					2
Powderhorn	5				0	0
Rorsharch	7					1
Sibilant	10				0	
Triplet	4					0
Two Island	29					4/4
Ways	4					2/1

Lake	Size (hectares)	Adults/Young 1957[1]	1958[2]	1968[3]	1972	1976
(Unnamed lakes)[3]						
1	4			0	0	0
2	4			0	0	0
3	4			0	0	0
4	5			0	0	0
5	4			0	0	0
8	4			0	0	0
11	4			1	0	0
12	4			1	0	0
13	6			0	0	0
14	5			1	0	0
15	4			2/2	0	0
16	4				0	0
17	4				0	0
19	5				0	0
21	4				0	0
22	4				0	0
23	4				0	0
24	4				0	0
25	4					0
26	6					2
27	4					0
28	4					1

[1]Krause & Chambers 1957
[2]Chambers 1958
[3]Eberly and Dunstan 1968

TABLE 2

Common Loon Productivity

Location	N(pairs)	ratio, young/pair	Source
Itasca State Park, MN	93	.34	this study
Superior National Forest, MN[1]	173	.34	Olson and Marshall 1952 Magnus, pers. comm.
New Hampshire	78	.49	Hammond and Wood 1977
Saskatchewan	200	.53	Yonge, pers, comm.

[1]Combined data from Olson 1950 census and Forest Service Surveys, 1965, 1966, 1967.

same location from year to year should not be taken as a sign that the same individuals are in residence each year.

One pair held North and South Twin as a single territory. The juvenile credited to DeSoto in 1976 is thought to have crossed from Mangose Lake under stress from lowered water levels in its natal lake. The move was not witnessed; but chicks have been known to cross overland from one lake to another (Von Braun et al. 1968). Distance from Mangose to DeSoto is less than 20 meters, an easy crossing for a young loon.

Low productivity in 1976 was at least partially due to drought, as excessively low water levels in many of the lakes prohibited a second nesting attempt if the first one failed. If first nests are lost, loons commonly try again (McIntyre 1975). Nests are at the water's edge on small islets or bog. Drought leaves them surrounded by mud rather than water, and unusable as nest sites, thus making loss of the first nest more serious in drought years when re-nesting is not a viable option.

None of the data showed statistically significant differences between productivity on recreational and non-recreational lakes, production of young in a dry or normal year, or numbers of adults in the park over time, but they do have some interesting biological significance. Productivity ratios are lower in drought years and for recreational lakes, and numbers of adults have increased during 20 years. This seems to be a dichotomy, but can be explained in the following way.

Drought during the 1930's precluded the use of many of the smaller and more shallow lakes in and around the Park because they were completely dry. Loss of habitat during that time undoubtedly had a detrimental effect on loon populations, but high water levels during the past 2-3 decades provided abundant nesting habitat and consequent increase in population numbers. Optimal loon habitat is large deep lakes; recreational disturbance on them may not appear to cause a negative effect for many years if normal productivity on nearby small lakes can continually replenish the larger lakes.

In much of the northeastern portion of the United States where population declines have been described (for ex-

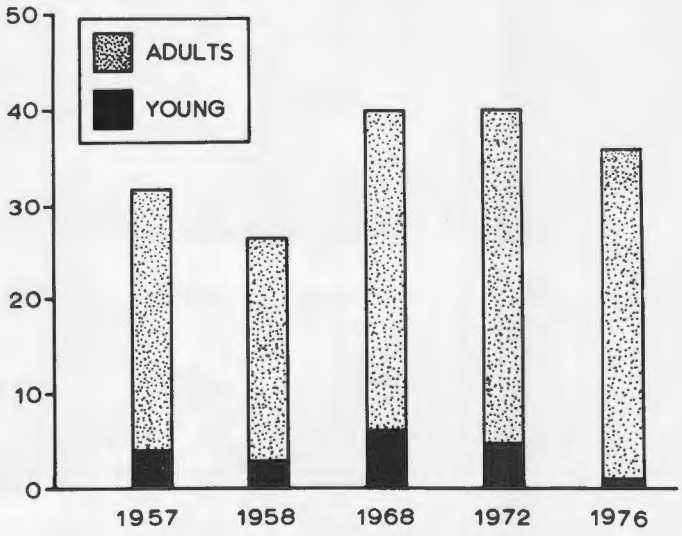

Fig. 2. Common Loon populations for the 19 lakes shown in black in Fig. 1.

ample, see Hammond and Wood 1977 for New Hampshire data), both larger and small lakes have been extensively developed and are subject to intense recreational pressures. As long as undeveloped and unused small lakes in Minnesota are available to loons the population probably will remain stable. This is a tenuous position, however, for even if the small lakes remain wild and without human intrusion, they are ephemeral, and periodic droughts can be expected. If these lakes are lost as loon habitat through drought, and with most optimal habitat already lost to development and recreational pressures, a decline in loon populations can be expected.

ACKNOWLEDGEMENTS

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LITERATURE CITED

Chambers, R. 1958. A survey of waterfowl in Itasca State Park with particular emphasis on the Common Loon. Itasca Biology Station, MS.

Eberly, L. A. and T. C. Dunstan. 1968. Population census of the Common Loon (**Gavia immer**) in Itasca State Park during the breeding season of 1968. Itasca Biology Station MS.

Hammond, D. E. and R. L. Wood. 1977. New Hampshire and the disappearing loon. Report, Loon Preservation Committee, Meredith, NH.

Krause, P. and R. Chambers. 1957. A survey of waterfowl in Itasca State Park with particular emphasis on the Common Loon. Itasca Biology Station, MS.

La Bastille, A. 1977. The endangered loon. Adirondack Life 8:34-38.

McIntyre, J. W. 1975. Biology and behavior of the Common Loon (**Gavia immer**) with reference to its adaptability in a man-altered environment. Ph.D. thesis, Univ. of Minnesota, 230 pp.

Olson, S. T. and W. H. Marshall. 1952. The Common Loon in Minnesota. Univ. of Minnesota Occas. Papers No. 5.

Ream, C. H. 1976. Loon productivity, human disturbance, and pesticide residues in northern Minnesota. Wilson Bull. 88:427-432.

Von Braun, D., A. Hessle, and S. Sjolander. 1968. Smalommens (**Gavia stellata L.**) beteende under ungvardnadstiden. Sartryck ur Zoologisk Revy 30:94-95.

Williams, T. 1978. The sure, silent exit of the Northern Diver. Defenders 53:2-6.

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VERMILION FLYCATCHER, OTTERTAIL COUNTY — Sunday morning, November 6, 1977, at about 9:15 a.m. I received a telephone call from Roger Rustad, a West Central Bird Club member. He reported a "small red and black bird" which he had noted hawking insects earlier that morning around and about a slough on his farmsite, which is located nearby the city of Elizabeth, Otter Tail County. About twenty minutes later my wife, Marion, and I arrived at the Rustad farm and, to our amazement, identified the bird as an adult male Vermilion Flycatcher, the description as is follows: about phoebe size; bright vermilion color on the head, neck, breast, and belly; a slight orangish wash to the flanks; wide black eye line from base of bill posteriorly to the nape; dark blackish-brown back and upper wings; vague light colored wing bars; slight hint of buff to the edges of certain upper wing feathers. The flycatcher actively caught insects along the edge of the slough, then on occasion moved a short distance to a sparce grove of trees. It would perch low to the ground, for the most part, capturing insects during brief forays from its perch. Frequently it would rest and preen, flicking its tail phoebe style. After the initial sighting in the morning, telephone calls were made to other West Central Bird Club members. The MOU hot line was also notified through Paul Egeland. By 5:00 p.m. a total of fourteen local birders located and identified the bird. Reference was frequently made to Robbins, **Birds Of North America,** and Peterson's **Field Guide To Western Birds** by observers during the sightings. Numerous photographs were taken. The weather during the day was overcast, somewhat foggy, with an average temperature of 50°F. A southeast wind was estimated at fifteen knots. On Monday, November 7, about noon, Jo Blanich, Kim Eckert, Jan Green, and Terry Savaloja arrived in Fergus Falls and were escorted to the bird which, on cue, again presented itself. The weather was essentially the same as the previous day. The flycatcher disappeared after the violent blizzard of November 8 and 9. **Gary Otnes, Route 1, Box 181, Fergus Falls, Minn. 56537.**

RED PHALAROPE — MILLE LACS LAKE — On November 19, 1977, a Red Phalarope was identified by myself and Bill Litkey on the southwest shore of Mille Lacs Lake, Mille Lacs County. What was possibly the same bird was seen in the same area on November 12 by a number of observers and had been tentatively identified as a Northern Phalarope. The following is a description of the bird from notes taken at the time of observation: "We watched the bird for 1 - 1½ hours. Sky was overcast. Sun appeared two or three times during the observation. Top of head had two dark gray stripes merging at back of head then running down nape. At back, color

Red Phalarope — Mille Lacs Lake — 11-19-77

abruptly turned light gray. Entire back appeared light gray. Wing primaries and tail were dark gray. Bill was thick at base. From above and straight on bill seemed to get thinner toward middle, then just before the tip it widened slightly, coming to an abrupt point. The color was black with base yellow (about ⅛ inch). Bottom of feet were yellow. Leg coloring appeared light through water. At times birds would fly up and over a wave. At that moment we could see that the wing coverts were the same color as the back. The primaries and secondaries were much darker gray with a prominent wing stripe. The tail was mostly dark gray. There was a dark gray stripe running from the tail up to the back, fading as it blended into the lighter color of the back. Because of the narrowness of the stripe, dark tail and light gray back, the rump almost seemed all white. The bird was observed and photographed from a distance of 10 to 30 feet." **Harding Huber, 2906 - 63rd Avenue N., Brooklyn Center, Minn. 55430.**

SNOWY EGRET, GRANT COUNTY — On June 19, 1977 Diane Hastings and I were birding NE Grant County, looking for herons on lakes Pelican and Christina. The weather was sunny and warm, winds light and variable. At approximately 1:30 P.M., we were driving the township road that follows the SW shore of Lake Christina, when a Snowy Egret jumped from the shoreline and began flying up the shore parallel to the road. It was being chased by two crows, which were about the same size as the egret. The dark bill, small size, and especially the black legs with the orange feet made identification very easy. The distance of initial observation was quite close — approximately 150 feet. The bird continued flying up the shore, and we lost sight of it. We circled the entire lake, and about twenty minutes later arrived at the spot where we first flushed the egret. In exactly the same spot, a Little Blue Heron flushed and flew up the shore in the same direction. I watched it land, then got out my spotting 'scope and began scanning the shoreline for other birds. About 800-900 yards away, I spotted a small white heron standing on a small peninsula, but could not tell at that distance whether it was a Snowy Egret or a Cattle Egret. After a couple minutes the bird took flight and came towards us, passing laterally in front of us and giving us another excellent view. The Snowy Egret continued S-SW towards Pelican Lake. We followed but could not find the bird again. **Steve Millard, Route 2, Fergus Falls, Minn. 56537.**

WINTER MERLIN IN SHERBURNE COUNTY — On January 2, 1978, I was birding the Sherburne National Wildlife Refuge in the early afternoon. The sky was clear, winds W-NW ten to fifteen mph, temperature about fifteen above. I was traveling west on a gravel road in the NW portion of the refuge, when my birding partner, Diane Hastings, spotted a small raptor perched in a large elm on the edge of a farmyard. We got out of the car about one hundred yards from the bird, which was facing us. Because of the vertical streaking on the underparts and the long barred tail, my first impression was of an accipiter. Then the bird flew down the road a hundred yards or so and perched on a powerline. It had flown straight away from us at a low altitude, so we couldn't see the wings very well. I moved the car down the road towards the birds, which then flew diagonally across in front of us. The wingstrokes were choppy, with a deceptively rapid, direct flight low over the ground. The sharply pointed wingtips and bluish-gray back color left no doubt that this was a merlin. We watched it for about two minutes, then lost it and could not find the bird again. I reported the sighting to refuge personnel. There are only a few winter records of this species in Minnesota. **Steve Millard, Route 2, Fergus Falls, Minn. 56537.**

PURPLE SANDPIPER IN AITKIN COUNTY — On a clear, bright and sunny Monday, November 14, 1977, at 1:20 p.m. in front of Ole's Resort in Libby, Minn., located on the northwest shore of Big Sandy Lake in Aitkin County, I noticed a medium-sized, dark sandpiper land about 75 feet distance from me. I began walking toward the feeding, unwary bird until I was within 10 feet. I did not have binoculars but could easily note the orange legs and feet, orange base on black-tipped bill, and dark head and back with a glossy purple sheen in the bright sunlight. The breast was dark and belly white. I thought it must be a Purple Sandpiper. A few minutes later the bird was flushed by a dog and a white wing stripe against the purple sheen was obvious. It made a tight circle, again landing within 10 feet, and resumed probing and feeding. I had to boat out to an island, returning just at sunset, and saw the bird perched on a floating dock. The next

Purple Sandpiper — Big Sandy Lake — 11-15-77

morning, my wife, Jo, and Terry Savaloja found the bird at the same location and confirmed that it was a Purple Sandpiper, Jo making the following notes: stout, dark bird, orange legs, orange base on dark-tipped bill extending about ¼ length from base, but not uniformly, plain purplish head, white eye ring and noticeable white eye lid similar to a Dipper, dark back and wings, but wing feathers edged with white, secondaries conspicuously edged with white, upper breast dark with streaking extending along sides of breast into the white belly, lower center breast white. The weather had changed from clear and bright to dark, heavily overcast, with fog, but the bird was photographed, and the sighting hotlined. It was last seen Thursday, November 17, 1977, in the same area. On Friday, the weather changed to clearing and cold with a north wind and the bird could not be found thereafter. **Steve Blanich, Box 96, Crosby, MN, 56441.**

A SHARP-TAILED SPARROW NEST — During a week-long search for Yellow Rail nests at McGregor, Aitkin Co., Minnesota during June, 1977, I happened upon a nest of a Sharp-tailed Sparrow. At the time of the find the nest was of relatively little interest; Sharp-tails breed abundantly on the brackish marshes in my own area at the mouth of the Connecticut River. Only recenly did I learn from Robert Janssen that actual nest records in Minnesota are very few. The McGregor marsh is at the junction of routes 65 and 210. The nest site was well out in the marsh, at least 300 yards, where the water was about knee deep. There were a few isolated small shrubs growing a short distance away, and in these the birds took cover when disturbed. The male always stopped singing whenever I came into

the vicinity of the nest. No Sharp-tails were detected anywhere else in the marsh. The nest sat two inches above water, and was placed under a dense "cowlick" of fine dead grass, completely hidden from above. This is exactly the situation in which numerous nests occur in salt-meadow grass (**spartina patens**) on the Connecticut coast. The nest contained one egg on June 21, the date of discovery. On June 22 there were two eggs. On June 24, the last time the nest was checked, there were four ggs, probably a full clutch. Unlike the seemingly bolder Connecticut birds, which are always closeby scolding with their "cup - cup" notes when their nests are being investigated, these birds were shy and completely silent whenever I approached the site. However, this may have been due at least in part to the fact that nesting was in its early stages. **William Burt, Library Lane, Old Lyme, Connecticut 06371.**

IVORY GULL AT DULUTH — On January 15, 1978 I saw what I believe was an immature Ivory Gull about 1½ miles south of the Lester River. I noticed a small gull that seemed to be all white so I turned the boat to follow it and get a closer look. It flew along the edge of a pack of ice which covered most of the lake from the Lester River West to Park Point. It wheeled and dropped to the ice a number of times, usually landing on the ice, although I believe I saw it in the water once. I had a hard time approaching because twice as I got close a juvenile Herring Gull would dive at it as it stood on the ice so it would fly up and further along the edge of the ice pack. I could see through my binoculars that it seemed very pigeon-like in manner, size and shape when it was on the ice. When it flew, I could see about four distinct black dots along the outer trailing edge of each wing, evenly spaced, and barely distinguishable (but distinct) black dots on the tips of its tail feathers. It also had a line of small black dots along the wing about ⅓ of the way back from the leading edge. When it stood on the ice I could see two rows of black dots down its back, about midway. It had dark legs and a blackish yellow beak and seemed to have a small darkish patch of feathers around the base of the beak. It was otherwise all white, with no detectable mantle. I approached it to within 150 feet and was watching it through 7x35 binoculars most of the time it was in sight, which was for about 10 minutes at about 11:00 A.M. on a mild overcast day. Southwest wind about 10 mph and occasional snow. **Dan Rau, 204 E. 6th St., Duluth, MN 55805.**

Editor's Note: The above record from Mr. Rau of an Ivory Gull is one of the finest examples I have seen of good documentation of a sight record of a rare species.

MOUNTAIN BLUEBIRD IN ANOKA COUNTY — At 11:00 A.M. on October 22, 1977 I observed a female Mountain Bluebird in Anoka County. Light conditions were good with a lightly overcast sky. The observation was made about one-quarter mile west of County Road 14 on the gravel road leading to the tree dump northeast of George Watch Lake in Lino Lakes. I noticed a bird land in the only tree in this otherwise open field. The tree is about 40 feet south of the road. I parked directly north of the tree and put the scope on the bird. Since I've seen this species in Colorado and North Dakota I immediately recognized it as a Mountain Bluebird. The following field notes were taken: bluebird shape and size, breast and underparts light gray. Head and neck dark gray. White eyering. Wings and upper part of tail light blue. Two photographs were taken from the car and two more were

taken about 25 feet from the bird. It then flushed, hovered momentarily south of the tree and then flew off to the southwest. It was back in the same tree about noon but was gone from the area when rechecked in the late afternoon. The observations were made with a 20x45 Bushnell Scope. According to **The Loon** 49:46-47 this should be the fourth Minnesota fall record. It is the first Anoka County record. **Kenneth J. La Fond, 11008 Jefferson NE, Blaine, MN 55434.**

LITTLE GULL AT MILLE LACS LAKE — On November 8, 1977 Janet Green and I observed an adult Little Gull at Wigwam Bay on Mille Lacs Lake in Mille Lacs County. We had been watching gulls sitting along the shore and flying over the lake, when I spotted an unusual looking gull flying and feeding about 200 yards offshore. What drew my attention to it even at that distance were its apparently blackish under wing linings. Jan and I both got out our 15-60 X zoom telescopes and watched the gull for several minutes as it flew around with a few other Bonaparte's and occasionally landed on the water to feed. We agreed that this gull's black wing linings were real and not a result of shadow or light conditions (the day was overcast with a light fog), but other than a plain gray mantle we initially could see no other field marks. We even had trouble determining the bird's size — at first it looked larger than the Bonaparte's it was with, but other times the gull seemed about the same size or slightly smaller than a Bonaparte's. Eventually the gull began working its way somewhat closer to shore, and we could see its white trailing edge to the gray wings which came up into the wing tips where the white edging was slightly wider than on the trailing edge. We then knew that we had been watching a Little Gull, an adult in winter plumage because of its whitish head, unmarked white tail and gray mantle. After we stopped watching this gull and began to scan elsewhere, it landed unobserved on a dock about 50 yards away. When we turned back to see if the bird was still in the area, we were surprised to see it standing nearby. At such close range we had no trouble noting its blackish bill and legs, black spot behind the eye, gray wash on the nape, and definitely smaller size when compared to Bonaparte's sitting next to it. This represents the second inland and second fall record for the Little Gull in Minnesota (the first being in October 1975 in Lyon County). This species is apparently regular in small numbers in Duluth in recent years in late spring. **Kim Eckert, 9735 North Shore Dr., Duluth, MN 55804.**

MOUNTAIN BLUEBIRD AT STONEY POINT — On November 21, 1977 I observed a female Mountain Bluebird at Stoney Point, St. Louis County. I was slowly driving along the road where it comes right next to the shore about 100 yards east of the fishing shacks, when a thrush-type bird flew up and sat in a bush at eye-level next to the road about 20 feet away. It was plain brownish gray all over except for a tinge of barely visible blue in its folded wing tips and the bright "sky blue" color of its tail. Though bluebird size, it was of a different, slimmer shape than the Eastern Bluebird. I immediately recognized it as a female Mountain Bluebird because of its brownish gray underparts with no hint of rusty, the different shade of blue in the wings and tail (to me, female Mountain Bluebirds also show much less blue in the wings than do female Eastern Bluebirds), and the slimmer shape and posture. I have seen Mountain Bluebirds many times previously, including three in recent years in Rock County, Minnesota. **Kim Eckert, 9735 North Shore Dr., Duluth, MN 55804.**

TOWNSEND'S SOLITAIRE AT DULUTH — During the Duluth Christmas Count on December 31, 1977, a Townsend's Solitaire was observed in the woody ravine near the ballfields of upper Chester Park in Duluth, Minnesota. The bird was sighted about 12:30 P.M. under cloudy skies and a 10°F temperature. The bird was first identified by Carl Freeman who has previously sighted the species in Michigan and the Western United States. We (Carl, Gene Marsolek, and I) observed the bird for approximately 15 minutes at a distance of 20 feet using 7x35 power binoculars. Prior to consulting any bird field guides, the following field characteristics were noted. 1) the bird appeared to be a very drab gray in color, 2) a light colored eye-ring, 3) buffy coloring on the wings, 4) white outer tail feathers, and 5) light coloring on outer edges of the inner secondaries. The bird behaved in a flycatcher manner and flicked its long, slender tail when perched on a branch. The bird also sang twice. The song, a soft, long warble resembled that of a Rose-breasted Grosbeak. **JoAnn Hanowski, 2109 East 2nd St., Duluth, MN 55812.**

Editor's Note: In addition to the above record of a Townsend's Solitaire in Duluth, there have been at least three other verified reports from around the state this winter. These records are as follows: December 3, 1977, one in North Oaks, Ramsey Co. observed by Mrs. Persis Fitzpatrick; December 31, 1977, one seen in Itasca State Park, Clearwater Co., photo received from Bill Wyatt; another bird was present at the Killmer residence along the Fall River near Grand Marais, Cook Co. in late January and early February. I observed the latter bird on February 2, 1978 along with Kim Eckert, Ray Glassel and Dick Ruhme and many birders saw this same bird on the M.O.U. North Shore winter trip on January 21 - 22, 1987.

PEREGRINE FALCON SIGHTINGS IN NORTHWESTERN MINNESOTA — I would like to report three recent observations of Peregrine Falcons in northwestern Minnesota, (also see Zimmer. 1975, **Loon** 47(1);43.). In all cases the birds were recognized by the dark facial markings and falcon shape. They were distinguished from other falcons by size (larger than the American Kestrel or Merlin) and darkness (darker than the Prairie Falcon). The first time I observed a Peregrine was in April 1975, 16 kilometers southeast of Crookston, Polk County, on the first beach line of glacial Lake Agassiz. The bird was seen perched in a tree 500 meters north of Tympanuchus Wildlife Management Area. On Ocotober 15, 1977, I sighted a Peregrine Falcon on a native tract of prairie acquired by the Nature Conservancy. This tract is in Clay County adjacent to the south boundary of Buffalo River State Park, approximately 24 kilometers east of Moorhead. The bird was first seen flying. It then perched in a dead cottonwood approximately 700 meters from me. I then walked unseen along a row of trees to within 50 meters of the falcon. I watched it for 30 minutes as it preened itself. Six weeks later on December 1, 1977, I sighted a second falcon, possibly the earlier bird, perched in a large tree 2.5 kilometers east of the earlier sighting. The bird left the tree and flew towards me, circled about 10 meters over my head, and then flew southwest over a hill and out of sight. This bird remained in the vicinity despite two earlier winter blizzards, which deposited large amounts of snow. I flushed several coveys of Gray Partridge throughout the day in the general vicinity of the falcon sighting. This indicates a possible food source for the raptor. The above sightings had taken place on the beach lines of the old Glacial Lake Agassiz, areas which still support some of the last remaining tracts of tall

grass prairie. On these less developed lands there is a sizeable wildlife resource, including several species which are potential prey for the falcon. This potential food source may attract the Peregrines during the spring and fall migrations or perhaps the birds are continuing to fly along these beaches which may have served as hunting grounds for the falcon's ancestors when the lake was present. However, the sightings here may also simply be a result of other bird watchers and myself spending more time in this region than in other parts of these counties. **Bruce D. Anderson, Botany Department, North Dakota State University, Fargo, ND 58102.**

PARTIAL ALBINISM: SAW-WHET OWL AND GOSHAWK — While conducting studies of fall migrant raptors on the Hawk Ridge Nature Reserve. Duluth, Minnesota, I have encountered only two partially albinistic birds among some 14,000 birds handled. On 27 October 1977 a partial albino Saw-whet Owl (**Aegolius acadicus**) was captured (Fig. 1). The owl was determined to be an adult (Mueller and Berger 1967 - Bird-banding 38:120-125, Evans 1975 - **Loon** 47(2):56-58) of unknown sex. The outer four and five

Fig. 1. Albinism in a Saw-whet Owl, Hawk Ridge, Duluth, 10-27-77

Fig. 2. Albinism in a Goshawk, Hawk Ridge, Duluth, 11-16-74

primaries of the right and left wing, respectively, were pure white except for right primary remex number seven, which had a brownish shaft streak. The inner and middle front talons of both feet were devoid of pigment. Although the left iris was slightly misshapen the owl appeared normal in all other respects and was banded and released. Minor iris deformities occur occasionally in owls (Evans, unpublished data) and in this case is likely unrelated to the albinism. On 16 November 1974 I caught an adult female Goshowk (**Accipiter gentilis**) with its right rectrix number two pure white and slightly shorter than the adjacent rectrices (Fig. 2). In all other respects the bird appeared normal and was banded and released. These are the only observations of albinism among 1061 Saw-whet Owls and 1678 Goshawks captured at Hawk Ridge from 1972 through 1977 and each, to the best of my knowledge after searching the literature available to me, constitutes the first record of albinism for that species. **David L. Evans, Dept. of Zoology, North Dakota State University, Fargo, ND 58102.**

SALMONELLA EPIDEMIC IN HOUSE SPARROWS AT FERGUS FALLS, OTTER TAIL COUNTY — Beginning about December 1, 1977, and continuing throughout January 1978, I had noticed dead House Sparrows scattered about both the subject city and my farmsite. Additionally, members of the West Central Bird Club began to ask me what was happening. Local wildlife authorities felt that the harsh winter weather was causing them to die. I dropped a letter to the Fish and Wildlife Health Lab, Madison, Wisconsin, asking if they would consider analysis of dead sparrows I could send them. They immediately replied, requesting frozen specimens. I then got approval from the West Central Bird Club to spend $8.00 for dry ice, shipping container, and air express postage, and sent about three dozen avian cadavers on 1-17-78. On 1-25-78, I received a telephone call from a Dr. Locke at the Madison Lab. He informed me that all the specimens demonstrated Salmonella and, considering the several hundred that had died, reported it as an avian Salmonella epidemic. He advised several things: (1) Such outbreaks occur sporadically throughout the nation; (2) House Sparrows are most susceptible, but he has record cases of other more desirable birds being contaminated at bird feeders by the sparrows; (3) Handling of sick House Sparrows by humans is hazardous, analogous to Salmonella contaminated turtles; and (4) Bird feeders should be cleaned, especially when the weather warms, or an endemic situation could occur. Proper precautions should be taken when undertaking the cleaning. On behalf of the West Central Bird Club, a local news release concerning the above information was given advising humans not to take in sick birds, and that bird feeder cleaning should be undertaken carefully. As the birds died at many points within a few miles of the center of the city (maybe farther for all we know) and bird food was purchased from different sources, it is impossible to tell how it all got started and spread. Being an undesirable species, there is little information available on local or migratory movements of the House Sparrow. This spring and summer our Bird Club plans to band sparrows with bright leg bands in an attempt to trace their movements. **Gary Otnes, Route 1, Box 181, Fergus Falls, MN 56537.**

THE CALIFORNIA GULL IN MINNESOTA — The California Gull was officially added to the Minnesota State List on May 30, 1975 when Ray Glassel and I identified an adult bird at Split Rock Creek State Park, Pipestone County (**The Loon** 47:130-131). The second record was of another adult bird seen on the north shore of Mille Lacs Lake by Terry Savaloja

on September 9, 1976 (**The Loon** 49:56). During November, 1977 a number of observations of California Gulls were made by several observers. This may indicate that the species is a regular fall transient in the area. The first observations were made by Jan Green and Kim Eckert on November 8, 1977, one bird at Garrison, Crow Wing Co. and the other at St. Albans Bay, Crow Wing Co. Both birds were first year immatures. These observations will be written up in a separate report. My first observation of a California Gull on Mille Lacs Lake was on November 12, 1977. Paul Egeland, Dick Ruhme, Hap Huber and Bill Litkey also observed the bird. The bird was seen near Malmo, Aitkin Co. on the northeast side of the lake. The following description is taken from notes taken at the time the bird was under observation. The viewing conditions were good, skies were mostly clear, some light overcast which prevented glare. The bird was observed by all of us through binoculars and spotting scopes, in a sitting position at distances of 25 to 50 yards and also while flying at varying distances. "Size: that of a Ring-billed Gull, compared side by side with an adult Ring-bill; Bill: flesh colored with a black tip. Legs: flesh colored to pink (definitely not yellow); Eye: dark; General appearance: was that of an immature 2nd year Ring-billed Gull, black wing tips, back mottled brownish gray same as wings, head, breast and belly - white; Tail: this is what was unusual — all dark except coverts which were white, this was especially noticeable in flight, the all dark tail with the light tail coverts. Wings extended beyond tail when sitting, maybe ½" to 1", in flight wings appeared longer than Ring-bills it was with." The only Field Guide that we consulted after the observation that helped us in identifying the bird was Peterson's "Western Field Guide." The picture of a 2nd winter California Gull on page 139 matched the bird we observed quite closely. On November 19, 1977, I again visited the Malmo area, this time with Paul Egeland, Bill Pieper and Ray Glassel. We again saw a gull with an all dark tail. The bird was again observed sitting and flying at varying distances. Here is a description of this bird taken from notes while the bird was under observation: "Size: Smaller than Herring Gull adult, direct comparison - larger than Ring-bill Gull; pink bill - black tip; head and breast, whitish streaked and mottled with brown, back and wings brown on gray; tail all dark (black) with white tail coverts and lower back; wings extended beyond tail when at rest." It is my belief that both of these birds (possibly they were the same individual) were California Gulls probably in the 2nd winter plumage. A third gull which we thought was a California was observed on November 19 at Garrison, Crow Wing Co. Careful notes were taken on this bird which was observed at very close range in company with Ring-billed Gulls. The dark tail attracted our attention but after observing the bird we found that the tail was not all dark as in the Malmo bird, but was mottled at the base giving a wide banded appearance. Mille Lacs Lake is an especially interesting place for gulls in the fall. Birders should be on the alert for unusual species and careful notes should be taken on all observations of these gulls. **Robert B. Janssen, 14321 Prince Place, Minnetonka, MN 55343.**

IMMATURE CALIFORNIA GULLS AT MILLE LACS LAKE — Mille Lacs Lake in the fall is one of the best places in the state to see congregations of gulls — primarily Bonaparte's and Ring-billed. There is always the chance that some rare species will be present, so with that in mind, Kim Eckert and I went along the west and north shores of Mille Lacs on the morning of November 8, 1977. We were rewarded first with an adult Little Gull and second with two immature gulls that we finally determined must

be California Gulls. The first gull was spotted in St. Alban's Bay on a dock with other gulls. It was the same size as a Ring-billed Gull but was much too dark for the first winter plumage of that species, resembling more closely a first winter Herring Gull in color. The second gull was found a little later at Garrison and was similar to the first bird. Since neither Kim nor I were familiar with the details of the immature plumages of California Gulls, we were reluctant to definitely conclude that they were that species. However, we did agree that 1) they were not Herring Gulls 2) they were closer to each other in plumage than to first winter Ring-billed Gulls 3) back, scapulars and upper tail coverts closer to Ring-billed Gull immature plumage sequence 4) head, breast, wing coverts and tails closer to Herring Gull immature plumage sequence. We took detailed notes on the birds while they were in view. These were sent to Guy McCaskie, an expert on gulls, at the San Diego Natural History Museum, who responded "I believe the birds being described are indeed first year California Gulls." The description of the birds we saw follows: Conditions of observation — good. There was no glare since the sky was completely overcast. The gulls were sitting on docks with many adult Ring-billed Gulls on adjacent posts and a few immature Herring Gulls in the vicinity for comparisons. We watched both at length through binoculars and spotting scopes at a distance of 30-50 yards. With difficulty (throwing rocks, jumping and yelling) both gulls were made to fly so that we could see the tail pattern. Field notes: Gull No. 1, St. Alban's Bay, Crow Wing Co. (watched in great detail while preened). Legs, pinkish; bill, pinkish with a sharp line separating black tip (distal ⅓) Head - nape, occiput, hind part of crown and side neck, were golden brown streaked with darker brown; forehead was smudgy brown; cheek was lightest part of head, a dirty white. Underparts, mottled tan with slight golden tinge. Scapulars, grey with tan edges and a fine and lighter tip of light tan. Back, also with some grey mixed in with the tan but hard to tell how much. Wing coverts, mottled brown (brownish with tan edgings). Primaries, outer, dark brown; inner, dark brown with narrow buffy tip (and also perhaps lighter toward coverts). Secondaries, like inner primaries. Tertials, brown with tan edges. Upper-tail coverts, white with dark brown barring, bars closer together toward end of tail. Upper-tail coverts, white with some brown mottling. Tail, wide, dark brown tail band (Herring Gull type) contrasted with white upper tail coverts when flew. Dark brown extended to tip of tail, it was not white or light tipped (like Ring-billed would be). Size, no noticeable size difference in body or bill from Ring-billed Gulls on nearby posts. Behavior, at one point all the gulls (Ring-billed and Bonaparte's) on the dock posts took off spontaneously (we did not scare them) but this gull remained and did not fly when the others did; also had a difficult time trying to flush it when we wanted to. Gull No. 2, Garrison, Crow Wing Co. General, very similar to gull no. 1 except more grey feathers on back and scapulars, but grey still edged with tan. Head and breast, lighter than no. 1 without the obvious golden hue; mottled and streaked. Wing coverts, a lighter tan than no. 1 (no grey in coverts), mottled. Body, bird still basically a dark mottled gull like first winter Herring Gull. Size, slightly larger than Ring-bills nearby but closer to them in size than to a Herring Gull which was also present for comparison. Bill, black distal half blended into light basal area which was a pinkish grey; did not have dipped in ink effect of gull no. 1. Legs, flesh. Tail, wide dark brown band like Herring Gull contrasted with whitish tail coverts; did not appear to be white or buffy tipped. Behavior, more reluctant to fly than adult Ring-billed Gulls with it when we flushed them. **Janet C. Green, 9773 N. Shore Dr., Duluth, MN 55804.**

SUMMER RECORD OF LESSER YELLOWLEGS IN STEARNS COUNTY — On the morning of June 19, 1977, I observed several Lesser Yellowlegs in a pond of water in a cultivated field at T122N, R32W, Section 3, Stearns County (near Roscoe). Under a full sun, the yellow legs and the white tail were very distinctive, the birds being observed at a distance of less than 50 yards with a pair of 7 x 35 binoculars. The height of the birds appeared to be less than that of Upland Sandpipers, which were observed earlier in the day. I consulted **A Field Guide to the Birds** (1966, Robbins, et al.) while the birds were in sight and all field marks were checked for and found. An individual was seen in the same area on July 6, 1977. According to Green and Janssen, (**Minnesota Birds,** University of Minnesota Press, 1975), this species has been recorded in Minnesota between June 15 and June 24 in eight different years, and all but one of these records are from the western margin of the state. **Steven C. Hansen, Route 2, St. Joseph, MN 56374.**

WATER PIPIT AT DULUTH IN JANUARY — On Thursday, Jan. 19, 1978, my husband and I were driving out on Minnesota Point. I noticed a bird standing on the snow beside the road. At first glance I thought it must be a Horned Lark. When we stopped and I used my binoculars I could see it was a Water Pipit. It had a small, thin pipit-like dark bill, olive-brown back with indistinct streaking, an off white eye-line and an off white throat with no streaks. The breast and under-parts were buffy with streaks which were heaviest across the breast. It had blackish legs. The bird was trying to walk, as pipits do, but had a difficult time in the fluffy snow, kept sinking in! There seemed to be an edging of white on the tail but when the bird flew I couldn't see any white. It flew across the road to a weed patch and was trying to feed; it would flutter up to the top of a weed and pull it down. We watched the bird for about ten minutes before it flew back across the road and disappeared over the "Boat Club" building. I heard it call once, a typical pipit-like note. After I arrived home I checked Roberts' Key for Identification of Minnesota Birds and decided it must have been a first year bird because of the heavily streaked breast and lightly streaked back. Late date, North is listed as Nov. 29 in Green and Janssen's book. **Elizabeth Campbell, 5267 W. Bald Eagle Blvd., White Bear Lake, MN 55110.**

BOOK REVIEWS

A Birdwatcher's Adventures in Tropical America by Alexander F. Skutch, University of Texas Press, Austin, 5 maps and 22 pen and ink drawings, 327 pages, 1977. $13.95.

This is a book that should delight the serious student of neotropical birds as well as the armchair naturalist who likes to read of birding adventures in far off places. It is both informative as well as interesting reading. Some of the chapters are devoted to observations of certain groups of birds for example one called "The Charm of Hummingbirds" and another entitled "The Cotingas: A Study in Contrasts." Other chapters are more of his adventures and travels. The one called "Bird Watching During a Revolution" was of his experiences on his farm in Costa Rica during an attempted overthrow of the existing political power.

The author is one of the foremost authorities of birds of Central and South America with many years' experience in the tropics. He has lived in Costa Rica for many years.

The numerous pen and ink drawings by Dana Gardner add much to the book's charm. Mr. Gardner's fine drawings have graced the covers of several past issues of **The Loon.** He is a native Minnesotan who has spent a number of years observing tropical birds and his drawings are accurate as well as extremely artistically pleasing.

If reading about interesting places and tropical wildlife is your thing I would highly recommend "A Birdwatcher's Adventures in Tropical America." **Raymond A. Glassel**

Handbook of North American Birds, Volume 2 and 3, Waterfowl, Edited by Ralph S. Palmer, 8 color plates, maps, black and white drawings. 521 pp (Vol. 2), 560 pp (Vol. 3). Yale University Press, 92A Yale Station, New Haven, CT 06520. 1976. $60.00/set, $30.00 each.

Volume I of the "Handbook of North American Birds," covering Loons through Herons was published in 1962. At long last the volumes covering Waterfowl were finally completed and published in 1976. Volume 2 covers the species from Fulvous Whistling Duck through Swans, Geese and all species of Dabbling Ducks. Volume 3 covers the Eiders, Diving Ducks, Wood Duck and Mergansers.

The principal goal of the contributing authors is to provide diagnostic information on each species, including both sexes at all ages and in all seasons. After an initial diagnosis of the species, the physical appearance of the sexes in their definitive feathering is described; then the earlier stages, from hatching up to definitive, are detailed, and geographic variation and hybrids are discussed. Each account also includes sections on field identification, voice, habitat, distribution, migration, banding status, reproduction, survival, habits, and food of the species.

Included with the text are many black and white drawings illustrating various plumages and many are of characteristic behavior patterns. Also included with each species description is a map showing distribution including winter range, principal breeding range and overall breeding range. These maps are a favorite of mine and help make the text much more meaningful. Even though these maps are most valuable, I found many inaccuracies in the showing of the breeding range in Minnesota of many species. For example, the American Wigeon, Pintail and Northern Shoveler are shown as breeding across the whole state which they most certainly do not. The principal breeding range of the Green-winged Teal is shown as including a large portion of northwestern Minnesota. I wish this were true but there are no facts to substantiate it. The breeding ranges for the

Diving Ducks in Minnesota are fairly accurate except the Ring-necked Duck. This species does not breed across the whole state as illustrated. Despite these inaccuracies, these volumes contain a wealth of information on waterfowl which every serious bird student will want to have in his library. Hopefully it won't take another 14 years for Volume 4 to appear. **Bob Janssen**

Rails of the World by S. Dillon Ripley with 41 paintings by J. Fenwick Lansdowne, 35 black and white illustrations, 17 maps. 430 pages. David R. Godine, Publisher, 306 Dartmouth St., Boston, MA 02116. 1977. $75.00 hardcover, $400.00 limited edition.

This magnificent volume is a comprehensive treatment of the 129 known species of rails in the world. All of these species are illustrated in full color by J. Fenwick Lansdowne.

The book is done in the extra large format characteristic of the 19th Century Monograph, with lavish illustrations and printed on special paper. In my opinion the 41 paintings by Lansdowne reproduced in the book are worth the heavy purchase price of $75.00.

The book begins with an Introduction explaining the author's lengthy field studies of Rallidae (beginning in 1938). Following this are chapters on "The Characteristics of Rails," "The Distribution of Rails," "Evolution and Speciation," "The Species of Rails," and the book ends with a chapter on "A Synopsis of the Fossil Rallidae" by Starrs L. Olson. There is a lengthy Literature Cited section plus an Index.

One can do little but praise such a volume as this. I am little qualified to criticize his species data and Lansdowne along with Dana Gardner have to be my favorite bird artists. If you can't afford this volume make sure you see it and spend some time with it, it is very impressive. **Bob Janssen**

The View from Great Gull by Michael Harwood, 17 line drawings, 139 pages. E. P. Dutton & Co., Inc., New York, N.Y. 1977. $8.95.

If you've read Michael Harwood's previous book, **The View from Hawk Mountain,** all you need to know about this one is that he's done it again, only better. Otherwise, you'll be surprised and delighted by the scope of **The View from Great Gull,** a very slim and small book.

Great Gull is a seventeen-acre island just nine miles off the Atlantic coast from New London, Connecticut. It is also the nesting ground for some eight thousand Common and Roseate Terns, called "mackerel gulls" by early settlers. Harwood takes us there with a journal of the summer he spent as a volunteer worker at the American Museum of Natural History research station. Day by day, he describes the life cycle of the terns from courtship and breeding through hatching, growth and development of the young to their first flying stages when they're aptly nick-named "Orvilles." Also recorded are both serious and comic insights into the dedication and grubby hard work required by bird research.

Interwoven with current happenings are glimpses of the long and varied history of the island as a lighthouse site, farm, and coastal fort with alternating periods of abandonment. It's a fascinating piece of research that spans some three hundred years. But the author is more than a birdlover and an historian. He is also a dedicated, articulate environmentalist. From this tiny island, with its ebbs and flows in the struggle between man and nature, Harwood gives us a longer view as well, a picture of the world brought to crisis by one species' reckless destruction of its surroundings. His conclusion, powerfully stated, is that mankind must develop a new spiritual relationship with its planet if either are to survive.

In less skillful hands, such a book could be slow, heavy reading. Happily, Michael Harwood is a superb writer. By all means, read **The View from Great Gull.** It's moving, thought-provoking and thoroughly enjoyable.

Dick Ruhme

BIRDING AT "THE USUAL SPOT"

by Carrol Henderson

While reviewing back issues of **The Loon** for records of past occurrances of uncommon nongame species, it becomes apparent how important it is to include the proper legal description of bird sighting locations.

For example, there are occasional references to the Sprague's Pipit being found at "the usual spot" near Felton, Clay County. Most Sprague's Pipits and some birders know where that spot it, but I don't. A reference to the Section, Township, and Range of breeding areas would add immeasurably to the quality and usefulness of these records.

Minnesota's landscape is plotted into a grid-like pattern of sections, townships and ranges which make it possible to pinpoint wildlife sightings to a fine degree of accuracy. This data is extremely valuable in an age where the location of unique wildlife habitats and nesting areas need to be identified so that resource planners can avoid detrimental impacts on these areas. Examples of these sensitive areas in Minnesota are heronry locations, Bald Eagle and Osprey nesting sites, and limited nesting habitat like that of the Baird's Sparrow and Sprague's Pipit.

Perhaps one eventual project of the nongame wildlife program will be to establish a nongame wildlife data bank. The bank could contain records of the distribution and abundance of nongame birds, mammals, reptiles, and amphibians. It would then be possible to recall data by region, county, township, or species.

Persons who regularly report bird records should consider ordering county highway maps for their favorite birding areas. I can send a free map index to anyone who is interested. Each map costs 25¢ and can then be ordered from the Minnesota Department of Transportation, Room B-20, St. Paul, Minn. 55155.

Perhaps the best means of increasing the use of the county maps would be for each bird club in Minnesota to obtain a map index and have members order maps through the club at cost.

To determine the legal description of a site on the map, first find the "section number" within the township indicated. There are typically 36 square miles in a township, and each mile is consecutively numbered as indicated in Figure 1. Township numbers are centered by each township along the right and left margins of each county map. Range numbers are centered over each township along the top and along the bottom of each county map.

Township numbers increase from south to north, and range numbers increase from east to west.

A properly recorded location for the Sprague's Pipit would then reveal that "the usual spot" is actually on Section 5, Township 141 North, Range 45 West in Clay County! **Nongame Supervisor, Section of Wildlife, Div. of Fish and Wildlife, Dept. of Nat. Resources, 390 Centennial Bldg., St. Paul, MN 55155.**

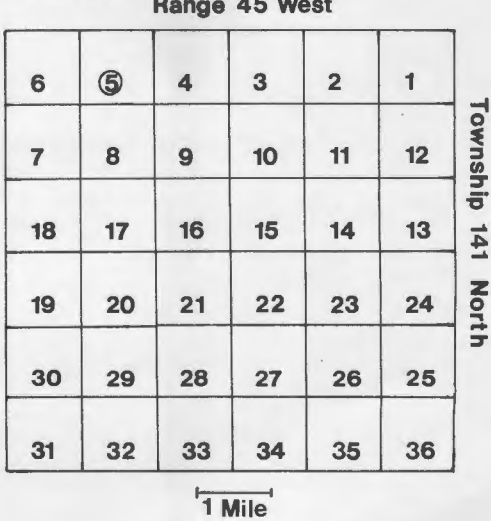

Figure 1.
Diagram of a typical township in Minnesota

PURPOSE OF THE MOU

The Minnesota Ornithologists Union is an organization of both professionals and amateurs interested in birds. We foster the study of birds, we aim to create and increase public interest in birds and promote the preservation of birdlife and its natural habitat.

We carry out these aims through the publishing of a magazine, **The Loon;** sponsoring and encouraging the preservation of natural areas; conducting field trips; and holding seminars where research reports, unusual observations and conservation discussions are presented. We are supported by dues from individual members and affiliated clubs and by special gifts. The MOU officers wish to point out to those interested in bird conservation that ony or all phases of the MOU program could be expanded significantly with gifts, memorials or bequests willed to the organization.

SUGGESTIONS TO AUTHORS

The editors of **The Loon** invite you to submit articles, shorter "Notes of Interest" ond black/white photos. Photos should be preferobly 5x7 in size. Manuscripts should be typewritten, double-spaced and on one side of the sheet with generous margins. Notes of interest should be generally less than two typewritten pages double-spaced. If reprints are desired the author should so specify indicating number required. A price quotation on reprints will be sent upon receipt of information.

Club information and announcements of general interest should be sent to the Newsletter editor. See inside front cover. Bird-sighting reports for "The Season" should be sent promptly at the end of February, May, July and November to Robert Janssen. See inside front cover.

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50 YEARS OF MINNESOTA ORNITHOLOGY

The LOON

SUMMER 1978

VOLUME 50 — NUMBER 2

The LOON Minnesota's magazine of birds and nature, is published four times each year by the **Minnesota Ornithologists' Union,** the statewide bird club. Permanent address: J. F. Bell Museum of Natural History, University of Minnesota, Minneapolis 55455. Anyone interested in birds and nature may join. Any organization with similar aims may affiliate. All MOU members receive our two quarterly publications: **The Loon** and the **MOU Newsletter.**

MEMBERSHIPS AND SUBSCRIPTIONS: Paul Egeland, 12 East 67th Street, Minneapolis, Minnesota 55423. To join the MOU and receive both MOU publications, send $6.00 for a regular yearly subscription. Or other classes of membership that you may choose are: Family $7.50 yearly; Contributing $10 yearly; Sustaining $25 yearly; Life $100. Canadian and Foreign Subscriptions. $10 yearly. Also available: back issues of **The Loon** ($1.50 each ppd.) and MOU checklists of Minnesota birds (minimum lots of 20 for $1.50 postage paid). Gifts, bequests, and contributions to the MOU Endowment Fund should also be sent to the treasurer.

EDITOR OF THE LOON: Robert B. Janssen, 14321 Prince Place, Minnetonka, Minnesota 55343. (phone 612-938-7464), The editor invites articles, short notes, and black/white illustrations about birds and nature. See back cover for details.

"The Season" section of **The Loon** publishes reports of bird sightings throughout Minnesota. We particularly invite reports from parts of the state that have been neglested or covered lightly in past reports. To become a contributor to "The Season," request the report forms from the **EDITOR OF "THE SEASON," Mrs. Janet Green, 9773 North Shore Drive, Duluth, Minnesota 55804. (phone 218-525-5654).**

EDITOR OF THE MOU NEWSLETTER: Mrs. Marlyn Mauritz, 6810 Tecumseh Lane, Excelsior, Minn. 55331. Publishes announcements and reports about activities of the MOU and its affiliated clubs. (Club officers should keep both MOU editors informed.)

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INVASION OF GREAT GRAY AND BOREAL OWLS, WINTER 1977-78

Kim Eckert

An unprecedented invasion of Great Gray and Boreal Owls occurred in Duluth and along the North Shore of Lake Superior from Oct. 1977 to April, 1978. There were a total of 58 Great Gray observations and 66 Boreal Owl observations.

Between late October 1977 and early April 1978 a major influx of Great Gray and Boreal Owls occurred in northern Minnesota, especially along the North Shore of Lake Superior, amounting to what could be considered the largest recorded invasion of northern owls ever in the state. Previous winter owl invasions have been documented for 1962-63 (Hawk and Boreal Owls; **The Flicker** 35:70-71 and 35:77-78), 1965-66 (Great Gray and Boreal Owls; **The Loon** 38:44-45), 1966-67 (Snowy Owl; **The Loon** 40:90-92), and 1968-69 (Great Gray and Boreal Owls; **The Loon** 41:36-39). Following are separate discussions of the Great Gray and Boreal Owl situations, as well as a brief survey of other owl species during this period in northeastern Minnesota.

I. Great Gray Owl

As near as can be determined, a total of 58 individual Great Grays was recorded. Repeated sightings of what probably were the same individuals are not included in this total, nor are owls seen before late October or after early April in north central or northwestern Minnesota (which are more likely summer residents, rather than a part of this invasion). As the map indicates, most of these (43) were concentarted along the North Shore of Lake Superior between Duluth and Grand Marais. The other 15 individuals were as follows:

2 at Agassiz N.W.R., Marshall Co. from Nov. 25 on
1 at Walker, Cass Co. on Nov. 25
2 at Roseau River W.M.A., Roseau Co. on Nov. 26
2 along Hwy. 310, Roseau Co. from late Nov. on
2 near Payne, St. Louis Co. from Dec. 22 to Jan. 6
1 along Hwy. 89, Beltrami Co. on Jan. 15
1 at International Falls, Koochiching Co. on Jan. 23
1 at Hibbing, St. Louis Co. on Feb. 7
1 near Tamarack, Aitkin Co. on Feb. 9
1 at Squaw Lake, Itasca Co. on Feb. 19
1 near Ely, St. Louis Co. on Mar. 1

The first sighting was on Oct. 21 in Lakewood Twp., St. Louis Co., just outside of Duluth. However, the first influx did not occur until the last few days of November when eight owls first appeared. The second and largest influx came between Dec. 22 and Jan. 7 when 17 first appeared, all between the Duluth area and Grand Marais. During the first three weeks of January, as many as eight Great Grays could be seen in a single day along Hwy. 61 between Silver Bay and Tofte. Owls were then commonly seen hunting along roadsides, usually in late afternoon, with some hunting during all daylight hours especially (but not always) on overcast days. Because of this hunting behavior, many became roadkills; I know of at least 14 such owls, most of these near Silver Bay in late January and early February. Probably as a result, this species became more difficult to find from mid-February on, with almost all sightings limited then to dawn and dusk along secondary roads like Lake Co. Rds. 3, 6 and 61 (I know of no sighting of Great Grays along Hwy. 61 after Feb.

Note: Many of the Great Gray Owls along Highway 61 first appeared near a river; whether this was just coincidence or the owls followed these rivers down to the North Shore is unknown.

11). Only a few new individuals were found after mid-February, by mid-March the species became almost impossible to find along the North Shore, and the last Great Gray was seen April 7 along the Berquist Road just northeast of Duluth (at a location where up to two had been seen since Jan. 29).

This represents the largest influx on record of Great Grays in northeastern Minnesota, and the second largest in the state as a whole. During the winter of 1968-69, a total of 68 Great Grays were recorded with several individuals reaching southern Minnesota, especially the Twin Cities area. This is a higher total over a larger area than that of this past winter, when Great Grays were strictly limited to the northern third of the state and were concentrated primarily between Duluth and Grand Marais (fewer owls were seen in this part of the state in 1968-69).

II. Boreal Owl

An unprecedented total of 66 Borealss was counted; again, multiple sightings of the same individuals are not included in the total (though it should be mentioned that getting a count of this species was more difficult than for the Great Gray since more Borealss were concentrated in a smaller area during a shorter length of time). This total also does not include those Borealss heard in late April along the Gunflint Trail, which are probably in nesting territory (a report on this will be the subject of a future article). As the map indicates, 50 of the 66 were concentrated along the North Shore of Lake Superior between Duluth and Two Harbors. Other individuals sighted were as follows:

1 on the Fernberg Trail, Lake Co. in late Nov.
1 along Cook Co. Rd. 7 on Dec. 10
1 on Hwy. 34, Becker Co. on Dec. 11 (road kill)
1 near Gilbert, St. Louis Co. on Jan. 15 (road kill)
1 near Castle Danger, Lake Co. on Feb. 12
1 at Flood Bay, Lake Co. on Feb. 14
5 along Hwy. 61 between Little Marais and Silver Bay, Lake Co. in mid-Feb.
1 at Island View, Koochiching Co. on Feb. 26
1 near Silver Bay, Lake Co. in late Feb. (road kill)
1 near Silver Bay, Lake Co. on Mar. 5
1 near Silver Cliff on Hwy. 61, Lake Co. on Mar. 5 (road kill)
1 from unknown location (probably North Shore) on Mar. 12 (road kill)

The first Boreal Owl reports were from Duluth's Hawk Ridge where five were banded between Oct. 21 and Nov. 19 (eight were banded here in 1976). These were followed by one other November sighting, two in December and three during the first three weeks of January. But the main influx clearly began at the very end of January and continued almost without let up into early March. Hardly a day passed in February without a new Boreal Owl being reported, almost all of them along the North Shore from Duluth to Two Harbors (it must be mentioned here, however, that Borealss may have been just as common beyond Two Harbors, as evidenced by ten February and March individuals, but that observers spent far more time on the Duluth side of Two Harbors). Like the Great Grays, these Borealss were commonly seen hunting along roadsides (especially Scenic Hwy. 61), mostly late in the afternoon, though some were even seen actively hunting in the middle of a sunny day. Considering the elusive nature of this species and the infrequent number of sightings in previous years, the relative ease of seeing this species throughout February and early March was truly remarkable (one pair of observers saw seven on the single date of Feb. 19). It was also unusual that relatively few birds became roadkills (eight were found) as was the case with the Great Grays, and that even

"A most interesting photo showing what may be interpreted as a threat display by Boreal Owl — behavior not described in any of the literature.

Boreal Owl "scenic 61" near Two Harbors, MN 24 Feb. 1978

photo by Randy Korotev

fewer were found weakened or dead from starvation (three reported) as has been the case in past invasion years. (A word here should be added that while the cause of this invasion is only conjecture, one theory is that the droughts of 1975 and 1976 dried up bogs and reduced small mammal populations farther north. Snow cover was below normal in northeastern Minnesota, and that Great Grays and Boreals apparently had little trouble finding prey which, in all observed cases, consisted of voles, mice or shrews. Also, February was consistently cold without alternate freezing and thawing as is the case in most years; thus, the snow did not form much of a crust which a Boreal might find difficult to break through when hunting, perhaps the main cause of starvation in past years.)

As February ended and March arrived, Boreal Owls became somewhat more difficult to find, though new individuals continued to be reported through mid-March. This difficulty seemed directly related to moderation in temperatures (especially on the weekends of Feb. 25-26 and Mar. 11-12), though it is not known whether the owls started to leave the area or started to become more nocturnal in their habits (the latter seems more likely; as March progressed, Borealss could generally be found only afer sunset for some reason). The last Boreal Owl was seen alive on Mar. 24 along the Holmstead Rd. just northeast of Duluth, though two roadkills were found in Duluth on Mar. 27 and Apr. 3.

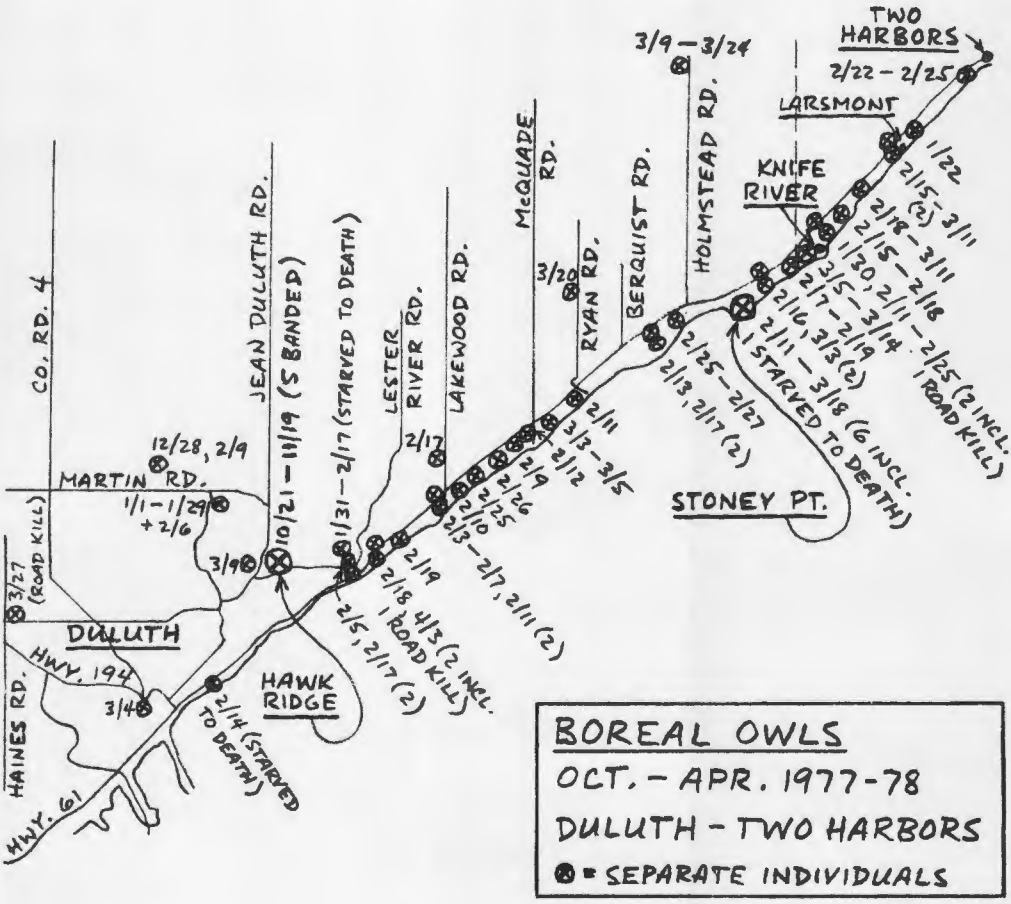
This represents the largest invasion ever in Minnesota by a large margin. The total of 66 individuals is much higher than the previous high of 15 in 1965-66, and it could even be of the same magnitude of the 1922-23 Boreal

Owl invasion in New England, Ontario and the Midwest (though I can find no documentation of the numbers involved). There is a possibility, however, that the numbers of this past winter are higher than past invasion winters only because of the many observers in the Duluth area looking for owls (besides the scores of Minnesota birders, 200 out-of-state birders from 21 states came for the owls). But there is no question that from a standpoint of the number of Boreals which uncharacteristically remained in the same locations for days at a time, of the ease with which this elusive species could be found, of the numbers seen within a single day, and of the

When seen hunting along roadsides, most Boreals were perched on wires or in trees, but a few even used road signs as hunting perches.

Boreal Owl "scenic 61" near Two Harbors, MN 24 Feb. 1978

photo by Randy Korotev



numerous birders who saw this and other owls for the first time, it was a truly spectacular event.

III. Other Owls

Though the Great Gray and Boreal Owls are certainly the species of major attention in this article, a few notes on other owl species in the Duluth-North Shore area during the winter of 1977-78 may be significant.

Great Horned — Curiously down in numbers, there has not been a single report of this species from Duluth all winter!

Snowy — Definitely not an invasion winter, arriving late in the Duluth-Superior harbor area, with no more than five or six present.

Hawk — An above average winter, with nine individuals reported from the northern third of the state; five of these birds remained in single locations for several days in a row, with two present in the same spots for the entire season.

Barred — Staged a minor invasion along the North Shore, primarily during February when the Boreal Owl was at its peak; several were spotted hunting along roadsides, even in midday.

Long-eared — An unusual species in northern Minnesota in winter, especially after early January, but two were seen in Duluth into February and another was found at Stoney Point on February 11.

Short-eared — Also unusual here in winter, but one was present just northeast of Duluth along the Berquist Road from Jan. 31 to Mar. 17.

Saw-whet — Also unusual and also reported in the area; three were seen along the North Shore between Feb. 19 and Mar. 10, probably as a result of the many observers out looking for Borealis.

—9735 North Shore Dr., Duluth, Minn. 55804

OBSERVATIONS OF MIGRATORY WATERFOWL
Rice Lake, Steele County, Minnesota, 1977

Larry Sowden

Over 500 hours of observation on a Steele County lake in 1977 reveal a wide variety and number of waterfowl using the area.

INTRODUCTION

Rice Lake is a horseshoe-shaped lake eight miles east of Owatonna. Covering 697 acres, it makes up part of Rice Lake State Park. It is surrounded in part by an Oak-Basswood forest, cultivated land, and marshy areas. A shallow lake (it is five feet at its deepest point) with a mucky bottom, it is rich in aquatic plant and animal life and is an abundant source of food for the aquatic birds in the area.

During the spring, summer, and fall, Rice Lake provides an interesting display of migrating water birds. On any given day, one may see various species of ducks, geese, swans, etc., and occasionally a pelican or loon. The following is a summary of my observations of ducks, geese, and swans at Rice Lake during the year 1977.

METHODS AND MATERIALS

Field observations were made between March 6 and November 26, 1977. A total of 158 days and over 500 hours were spent making observations. All observations were made on the north side of the lake using 7 power binoculars and a 30 power spot-

ting scope. Using the 30 power spotting scope at various points on the lake, an observer could cover entire portions of the lake.

Whistling Swan

Spring Migration—Whistling Swans were observed at Rice Lake from April 2 to May 1 during spring migration. The following are observation days and the number of adult swans observed each day: April 2—32; April 5—89 (peak day); April 7—26; April 9, 10—11; April 12, 14, 16, 17, 18—4; April 21—5; April 24—1; and May 1—1.

Fall Migration — During the fall migration, swans were observed from November 16 to November 20 on four occasions: November 16—two adults, four immatures; November 17—11 adults, four immatures; and on both November 19 and 20—26 adults, 13 immatures.

Canada Goose

Spring Migration — Canada Geese were observed at Rice Lake from March 24 to April 24 during spring migration. Three different flocks were seen, consisting of ten, 29, and 55 birds each.

Fall Migration — Canada Geese were observed from October 4 to November 19 during fall migration. Observations were made of 11 different flocks for a total of 301 geese. However, this represents only a portion of the Canada Geese utilizing the lake at this time. During the peak of the goose migration, flocks were observed taking off from the lake as I arrived. Other flocks, some with over 100 birds, were observed flying south without landing. On October 27, 13 Canada Geese were seen in a flock of American Coot, Lesser Scaup, American Wigeon, and Mallards. They were much smaller than the normal Canada Geese but slightly larger than the Mallards.

Snow Goose

Spring Migration — Snow Geese were observed at Rice Lake from March 24 to April 2 during spring migration. Observations were made of four different flocks for a total of 181 geese (126 Snows, 55 Blues). On April 5, 420 Snow Geese were observed at Oak Glen Lake, a very small lake 12 miles south of Rice Lake. This flock consisted of 280 Snows and 140 Blues.

Fall Migration — Snow Geese were observed from October 6 to October 13 during fall migration. Observations were made of five flocks for a total of 257 geese (175 Blues, 65 Snows, 17 immatures). The peak of the fall migration was on October 12, with a sighting of 60 birds.

Mallard

Spring Migration — Mallards were the first ducks to be seen on Rice Lake during the spring, outnumbering all other ducks. They were first observed on March 12. The greatest number of Mallards, between 1,500 to 3,000 per day, were seen between April 2 to 10.

Summer — During the summer of 1977, the Mallard was the second most abundant duck on the lake. The first molting males were seen on June 18. From June 1 to July 14, ten adult females and 82 ducklings were seen, for an average of 8.2 young per female.

Fall Migration — Flocks of Mallards started arriving at Rice Lake on September 4. The largest numbers of Mallards were observed from September 12 to 18. The Mallards would arrive around 6:00 p.m. in flocks of 10-12 birds and eventually cover the east end of the lake. Mallards were last observed at Rice Lake on November 20.

Gadwall

Spring Migration — Gadwall were observed at Rice Lake from March 19 to May 12 during spring migration. The greatest number of Gadwalls were seen from April 2 to 10. Over 250 Gadwalls were observed on April 8 and 9.

Pintail

Spring Migration — Pintail were observed at Rice Lake from March 19 to April 25 during spring migration. While a flock of over 50 Pintails was observed on March 20, most observations were of one to 20 ducks. Most observations of Pintails were made in flocks of Mallards and Wigeons.

Summer — Only one molting male Pintail was seen on June 25.

Fall Migration — Seven Pintail were observed from September 4 to October 6 during fall migration. The largest number of Pintails seen was 40+ on September 7.

Green-winged Teal

Although observations were made every month between March and October, except May, only 27 observations of Green-winged Teal were made between March 15 and October 26. Following are observations by season:

Spring — March 15—14; March 26—11; March 27—16; April 3, 7—2; April 8—1.

Summer — From June 3 to 29, one pair of Green-winged Teal were observed. The possibility exists that they may have nested but no young were seen. July 9—one pair, male starting to molt; August 1—one male, three females; August 3—one male, three females.

Fall — September 14—40; September 15—30; September 20, 25—2; September 29—20; October 1—30; October 3—7; October 5, 26—15.

Blue-winged Teal

Spring Migration — Blue-winged Teal first arrived at Rice Lake on March 29 and increased in numbers rapidly. The greatest numbers were observed in the last two weeks of April. Mated pairs arrived first; then a few days later, small flocks of ten to 15 birds arrived, consisting largely of males. Males outnumbered females 3 to 1 at this time of the year. Groups of two to five males were often seen courting a single female.

Summer — During the summer of 1977, the Blue-winged Teal was the most common duck on Rice Lake. It also produced more ducklings than any other species of duck. Between June 11 and August 9, 12 adult females and 103 ducklings were seen, for an average of 8.6 young per female. The first molting males were observed on July 9 and 10; the males observed on July 10 seemed to have been in molt for some time. Te fewest number of birds were observed between July 9 and August 1. The majority of these birds were females with ducklings.

Fall Migration — Fall migration occured from the first part of August to the last part of September. Blue-winged Teal were last observed at Rice Lake on September 29. However, observations and birds taken by hunters indicate that Blue-wings were present in the county until the first part of November, 1977.

American Wigeon

Spring Migration — American Wigeon were observed at Rice Lake from March 24 to May 12 during spring migration. It was the second most common duck, next to the Mallard, at this time. Peak numbers occured on April 7, 8, and 9. Over 500 wigeons were seen on April 8.

Fall Migration — American Wigeon were observed from August 20 to November 17 during fall migration. The largest number observed at one time was 56 birds on October 17.

Northern Shoveler

Spring Migration — Northern Shoveler were observed at Rice Lake from April 2 to June 28 during spring migration. Peak numbers, with flocks of 100 or more, occured between April 17th to May 8.

Summer — The first molting males were observed on June 12.

Fall Migration — The only observation of shovelers in the fall was a flock of 12 seen on September 25.

Wood Duck

Spring Migration — Wood Ducks were first observed at Rice Lake on April 7. Although only four ducks were seen between March 6 and June 1, reports from other observers in the Rice County and Straight River areas indicate that Wood Ducks were very common.

Summer — The number of Wood Ducks increased as summer approached. Most of the observations were of females with ducklings, although a few males were observed. Between June 1 and July 2, nine adult females and 67 ducklings were seen, for an average of 7.4 young per female. A small flock of 15 Wood Ducks were seen on a small pond north of Rice Lake on June 16. No Wood Ducks were observed from July 7 to August 8.

Fall Migration — From August 21 to September 20 there was a steady increase in the number of Wood Ducks. Peak numbers occured on September 10, 16, 17, and 20. On each of these days, there was between 100 to 150 Wood Ducks on the lake. The last bird was seen on September 26.

Redhead

Spring Migration — Redheads were observed at Rice Lake from March 29 to June 25 during spring migration. A total of 31 Redheads were seen between March 29 and May 12, with approximately five to 21 Redheads staying until June 25.

Fall Migration — A total of 89 Redheads were observed at Rice Lake from October 9 to November 14. Most observations were of two to ten birds, with 35 birds observed on October 31.

Ring-necked Duck

Spring Migration — Ring-necked Ducks were observed at Rice Lake from March 24 to June 22 during spring migration. Peak numbers of over 600 birds were reached on April 7 and 8. A few Ring-necks stayed on the lake until late June.

Fall Migration — Ring-necked Ducks were observed from October 6 to November 10 during fall migration. Peak numbers of over 30 birds were reached on October 6, 22, and November 2.

Canvasback

Spring Migration — Canvasback were observed at Rice Lake from April 3 to June 25 during spring migration. Peak numbers of 200 ducks occured on April 7.

Fall Migration — Eighty-nine Canvasback were observed from October 5 to November 19, although a single male Canvasback was observed on September 5 in fall plumage. The greatest number of ducks seen was 43 birds on October 19.

Greater Scaup

Positive identification of Greater Scaup was made on only two occasions: March 15, when ten males and three females were seen and March 29, when seven males and five females were seen.

Lesser Scaup

Spring Migration — The Lesser Scaup is the most common diving duck at Rice Lake during the spring. It was first observed on March 17 and its numbers increased rapidly thereafter. Peak numbers of over 600 birds occured on April 7 and 8. Between 100 to 200 scaup stayed on Rice Lake until the last part of May. The last scaup seen was a pair on June 12.

Fall Migration — The Lesser Scaup was observed from October 6 to November 20 during fall migration, although the majority of scaup came through between October 22 and November 11. One November 10, a flock of over 150 birds came thorugh before the first snow storm of the season on November 11, 1977. Small flocks of approximately 30 birds continued to be seen until the lake froze over.

Common Goldeneye

Spring Migration — The following are observation days and the number of goldeneye seen: March 24—10; March 26—7; March 27—1; April 2—

6; and April 20—10.

Fall Migration — The following are observation days and the number of goldeneye seen: November 9—7; November 14, 16—2; and November 20—10.

Bufflehead

Spring Migration — A total of 49 Bufflehead were observed from March 26 to April 25 during spring migration. Most flocks consisted of five or less birds. The greatest number of birds seen was 11 birds on April 5.

Fall Migration — A toatl of 30 Bufflehead were observed between October 15 and November 19 during fall migration.

White-winged Scoter

Observations of White-winged Scoter occured on the following dates:

October 26 — A pair of scoters were observed in a flock of American Coots, Mallard, Lesser Scaup, and American Wigeon. These large black ducks had white patches in front and behind the eye. However, no wing patches were seen since they remained relatively motionless. They were presumed to be female or immature White-winged Scoters.

October 27 — Two males were observed in a flock of American Coots. These two ducks had orange bills and a small white patch below the eye. A white wing patch was visible on one male. The other males' wing patch became visible as it fluttered its wings.

October 29 — A group of seven scoters were observed on the central part of the lake. The flock consisted of three male and two female or immature White-winged Scoters.

October 31 — A flock of two male and two female or immature scoters were observed.

November 3 — This was the last day any scoters were observed. A single male and two female White-winged Scoters were observed on the central part of the lake.

Ruddy Duck

Spring Migration — Ruddy Ducks were observed at Rice Lake on April 7. Large numbers of these birds were seen all spring, with over a 100 birds seen on April 20, 21 and 24.

Summer — The possibility exists that Ruddies may have produced a brood on the lake. A flock of at least 25 Ruddy Ducks were observed during the entire summer but no young were observed.

Fall Migration — The largest number of Ruddy Ducks seen during fall migration was 20 birds on October 5.

Common Merganser

Three observations: March 26—one male, three females; April 3—one male; April 5—one female.

Red-breasted Merganser

Two observations: April 7—one male; April 25—one male, one female.

Migration Summary

Spring Migration — During the spring, 18 species of ducks, two species of geese, and one species of swan was observed. The mapority of the ducks were Mallards, but there were also large flocks of Lesser Scaup, American Wigeon, Gadwall, and Ring-necked Duck, and to a lesser extent Redhead, Canvasback, and Blue-winged Teal.

Summer — During the summer, 11 species of waterfowl were found on the lake. Mallard, Blue-winged Teal, and Wood Duck were found on the lake during the summer and produced ducklings. Green-winged Teal and Ruddy Duck were also found all summer but no broods were observed.

Fall Migration — During the fall, 17 species of ducks, two species of geese, and one species of swan was observed. There were fewer ducks migrating through the Rice Lake area in the fall than during the spring.

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BREEDING BIRDS OF BURNED & UNBURNED AREAS IN NORTHERN MINNESOTA

Gerald J. Niemi

After a forest fire, the breeding birds of the burned area are altered and populations are reduced but perhaps not as much as once believed. A study of burned and unburned areas in northern St. Louis County reveals these changes.

INTRODUCTION

Forest fire served as the most prominent factor in the regeneration of forest ecosystems prior to settlement of northern Minnesota (Heinselman, 1973). The role of forest fire has since been reduced by fire control and replaced in part by man-induced habitat changes. There is a need to understand the effects of both natural and unnatural habitat changes. The purpose of this paper is to provide a baseline inventory of breeding bird invasion following a forest fire and compare this to an adjacent unburned area.

This paper is restricted to a qualitative approach with a supplementary quantitative index. For additional information on estimates of population density within specific sample plots of northern Minnesota see Bergstedt and Niemi (1973) or Niemi (1977).

STUDY AREA

The entire study area lies in the Superior National Forest (SNF) and partially in the present Boundary Waters Canoe Area (BWCA). The study area is divided into two separate study areas as shown in Figure 1. One study area, a burned area, is commonly referred to as the Little Sioux burn (Rudd, 1971) and is located in northwestern St. Louis County approximately 40 miles northeast of Ely on the Echo Trail. Approximately 15,000 acres were burned in May of 1971. The other study area, an unburned area, is a strip of land or buffer approximately three miles wide which surrounded the external boundaries of the Little Sioux burn area. This area was assumed representative of the vegetation and bird species present in the Little Sioux burn area prior to alteration by fire. The ecotone or edge formed between the burned and unburned forest was omitted from the analysis because this area formed a unique and distinct habitat type.

METHODS

The system used to indicate the commonness of birds in the two study areas required two phases. First, field data on birds were collected during the breeding season in the burn and unburned areas. Secondly, a classification system was devised which exemplified the commonness of all bird species identified in each of the study areas.

The first phase consisted of the identification, by both sight and sound, of all birds encountered when I was within either of the two study areas. Time spent in the areas was devoted to a number of tasks in addition to censusing. These included mapping specific bird territories, doing vegetation surveys, and during general reconnaissance of the areas. The time spent within either of the study areas varied from six to 14 hours per day and began prior to sunrise. Field data were collected a total of 31 count days during June of 1973, 1974, and 1975.

Since data were collected during different time periods and in a wide variety of habitat types, the second phase or classification phase was devised to separate the field data of species into five distinct categories. The five categories which represent

a commonness index are defined as follows:

sa — super abundant — five individuals or more of a species identified on every count day

a — abundant — one to four individuals of a species identified on every count day

c — common — one individual or more of a species identified on more than half but less than on every count day

u — uncommon — one individual or more of a species identified on more than one but less than or equal to half of the count days

r — rare — one individual or more of a species identified once during the observation period.

The field data for each species were summarized each evening of every count day. The number of individuals

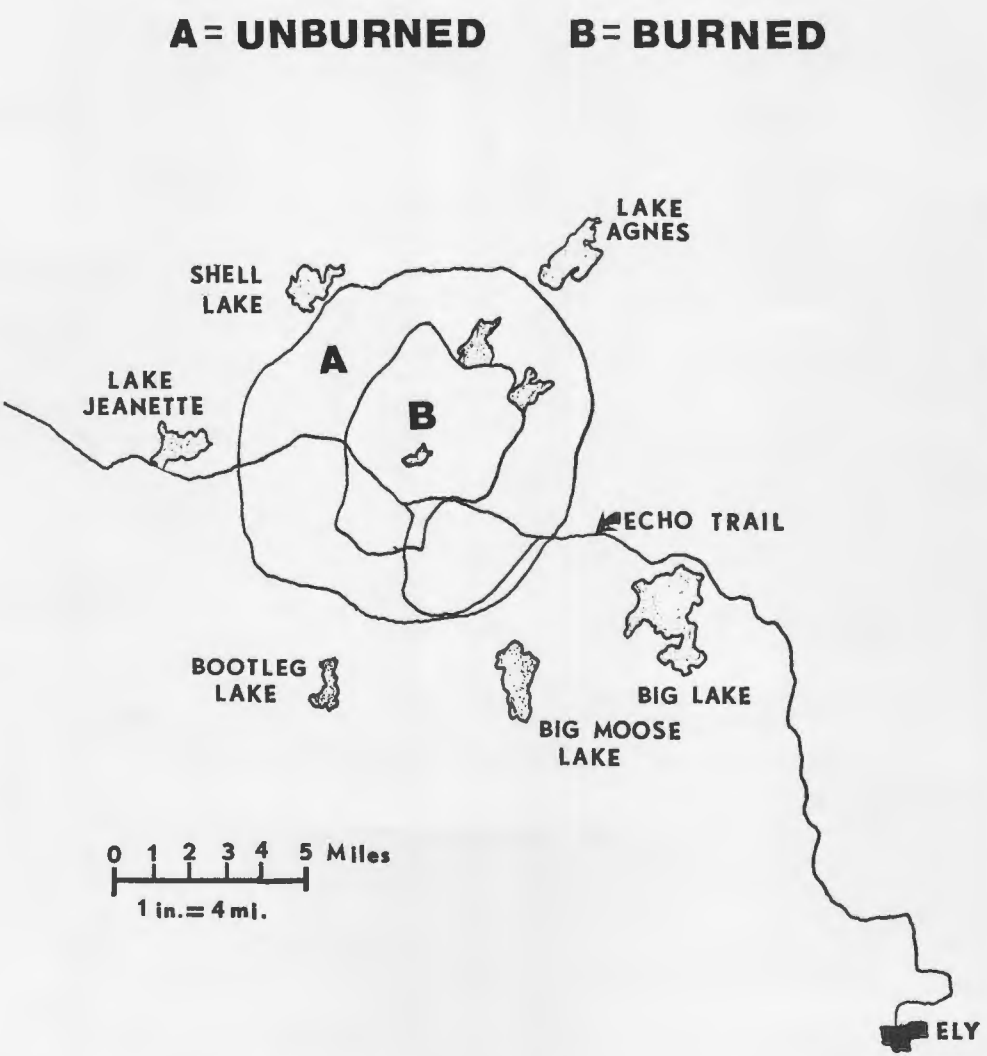

Fig. 1. Location of the study areas in the Superior National Forest of northern Minnesota.

of each species was estimated and, to insure accurancy, was compared to actual territory mapping censuses (Niemi, 1977) within each of the areas. Classification of the species identified, simply involved summarizing the 31 count days and selecting the appropriate category.

RESULTS AND DISCUSSION

Table 1 shows the commonness category for each species identified within the study areas and the overall change which resulted following forest fire. The burned area was subdivided by years since the vegetation changed rapidly and there was a subsequent change in the avifauna. The overall change in commonness of each species encountered resulted in 54 decreases, 17 increases, and 42 no changes following the forest fire. A total of 107 species were identified in the unburned area and 91 in the burned area.

To enhance the interpretation, bird species were subdivided into groups as shown in Table 2. The table shows the number of species within a category for both unburned and burned areas in addition to the net change following forest fire for each category. Most noticeable decreases in bird species commonness occurred in the waterbird, cuckoo-kingfisher, flycatcher-swallow, and the vireo-warbler groups. The only increase was noted in the woodpecker group. In the remaining groups, there was no overall change.

In general, there was a decrease in both number of species and commonness of birds following forest fire. This expected change appeared to be the result of a reduction in the amount of standing vegetation and consequently a decrease in the potential intermixing of herbaceous, shrub, subcanopies, and canopies. The intermixing of vegetation layers is commonly measured by indices of habitat diversity and many studies have shown that bird species diversity increases as habitat diversity increases (MacArthur and MacArthur, 1961; Rov. 1975). Since fire was the natural and most predominant evolutionary force in the forest regeneration of northeastern Minnesota (Heinselman, 1973), this reduction in bird species composition is a temporary change and should be interpreted as an integral part of the natural vegetation-wildlife successional cycle.

Since the two areas were structurally different, there was a definite bias in the areas effectively censused. This bias favored higher counts in the burn because this area was comparatively open. Thus, the area effectively censused was increased because birds were more conspicuous. Another bias favoring the burn involved the small islands of unburned forest. These unburned islands, typical of forest burns, were created by the fire jumping from place to place as it was driven by wind and resulted with an increase in edge habitats. The islands were unique and many species typical of later successional stages were found associated with them. Among the species identified in these islands were the Golden-crowned Kinglet, Black-and-white Warbler, Nashville Warbler, Northern Parula, Magnolia Warbler, Blackburnian Warbler, Scarlet Tanager, and Rose-breasted Grosbeak.

Differences in waterbird commonness were difficult to assess because these data were dependent on the amount of water-related habitats actually encountered and on the specialized techniques required to properly evaluate waterbirds. Generally, the water habitats sampled in the two areas were small marsh ponds. In these ponds several broods of Mallards and Hooded Mergansers were sighted in both the burn and unburned areas. The observations of the Common Loon, Canada Goose, and Common Merganser within the burn were recorded as the birds flew overhead, thus, their relationships to burn habitats were not determined. The results on the effect of forest fire on waterbirds are inconclusive and clarifica-

Table 1 — A list of bird species and associated commonness classification for each species in burned and unburned forest in northern Minnesota.

	UNBURNED OVERALL	BURNED 1973	BURNED 1974	BURNED 1975	BURNED OVERALL	NET CHANGE
WATERBIRDS						
Common Loon	c	u	u	u	u	–
Pied-billed Grebe	r	–	–	–	–	–
Great Blue Heron	u	u	u	u	u	o
American Bittern	u	–	r	–	r	–
Canada Goose	r	–	–	r	r	o
Mallard	u	u	u	c	u	o
Wood Duck	u	r	r	u	u	o
Black Duck	u	–	–	–	–	–
Common Goldeneye	u	–	–	–	–	–
Hooded Merganser	u	r	r	u	u	o
Common Merganser	u	–	–	r	r	–
HAWKS						
Turkey Vulture	u	u	u	u	u	o
Goshawk	r	–	–	–	–	–
Sharp-shinned Hawk	u	r	–	r	u	o
Red-tailed Hawk	–	u	u	u	u	+
Broad-winged Hawk	c	u	u	r	u	–
Bald Eagle	u	r	–	r	u	–
Marsh Hawk	u	r	r	–	u	o
Merlin	r	–	r	–	r	o
American Kestrel	u	u	c	c	c	+
GALLINACEOUS BIRDS						
Spruce Grouse	u	–	–	–	–	–
Ruffed Grouse	c	u	u	c	c	o
SHOREBIRDS AND GULLS						
Killdeer	u	c	u	u	u	o
Common Snipe	c	–	r	–	r	–
Spotted Sandpiper	c	–	–	–	–	–
Herring Gull	c	–	r	r	u	–
CUCKOO-KINGFISHER						
Black-billed Cuckoo	u	–	–	r	r	–
Great Horned Owl	u	–	–	r	r	–
Barred Owl	u	–	–	–	–	–
Saw-whet Owl	r	–	–	–	–	–
Common Nighthawk	c	c	c	c	c	o
Ruby-throated Hummingbird	u	u	u	u	u	o
Belted Kingfisher	u	r	u	r	u	o
WOODPECKERS						
Common Flicker	c	a	a	a	a	+
Pileated Woodpecker	u	r	r	u	u	o
Red-headed Woodpecker	–	c	c	c	c	+
Yellow-bellied Sapsucker	a	u	u	u	u	–
Hairy Woodpecker	u	c	c	c	c	+
Downy Woodpecker	c	u	u	u	u	–

	UNBURNED OVERALL	BURNED 1973	1974	1975	OVERALL	NET CHANGE
Black-backed Three-toed Woodpecker	r	u	u	c	u	+
FLYCATCHERS-SWALLOWS						
Eastern Kingbird	u	c	c	a	c	+
Eastern Phoebe	u	u	u	r	u	o
Yellow-bellied Flycatcher	u	–	–	r	r	–
Alder Flycatcher	a	a	a	a	a	o
Least Flycatcher	a	sa	a	a	a	o
Eastern Wood Pewee	c	u	u	c	c	o
Olive-sided Flycatcher	u	u	u	u	u	o
Tree Swallow	c	c	u	c	c	o
Bank Swallow	u	–	–	–	–	–
Barn Swallow	u	r	r	u	u	o
Cliff Swallow	u	–	–	–	–	–
JAYS-WRENS						
Gray Jay	u	r	r	u	u	o
Blue Jay	c	c	c	c	c	o
Common Raven	c	c	u	c	c	o
Common Crow	c	c	c	c	c	o
Black-capped Chickadee	c	u	u	u	u	–
Boreal Chickadee	u	–	–	–	–	–
Red-breasted Nuthatch	c	r	r	u	u	–
Brown Creeper	u	u	r	u	u	o
House Wren	–	sa	a	a	a	+
Winter Wren	c	u	u	c	c	o
Short-billed Marsh Wren	u	–	u	c	u	o
MIMIC THRUSH-STARLING						
Gray Catbird	u	–	–	–	–	–
Brown Thrasher	r	c	c	c	c	+
American Robin	c	a	a	a	a	+
Hermit Thrush	c	u	c	c	c	o
Swainson's Thrush	c	r	u	u	u	–
Veery	a	c	a	a	c	–
Eastern Bluebird	–	–	–	r	r	+
Golden-crowned Kinglet	c	r	u	u	u	–
Ruby-crowned Kinglet	c	r	r	u	u	–
Cedar Waxwing	c	c	c	a	c	o
Starling	u	–	u	r	u	o
VIREOS-WARBLERS						
Solitary Vireo	u	–	–	r	r	–
Red-eyed Vireo	sa	a	c	a	c	–
Philadelphia Vireo	u	–	–	–	–	–
Black-and-white Warbler	c	u	u	u	u	–
Tennessee Warbler	u	–	–	–	–	–
Nashville Warbler	sa	c	c	c	c	–
Northern Parula	c	–	r	u	u	–
Yellow Warbler	u	–	–	–	–	–
Magnolia Warbler	c	u	u	r	u	–
Cape May Warbler	u	–	–	–	–	–
Yellow-rumped Warbler	c	–	–	–	–	–

	UNBURNED OVERALL *	BURNED 1973	1974	1975	OVERALL	NET CHANGE
Black-throated Green Warbler	u	–	–	–	–	–
Blackburnian Warbler	sa	u	r	r	u	–
Chestnut-sided Warbler	a	sa	sa	sa	sa	+
Ovenbird	sa	u	u	u	u	–
Northern Waterthrush	c	–	–	–	–	–
Mourning Warbler	a	sa	sa	sa	sa	+
Common Yellowthroat	a	a	a	a	a	o
Canada Warbler	u	–	r	r	u	o
American Redstart	u	r	r	u	u	o
ICTERIDS-TANAGER						
Red-winged Blackbird	a	c	c	c	c	–
Northern Oriole	r	–	–	–	–	–
Common Grackle	a	c	c	a	c	–
Scarlet Tanager	u	r	u	r	u	o
Brown-headed Cowbird	c	u	c	u	c	o
SPARROWS						
Rose-breasted Grosbeak	c	u	u	u	u	–
Indigo Bunting	–	c	a	a	c	+
Evening Grosbeak	c	u	c	c	u	–
Purple Finch	c	u	u	u	u	–
Pine Siskin	u	u	u	r	u	o
American Goldfinch	c	u	u	c	c	o
Red Crossbill	u	r	u	r	u	o
White-winged Crossbill	r	–	–	–	–	–
Dark-eyed Junco	u	u	c	c	c	+
Chipping Sparrow	a	c	c	c	c	–
Clay-colored Sparrow	–	–	–	r	r	+
White-throated Sparrow	sa	sa	sa	sa	sa	o
Lincoln's Sparrow	u	–	–	–	–	–
Swamp Sparrow	c	u	u	c	c	o
Song Sparrow	a	sa	sa	sa	sa	+
Total number of species	107					91

5	super abundant	4
11	abundant	6
34	common	26
48	uncommon	44
9	rare	11

tion would require a detailed species-specific sampling procedure.

An equal increase-decrease in commonness was observed for the hawks in burned and unburned habitats. The Turkey Vulture and Bald Eagle were seen soaring overhead in both study areas. The Red-tailed Hawk and American Kestrel have been described as uncommon and rare respectively in the SNF (Green, 1971). Both species definitely increased following forest opening by fire and their existence in forested areas was very dependent on this phenomena. Hawks such as the Goshawk, Sharp-shinned Hawk, Broad-

Table 2. Cumulative change in bird species commonness by bird groups in the burn and unburned study areas.

Groups*	Unburned					Burned					Following Burn					Ovorall
	SA	A	C	U	R	SA	A	C	U	R	SA	A	C	U	R**	
Waterbirds	–	–	1	8	2	–	–	–	5	3	–	–	–1	–3	+1	–3
Hawks	–	–	1	5	2	–	–	1	6	1	–	–	0	+1	–1	0
Gallinaceous birds	–	–	1	1	–	–	–	1	–	–	–	–	0	–1	–	–1
Shorebirds, gulls	–	–	3	1	–	–	–	–	2	1	–	–	–3	+1	+1	–1
Cuckoo - kingfisher	–	–	1	5	1	–	–	1	2	2	–	–	0	–3	+1	–2
Woodpeckers	–	1	2	2	1	–	1	2	4	–	–	0	0	+2	–1	+1
Flycatchers - swallows	–	2	2	7	–	–	2	3	3	1	–	0	+1	–4	+1	–2
Jays - wrens	–	–	6	4	–	–	1	4	5	–	–	+1	–2	+1	–	0
Mimic Thrushes - Starling	–	1	6	2	1	–	1	4	4	1	–	0	–2	+2	0	0
Vireos - warblers	4	3	5	8	–	2	1	2	7	1	–2	–2	–3	–1	+1	–7
Icterids - tanager	–	2	1	1	1	–	–	3	1	–	–	–2	+2	0	–1	–1
Sparrows	1	2	5	4	1	2	0	5	5	1	+1	–2	0	+1	0	0
Total	5	11	34	48	9	4	6	26	44	11	–1	–5	–8	–4	+2	–16

*Bird groups correspond to those delineated in Table 1.

** SA = Super Abundant
A = Abundant
C = Common
U = Uncommon
R = Rare

winged Hawk, and Merlin are found more often in woodlands. However, all of these hawk species, except the Goshawk, were identified in the burn, thus, these open areas were probably used for feeding.

Ruffed Grouse were sighted in equal numbers both in burned and unburned habitats. Since the censuses were conduced in June, drumming counts were not included. The burn studied was in a very early successional stage, thus, it is anticipated that the Ruffed Grouse population will increase temporarily as the forest matures. Spruce Grouse were never seen in the burn and they were only sighted with broods as they crossed roads in conifer stands. Ellison (1975) found that Spruce Grouse in Alaska had a strong affinity to home ranges even after extreme alteration by fire because one year after the fire 35 percent of the Spruce Grouse population remained in the area. Since this study was initiated three years following the fire, there is no way to test whether this same phenomenon occurred.

Shorebirds and gulls are generally restricted to water associated habitats and their commonness is dependent on the abundance of these habitats. The Killdeer, although described as rare in the SNF (Green, 1971), was a common bird three years after the fire; however, its commonness declined as the vegetation matured. Common Snipe were observed in sedge marshes outside the burn and this habitat type was not common in the burn areas censused. The Spotted Sandpiper and Herring Gull were generally associated with larger lakes in the study area.

The group including cuckoos, owls, nighthawks, hummingbirds, and kingfishers is a diversified group and species-specific in their reaction to forest fire. The Black-billed Cuckoo is cyclic in appearance and its distribution is dependent on the availability of tent caterpillars (Green and Janssen, 1975). The BWCA is also at the northern limits of the Black-billed Cuckoo range (Robbins, et al, 1966). Only during the 1975 breeding season was the species observed in the study areas and, then, more often in the unburned area. Owls require special night censusing techniques and because of this are often neglected. I conducted six night censuses during June (two each in 1973, 1974, and 1975) with no owls responding to my calling or tape playbacks in the burn areas, but three species were identified outside the burn. The Saw-whet Owl was heard only once during the three year period. The three species listed here are generally considered woodland species; however, a more detailed study would be necessary to assess their use of the burn. Common Nighthawks nested on rock outcrops found in both burned and unburned habitats. The Ruby-throated Hummingbird and Belted Kingfisher were distributed sporadically throughout both burn and unburn habitats depending on the availability of proper habitat and food sources.

Woodpeckers are noticeably more conspicuous in a burn area. This group seemed to be the only group which increased following fire, although this may be an artifact of increased conspicuousness. If woodpeckers increase following fire, this would largely be attributable to the availability of dead snags. The Common Flicker and Redheaded Woodpecker, since their habitat generally consists of open areas with sparsely distributed trees, increased following fire whereas the Yellow-bellied Sapsucker decreased due to the loss of live sap-flowing trees. The Red-headed Woodpecker has been described as rare in the SNF (Green, 1971) and the species would not occur in the study area without openings such as those created by fire. The Black-backed 3-toed also a rare bird in the SNF (Green, 1971) may increase following fire, but this also may be due to the increased conspicuousness or the lack of thorough investigations in other habitats where the species is found such as mature Black Spruce

bogs. Four nests of this tame but elusive species were found in the burn. All nest holes were in burned mature Jack Pine. During the first two years following the forest fire (prior to this study), Forest Service personnel noticed a large number of woodpeckers including the Black-backed 3-toed Woodpecker in the burn area (Lew Ohmann, pers. comm.). Unfortunately, there is no way to determine whether an influx of woodpeckers occurred; however, based on the general observations and reactions of these people, it seems plausible that an increase in woodpecker density did occur. During my investigation, I felt it was difficult to determine whether an overall increase occurred due to the lack of data in suitable woodpecker habitats in unburned areas.

Flycatchers seemingly did not change in commonness following forest fire despite a decrease in habitat complexity. The Eastern Kingbird increased following fire. The Least Flycatcher, a typical woodland species, exhibited an unusual reaction to fire because it was super abundant during the 1973 breeding season. Roberts (1932) comments on a "defective nest-building instinct" for the species because it was found building a nest in a "dead and bare bush." I found several nests in dead burned trees including both in Paper Birch and Jack Pine. This species may exhibit a strong affinity to pre-fire occupied territories and gross changes to the habitat may not alter this selection affinity (Niemi, 1977). Among the swallows, only the Tree Swallow was widely distributed and common in both burned and unburned habitats. This species requires small open areas with available nest holes. Barn and Cliff Swallows are dependent on specific structural features such as bridges or buildings. Bank Swallows are dependent on exposed banks. Where these suitable structures exist any of the latter three swallow species may be found.

Jays and crows seemingly show no changes following fire. However, these species all range over wide areas and, thus, their specific habitats were difficult to distinguish. Chickadees and nuthatches generally decrease following forest fire and this was probably due to a decrease in habitat complexity and available food. The Brown Creeper which has been described as rare (Green, 1971) in the SNF was found to be uncommon in both the burned and unburned areas. The House Wren also described as rare in the SNF (Green, 1917) increased following forest fire. This species would probably not be found in the BWCA if it were not for forest openings created by disturbance.

There was an equal fluctuation in the mimic thrush to Starling group following the burn. Species such as the Brown Thrasher and American Robin increased with forest openings while the Swainson's Thrush and Veery decreased. Forest Service personnel investigating the burn area during the summer following the fire noted there was an influx of Eastern Bluebirds. This phenomenon was never observed during my counts in June and only one individual was sighted during my three year study period. This could be due to several factors which include the species moving into the area during the post-breeding season (July-August) or due to low regional populations during the years I censused. The former hypothesis is considered most likely since their summer distribution in "burned-over areas and windfalls of the northern forest" was noted by Roberts (1932). Kinglets prefer live conifer forest to burn areas and, thus, they show a population reduction following fire. Cedar Waxwings were classified as common overall in both the burned and unburned areas; however, during the 1975 breeding season there was a good crop of blueberries, juneberries and pincherries, thus, the species was abundant in the burned habitat where the berry supply was abundant. Starlings are generally found in close association with man, thus, the species

was uncommon throughout most of the forested areas of the SNF.

The two groups reduced most in commonness were the vireos and warblers. Since these species like the chickadees, nuthatches, and kinglets are dependent on the life form or structure of the habitat more than the other larger bird species, they were the most affected. These smaller species use subtle differences in habitat complexity to divide niches, thus, a reduction in the complexity of the forest results in a reduction in the number of niches available to them.

The Chestnut-sided Warbler and Mourning Warbler were the only species of the group showing an increase following fire. These species were commonly found in young deciduous growth and early successional stages. There was an exceptional reduction in the very abundant birds of the SNF including the Red-eyed Vireo, Nashville Warbler, Blackburnian Warbler, and Ovenbird. This reduction should be interpreted as a temporary reduction and part of a natural cycle. As the habitat complexity increases by continued growth and differentiation of the various vegetational strata, there will be an increase of species associated with later successional stages.

There was a slight decrease in the blackbird-tanager group commonness following forest fire. The Red-winged Blackbird and Common Grackle are both usually associated with water habitats such as marshes or lake edges (Roberts, 1932) and water habitats were sampled more extensively in the non-burn areas. The Brown-headed Cowbird, a ubiquitous species in many parts of Minnesota, was a common bird in both burn and unburned areas. The Scarlet Tanager was found only in unburned islands within burn areas. These areas were reminiscent of the unburned forested areas which the species prefers.

There was an even increase and decrease in sparrow commonness following forest fire. Those species showing decreases following forest fire are typically associated with mature conifers such as the Evening Grosbeak and Chipping Sparrow, with mature deciduous forests such as the Rose-breasted Grosbeak and Purple Finch; or with ericaceous-muskeg bogs such as the Lincoln's Sparrow. The Indigo Bunting is rare and the Clay-colored Sparrow very rare (Green, 1971) in the SNF and both are typically associated with open areas. Neither species would be found in the BWCA without forest openings such as those created by fire.

In general, the bird species which invade the SNF following forest opening by fire are those species generally more common and abundant to the south of the SNF. For example, these species would include: The Red-tailed Hawk, American Kestrel, Red-headed Woodpecker, House Wren, and Indigo Bunting. The species which decreased following forest fire were those typical of the northeastern Minnesota region. Among the native breeding species reduced in commonness following the forest fire were the Broad-winged Hawk, Yellow-bellied Sapsucker, Black-capped Chickadee, Veery, most vireos and warblers, and Rose-breasted Grosbeak. The most dominant birds following forest fire were those classified as super abundant in Table 1. These species include the Chestnut-sided Warbler, Mourning Warbler, White-throated Sparrow, and Song Sparrow. They are all found in high abundance throughout the burn area.

SUMMARY

The Little Sioux fire area and an unburned strip of forest surrounding the burn were visited 31 days during the June breeding season of 1973, 1974, and 1975. This corresponded to two, three, and four years following the May 1971 forest fire. All species encountered while I conducted a varriety of activities in the burn and unburned area were classified into one of five commonness groups. This classification was based on the frequency and number of individuals of species registered on a daily basis. Since the

Little Sioux area has undergone rapid vegetational changes, the commonness classification was divided into the years of coverage for this area.

A total of 107 species were identified in the unburned area and 91 species in the burn area. There were 54 species decreases, 17 species increases. and 42 species showing no apparent change in commonness following forest fire. Greatest bird species group reductions following fire were shown in waterbirds, flycatchers-swallows, and vireos and warblers. Woodpeckers were the only group that increased. Reasons for the apparent increases or decreases are discussed in terms of changes in habitat structure, conspicuousness of birds, or other species specific factors. Many species such as the Red-tailed Hawk, American Kestrel, Red-headed Woodpecker, House Wren, and Indigo Bunting would not occur in the BWCA without forest disturbance such as forest fire. However, many pre-fire occupants do not occur or were reduced in the forest fire due to loss of proper habitat such as the Broad-winged Hawk, Yellow-bellied Sapsucker, Black-capped Chickadee, Red-eyed Vireo, most warblers, and Rose-breasted Grosbeak.

General conclusions of the study indicate that: 1) birds especially the smaller passerines decrease following forest fire due to a reduction in habitat complexity which provided suitable niches, 2) there is a bias in censusing birds in open areas like burns due to the increased conspicuousness 3) the changes following forest fire are temporary changes which are a part of the natural vegetation-wildlife cycle, 4) most changes in bird species commonness following forest fire result in an increase of species typically found south of the SNF and native breeding species are reduced in commonness, and 5) some species like the Least Flycatcher may show a strong affinity to territories occupied prior to alteration and extreme vegetational change such as those created by fire may not displace the species territory.

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Literature Cited

Bergstedt, B. and G. J. Niemi. 1974. A comparison of two breeding bird census following the Little Sioux forest fire. Loon 46:28-33.

Ellison, L. N. 1975. Density of Alaska Spruce Grouse before and after fire. J. Wildl. Mgmt. 39:468-471.

Green, J. C. 1971. Summer birds of the Superior National Forest, Minnesota. Loon 43:103-107.

Green, J. C. and R. B. Janssen. 1975. Minnesota birds — where, when, and how many. University of Minnesota Press. 217 pp.

Heinselman, M. 1973. Fire in the virgin forests of the Boundary Waters Canoe Area, Minnesota. J. Quarternary Res. 3:329-382.

MacArthur, R. H. and J. W. MacArthur. 1961. On bird species diversity. Ecology 42:594-598.

Niemi, G. J. 1977. Habitat alteration: its effect on avain composition and habitat selection. M. S. thesis. University of Minnesota, Duluth. 110 pp.

Robbins, C. S., B. Brunn, and H. S. Zim. 1966. Birds of North America, Golden Press, New York. 340 pp.

Roberts, T. S. 1932. The birds of Minnesota, Vol. I and II. University of Minnesota Press, Minneapolis.

Rov, 1975. Breeding bird community structure and species diversity along an ecological gradient in deciduous

forest in western Norway. Ornis. Scand. 6:1-14.
Rudd, C. S. 1971. Wilderness research following the Little Sioux fire. Naturalist 22:3.
Lake Superior Basin Studies Center, 413 Administration Bldg., Duluth, MN 55812.

AN ANNOTATED LIST OF ANOKA COUNTY BIRDS

KENNETH J. LA FOND

An up to date listing of 278 species recorded in Anoka County with comments on their occurrence and abundance.

INTRODUCTION

Anoka County is the northern-most of the seven counties in the metropolitan area that includes and surrounds the Twin Cities of Minneapolis and St. Paul in east-central Minnesota. It is bounded on the west by Sherburne and Hennepin Counties and the Mississippi River forms much of the western boundary. Isanti, Chisago, Washington and Ramsey Counties lie to the north, east and south. The Rum River trends in a north-south direction through the western one-third of the county.

It has an estimated population of about 190,000 (1975), most of whom reside in the developed areas in the south and west that include Fridley, Blaine, Spring Lake Park. Coon Rapids and the City of Anoka. While the central portions are undergoing rapid development, there are areas in the north and east under governmental control (Cedar Creek, Carlos Avery and Chain of Lakes Park) that promise to retain at least some of the original characteristics of the region.

Topographically, much of the eastern two-thirds of the county is quite flat at about elevation 900. Elevation extremes range from a low of 810 where the river leaves the southern tip to a high of 995 in the hilly northwestern corner.

Geologically, the flat nature of much of the county is the result of the formation of lake bottom sediments roughly 10,000 years ago. The sediments are predominantly fine grained sand that is as much as 50 feet thick in some areas. As the glaciers retreated and the lake drained, the sands, generally level, but with many shallow depressions, were exposed to the prevailing winds. The higher areas were reworked into sand dunes (the best examples are in and around Bunker Hills Park) while the lower areas evolved into the many shallow lakes and marshes so prevalent in the eastern two-thirds of the county.

Vegetative cover on the sandy soils consists of prairie grasses and scattered oak forests. A small section of virgin prairie remains near the Cedar Creek Natural History Area. Deciduous woods are present along the Rum and Mississippi Rivers and also in the Cedar Creek and Carlos Avery areas. Many of the peat (or muskeg) bogs are now used for sod farming although there are still many wetland areas. Some of the marshes include isolated pockets of northern type spruce or tamarac bogs, particu-


I S A N T I C O
ISANTI AND ANOKA COUNTIES GAME REFUGE
SAINT FRANCIS
BETHEL
EAST BETHEL
B U R N S
O A K G R O V E
L I N W O O D
CARLOS AVERY WILDLIFE MANAGEMENT AREA
C O L U M B U S
RAMSEY
ANDOVER
HAM LAKE
ANOKA
COON RAPIDS
BLAINE
LINO LAKES
CENTERVILLE
LEXINGTON
CIRCLE PINES
SPRING LAKE PARK
MISSISSIPPI RIVER
R A M S E Y C
H E N N E P I N C O
COLUMBIA HEIGHTS
GENERAL HIGHWAY MAP
ANOKA COUNTY MINNESOTA
SCALE OF STATUTE MILES
1975
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larly in the northeastern quadrant.

In common with its sister counties, Anoka is a good interior continental location for observing large numbers of different species. Many migrants pass through, southern birds reach their northern limits, western birds their eastern lmits and northern winter visitants their southern limits in the general vicinity.

Birding areas in the county include the Carlos Avery Wildlife Management Area and the Cedar Creek Natural History Area. Both are located in the northern reaches of the county and each has over 200 species recorded. Other good areas are Bunker Hills Park, Chain of Lakes Park, the Coon Rapids Dam and, at least during migration, the sod farm areas. There are undoubtedly many other good areas the writer is not aware of, particularly in the northwestern portions of the county.

A total of 278 species are included on the following list. This includes extinct, extirpated, accidental and introduced species.

Data sources consist of the writer's field notes covering the period 1975-1977 and, in large part, the published references listed in the bibliography. Also, Mr. William Pieper made available his field notes covering the period 1952-1977.

The nomenclature and taxonomy follow that of **Minnesota Birds, Where, When and How Many** by Green and Janssen, University of Minnesota Press, 1975.

Status in the East-central geographic zone of Minnesota as determined from **Minnesota Birds** is designated as follows:

R — REGULAR
C — CASUAL
A — ACCIDENTAL
E — EXTINCT OR EXTIRPATED

Abundance by season and breeding are coded as follows:

Sp — March-May
S — June-July
F — August-November
W — December-February
C — Common or abundant
U — Uncommon
R — Rare, casual or accidental
* — Positive breeding
\+ — Inferred breeding

Species	Abundance				Species	Abundance			
	Sp	S	F	W		Sp	S	F	W
*Common Loon — R	C	U	U		Yellow-crowned				
*Red-necked Grebe — R	R	R			Night Heron — R	R	R		
Horned Grebe — R	C		R		Least Bittern — R	R	R		
Eared Grebe — R	R				American Bittern — R	U	U	U	
Western Grebe — A	R				Whistling Swan — R	C		C	
*Pied-billed Grebe — R	C	C	C	R	Trumpeter Swan — E				
White Pelican — R		R	R		*Canada Goose — R	C	U	C	U
Double-crested Cormorant—R	U	R	R		White-fronted Goose — C	U			
*Great Blue Heron — R	C	C	C		Snow Goose — R	U		U	R
+Green Heron — R	C	C	C		*Mallard — R	C	C	C	C
*Great Egret — R	C	C	C		Black Duck — R	R	R	R	R
*Black-crowned					Gadwall — R	C	R	C	
Night Heron — R	C	C	C		*Pintail — R	C	R	C	

Species	Abundance			
	Sp	S	F	W
Green-winged Teal — R	C	R	C	
*Blue-winged Teal — R	C	C	C	
American Wigeon — R	C	R	C	R
*Northern Shoveler — R	C	R	U	
*Wood Duck — R	C	C	C	R
Redhead — R	C	R	U	
*Ring-necked Duck — R	C	U	C	R
Canvasback — R	C	R	U	R
Greater Scaup — R	C		C	R
Lesser Scaup — R	C	R	C	R
Common Goldeneye — R	C	R	C	C
Bufflehead — R	C		C	
Oldsquaw — R	R			
White-winged Scoter — R			R	
*Ruddy Duck — R	C	U	C	
Hooded Merganser — R	U	U	U	
Common Merganser — R	C		U	
Red-breasted Merganser — R	C		U	
Turkey Vulture — R	R		C	R
Swallow-tailed Kite — A	R			
Goshawk — R	R		R	R
Sharp-shinned Hawk — R	R		U	R
*Cooper's Hawk — R	R	R	R	R
*Red-tailed Hawk — R	U	U	U	R
+Red-shouldered Hawk — R	R	R	R	R
*Broad-winged Hawk — R	U	R	U	
Swainson's Hawk — C			R	
Rough-legged Hawk — R	U		C	R
Golden Eagle — R	R		R	R
Bald Eagle — R	R	R	R	R
*Marsh Hawk — R	U	R	U	
Osprey — R	R		R	
Gyrfalcon — C				R
Prairie Falcon — A			R	
Merlin — R	R		R	
*American Kestrel — R	C	U	C	R
Ruffed Grouse — R	U	U	U	U
*Greater Prairie Chicken — E				
Sharp-tailed Grouse — E				
*Bobwhite — R	R	R	R	R
*Ring-necked Pheasant — R	C	C	C	C
Chukar — E				
*Sandhill Crane — R	U	U	U	R
*King Rail — R	R	R		
*Virginia Rail — R	R	R	U	
*Sora — R	U	U	U	
Black Rail — A			R	
*Common Gallinule — R	R	R	R	
*American Coot — R	C	U	C	
Semipalmated Plover — R	C		U	
Piping Plover — R	R		R	

Species	Abundance			
	Sp	S	F	W
*Killdeer — R	C	C	C	
American Golden Plover — R	R		U	
Black-bellied Plover — R	R		U	
Ruddy Turnstone — R	U		R	
*American Woodcock — R	U	U	R	
*Common Snipe — R	U	U	U	
*Upland Sandpiper — R	R	R	R	
+Spotted Sandpiper — R	U	U	U	
Solitary Sandpiper — R	U		U	
Greater Yellowlegs — R	U		U	
Lesser Yellowlegs — R	U		U	
Willet — R	U		R	
Pectoral Sandpiper — R	C		C	
White-rumped Sandpiper — R	U		R	
Baird's Sandpiper — R	U		U	
Least Sandpiper — R	C		U	
Dunlin — R	C		U	
Semipalmated Sandpiper — R	C		C	
Sanderling — R	U		R	
Short-billed Dowitcher — R	R		R	
Long-billed Dowitcher — R	U		U	
Stilt Sandpiper — R	R		R	
Buff-breasted Sandpiper — R			R	
Marbled Godwit — R	R			
Hudsonian Godwit — R	R			
*Wilson's Phalarope — R	U	R	U	
Northern Phalarope — R	U		R	
Herring Gull — R	C		C	
Ring-billed Gull — R	C		C	
Franklin's Gull — R			U	
Bonaparte's Gull — R	U		U	
Forster's Tern — R	U	U		
Common Tern — R	C		R	
Least Tern — A			R	
Caspian Tern — R	R	R	R	
*Black Tern — R	C	C	U	
Rock Dove — R	C	C	C	C
+Mourning Dove — R	C	C	C	U
Passenger Pigeon — E				
Yellow-billed Cuckoo — R	R	R		
*Black-billed Cuckoo — R	U	U		
Screech Owl — R	R	R		
*Great Horned Owl — R	U	U	U	U
Snowy Owl — R	R		R	R
*Barred Owl — R	R	R	R	R
Great Gray Owl — C				R
Long-eared Owl — R			R	
Short-eared Owl — R	R		R	R
Boreal Owl — C				R
Saw-whet Owl — R	R		R	R
*Whip-poor-will — R	U	U	R	

Species	Abundance			
	Sp	S	F	W
*Common Nighthawk — R	U	R	C	
Chimney Swift — R	R	R		
*Ruby-throated Hummingbird — R	U	U	U	
+Belted Kingfisher — R	U	U	U	R
*Common Flicker — R	C	U	C	R
*Pileated Woodpecker — R	R	R	R	R
*Red-bellied Woodpecker — R	R	R	R	
*Red-headed Woodpecker — R	U	U	U	R
Yellow-bellied Sapsucker — R	R	R	R	
*Hairy Woodpecker — R	U	U	U	U
+Downy Woodpecker — R	C	C	C	C
Black-backed Three-toed Woodpecker — C			R	
*Eastern Kingbird — R	C	C	C	
*Western Kingbird — R	R	R	R	
Scissor-tailed Flycatcher — C		R		
*Great Crested Flycatcher—R	U	U	R	
*Eastern Phoebe — R	U	U	U	
Yellow-bellied Flycatcher—R	R		R	
Willow/Alder Flycatcher — R	R	R	R	
*Least Flycatcher — R	U	U	U	
*Eastern Wood Pewee — R	U	U	U	
Olive-sided Flycatcher — R	R		R	
*Horned Lark — R	C	U	C	R
*Tree Swallow — R	C	C	C	
*Bank Swallow — R	C	C	R	
Rough-winged Swallow — R	R	R		
*Barn Swallow — R	U	C	C	
Cliff Swallow — R	R	R	R	
+Purple Martin — R	C	C	C	
Gray Jay — C			R	R
*Blue Jay — R	C	C	C	C
Black-billed Magpie — A			R	
Common Raven — C			R	
+Common Crow — R	C	C	C	C
*Black-capped Chickadee —R	C	C	C	C
+Tufted Titmouse — R	R	R	R	
*White-breasted Nuthatch — R	U	U	U	U
Red-breasted Nuthatch — R	R		R	R
Brown Creeper — R	R	R		R
*House Wren — R	C	C	U	
Winter Wren — R	R	R	R	R
*Bewick's Wren — C	R	R		
Long-billed Marsh Wren — R	C	C	C	
+Short-billed Marsh Wren — R	R	R	R	
Mockingbird — R	R			R
*Gray Catbird — R	C	C	C	
*Brown Thrasher — R	U	U	R	
*American Robin — R	C	C	C	R

Species	Abundance			
	Sp	S	F	W
Varied Thrush — A				R
Wood Thrush — R	R	R	R	
Hermit Thrush — R	U		R	
Swainson's Thrush — R	R		R	
Gray-cheeked Thrush — R	R			
*Veery — R	U	U	R	
+Eastern Bluebird — R	U	U	C	
Mountain Bluebird — C			R	
Townsend's Solitaire — C			R	R
Blue-gray Gnatcatcher — R			R	
Golden-crowned Kinglet — R	U		U	
Ruby-crowned Kinglet — R	U	R	U	
Water Pipit — R	U		C	
Bohemian Waxwing — R	R			R
*Cedar Waxwing — R	C	C	C	U
Northern Shrike — R	U		U	U
+Loggerhead Shrike — R	R	R		
*Starling — R	C	C	C	C
*Yellow-throated Vireo — R	R	R	R	
Solitary Vireo — R	R		R	
*Red-eyed Vireo — R	C	C	U	
Philadelphia Vireo — R	R		R	
*Warbling Vireo — R	R		R	
*Black-and-white Warbler—R	R	R	R	
*Prothonotary Warbler — R	R	R	R	
*Golden-winged Warbler — R	R	R	R	
+Blue-winged Warbler — R	R	R	R	
Tennessee Warbler — R	U		U	
Orange-crowned Warbler—R			R	
*Nashville Warbler — R	U	R	U	
Northern Parula — R			R	
*Yellow Warbler — R	C	C	C	
Magnolia Warbler — R			R	
Cape May Warbler — R	R			
Black-throated Blue Warbler — R	R		R	
Yellow-rumped Warbler — R	C	R	C	
Black-throated Green Warbler — R	R		R	
*Cerulean Warbler — R	R	R	R	
Blackburnian Warbler — R	R		R	
*Chestnut-sided Warbler — R	R	R	R	
Bay-breasted Warbler — R	R		R	
Blackpoll Warbler — R			R	
Pine Warbler — R	R	R	R	
Palm Warbler — R	U		U	
*Ovenbird — R	U	U	R	
Northern Waterthrush — R	R		R	
Louisiana Waterthrush — R	R			
Kentucky Warbler — C	R	R	R	
Connecticut Warbler — R	R		R	

Species	Abundance Sp	S	F	W	Species	Abundance Sp	S	F	W
Mourning Warbler — R	R	R	R		Hoary Redpoll — R	R			R
*Common Yellowthroat — R	C	C	C		Common Redpoll — R	C		C	C
Yellow-breasted Chat — C	R				Pine Siskin — R	U		U	U
Wilson's Warbler — R	R		R		American Goldfinch — R	C	C	C	C
Canada Warbler — R	R		R		Red Crossbill — R	R		R	R
*American Redstart — R	R	R	R		White-winged Crossbill — R		U		R
*House Sparrow — R	C	C	C	C	+Rufous-sided Towhee — R	R	R	R	
*Bobolink — R	U	U	U		+Savannah Sparrow — R	R	R	R	
*Eastern Meadowlark — R	U	U	U		*Grasshopper Sparrow — R	R	R	R	
*Western Meadowlark — R	C	C	C		Henslow's Sparrow — R		R		
*Yellow-headed Blackbird—R	C	C	U		+Le Conte's Sparrow — R	R	R		
*Red-winged Blackbird —R	C	C	C	U	*Vesper Sparrow — R	U	U		
+Orchard Oriole — A	R	R			*Lark Sparrow — R	R	U	U	
+Northern Oriole — R	U	U	U	R	Dark-eyed Junco — R	C		C	C
Rusty Blackbird — R	C		C		Tree Sparrow — R	C		C	C
*Brewer's Blackbird — R	C	U	U		*Chipping Sparrow — R	C	C	C	
+Common Grackle — R	C	C	C	U	*Clay-colored Sparrow — R	R	R	R	
*Brown-headed Cowbird — R	C	C	U		Field Sparrow — R	C	C	U	
Western Tanager — A		R			Harris' Sparrow — R	R		R	R
*Scarlet Tanager — R	U	U	U		White-crowned Sparrow — R			R	R
Cardinal — R	R	R	R	R	White-throated Sparrow — R	U	R	U	
+Rose-breasted Grosbeak—R	U	U	R		Fox Sparrow — R	R		R	R
*Indigo Bunting — R	U	U	R		Lincoln's Sparrow — R	R		R	
Dickcissel — R	R	R			*Swamp Sparrow — R	U	U	U	
Evening Grosbeak — R	U		U	U	*Song Sparrow — R	C	C	C	R
Purple Finch — R	U		U	U	Lapland Longspur — R		R		C
Pine Grosbeak — R	R		R	U	Snow Bunting — R	C		C	C

Loons (Family Gaviidae)

The **Common Loon** is a migrant and summer resident in the county. It is most easily found on Centerville Lake in April and appears as soon as the ice departs. Concentrations of as many as 200 have been noted in mid-April. Breeding has been recorded from Carlos Avery, Minard Lake in East Bethel, Fish Lake at Cedar Creek and Round Lake in Andover The species is less numerous during fall migration and is usually gone from the county by mid-November.

Grebes (Family Podicipedidae)

The **Red-necked Grebe** is a rare spring migrant and casual breeder. There are no fall records. There are only three records for the **Horned Grebe** but it is apparently a common spring and rare fall migrant. There is only one spring record for the **Eared Grebe** and **Western Grebe.** The **Pied-billed Grebe** is a common migrant and summer resident and there is one January record from the Rum River in downtown Anoka.

Pelicans (Family Pelecanidae)

The only record for the **White Pelican** is of one individual in the Lino Lakes area from July 8 through September 5, 1977.

Cormorants (Family Phalacrocoracidae)

The only records offer little data for the **Double-crested Cormorant.**

They are all from the Lino Lakes area and suggest it is currently an uncommon migrant and casual summer visitant.

Herons and Bitterns (Family Ardeidae)

The **Great Blue Heron, Great Egret,** and **Black-crowned Night Heron** are common migrants throughout and all three nest at the Rice Lake rookery in Lino Lakes. **Green Herons** are also fairly common throughout. **American Bitterns** can usually be seen or heard at Carlos Avery from late April till early September. There are three records for the elusive **Least Bittern** and two for the casual **Yellow-crowned Night Heron.**

Swans, Geese and Ducks (Family Anatidae)

Whistling Swans are common migrants in both the seasons and good numbers can be seen flying over in April and October. Resting birds are more common in the spring. The **Trumpeter Swan** is now extirpated but was most probably a former summer resident. The **Canada Goose** is currently an uncommon summer resident. Nesting has been recorded at Carlos Avery and at Bunker Hills Park as a result of introduced breeding flocks. The species is a common migrant in both seasons and some of the local residents winter at Carlos Avery. The only record prior to its reintroduction is from late October, 1923, when many were noted flying over. The only records for the **White-fronted Goose** are from the spring migration in 1976 (May 31 and June 1) and 1977 (April 19), both from Carlos Avery. The **Snow Goose** is an uncommon spring and fall migrant, most easily found at Carlos Avery in mid April. There is one record of this species wintering with the Canada Geese at Carlos Avery (1976-1977).

The **Mallard, Blue-winged Teal** and **Wood Duck** are the common breeding ducks of the county. The **Pintail** (1935), **Northern Shoveler** (1935), **Ringnecked Duck** (1964, 1976) and **Ruddy Duck** (1939) have also nested in the county. There are also summer records for the **Black Duck, Gadwall, Green-Winged Teal, American Wigeon, Redhead, Canvasback, Lesser Scaup** and **Common Goldeneye** (July 10, 1971). The **Black Duck** is comparatively rare in any season and is most easily found below the Rum River Dam in the winter. The July **Common Goldeneye** was apparently a vagrant since they are usually found only in late fall, winter and into late March. The other species listed above are all common to abundant migrants, usually more numerous in spring than fall. The **Greater Scaup, Bufflehead, Common Merganser** and **Red-breasted Merganser** are also common migrants. The **Hooded Merganser** is an uncommon migrant in both season and was recorded in summer in 1968. There is one record for the **Oldsquaw** (April 12, 1960, Coon Rapids Ram). Six **White-winged Scoters** at Centerville in late October, 1977, are the only county record.

Wintering ducks are about 99% **Mallards.** The **Black Duck** and, probably the **Wood Duck** are rare but regular in winter. The **American Wigeon, Canvasback** and both **Scaups** have also been recorded in winter. The best areas to observe waterfowl during the spring migration are the Centerville-Lino Lakes area (especially Centerville Lake), Carlos Avery, Fish Lake at Cedar Creek and Round Lake in Andover. Lino Lakes and Carlos Avery are also good in summer. In winter, the ducks are confined to the open water below the dams on the Rum and Mississippi Rivers, and, recently to Moore Lake in Fridley.

American Vultures (Family Cathartidae)

The **Turkey Vulture** is probably a rare to uncommon spring and fall migrant, principally in April and October. There is a winter record (from late December and early January, 1963-1964) that suggest an over-wintering attempt. There is also one record of an unusually large flock of 100 plus individuals in Ham Lake on October 1, 1977.

Hawks, Eagles and Harriers (Family Accipitridae)

There is one July record for the accidental **Swallow-tailed Kite** (1974). The **Goshawk,** based on thirteen records since 1964, is a rare but regular migrant and winter visitant. Most observations are in the winter months. The **Sharp-shinned Hawk** is a rare to uncommon spring and fall migrant. There are no summer records and only one winter record (January 30, 1973). At one time, the **Cooper's Hawk** was described as "the most abundant hawk." There is breeding data from 1901, 1935 and 1972. At this time, the species is apparently only a very rare spring and fall migrant in the county. The **Bald Eagle** is a rare but regular migrant in both spring and fall. There is one record from mid June and one from late December (Coon Rapids Dam). The **Golden Eagle** is represented by eleven records from 1946 to 1968. They are all from the northeast quadrant of the county (Cedar Creek and Carlos Avery) and range from October 12 to March 3. Most are in the winter months.

The **Red-tailed Hawk** and the **Marsh Hawk** are the two most common members of this family in the county. Both are common spring and fall migrants, summer breeders and winter visitants. They are most common during migration. Banding records for the **Marsh Hawk** suggest that Anoka's young migrate due south since young banded on the nest were recovered in Texas and Missouri. There are many published records for the **Red-shouldered Hawk** and the **Broad-winged Hawk** but this apparently reflects the observers interest rather than the species abundance. Both have nested in the county but are rather hard to find. The **Broad-winged** is present from early April to early October while the **Red-shouldered** has been recorded in all four seasons. The **Rough-legged Hawk** is an uncommon to occasionally common migrant and winter visitant. It has been recorded from September through late March. There is only one fall record for the casual **Swainson's Hawk.**

Osprey (Family Pandionidae)

The **Osprey** is apparently a rare but regular spring and fall migrant in the county. There are records from Linwood and Martin Lake, the Rum River and, most recently, the Centerville-Lino Lakes area.

Falcons (Family Falconidae)

The small **American Kestrel** is the only common member of this family in the county. It is a common migrant in both seasons, fairly common in summer and a rare winter visitant. The **Merlin** was recorded in 1970 (4-30), 1972 (3-26), 1975 (10-10) and 1977 (9-7 to 9-21). The records are from Bunker Hills Park, Fridley and Carlos Avery. The accidental **Prairie Falcon** was recorded at Carlos Avery on September 4, 1974. There are three February records for **Gyrfalcon** (1954, 1960 and 1964).

Grouse (Family Tetraonidae)

The **Ruffed Grouse** is a fairly common permanent resident. There are nesting records dating back to 1898. The **Greater Prairie Chicken** is now extirpated from the county, last being recorded in 1938 or 1939. There is one nesting record from 1933. There are no positive records for the **Sharp-tailed Grouse** but since "the early explorers and settlers found the species to be abundant everywhere," it seems reasonable to include it on the list as a former Anoka County resident.

Quails and Pheasants (Family Phasianidae)

The **Ring-necked Pheasant** is a common bird throughout the county. The **Bobwhite** is represented by breeding data from 1933, 1934 and 1964. There are also single observations in May 1965 and 1976. The latter records are possibly of escaped or released birds since it seems unlikely that any wild birds are now extant in the county. The **Chukar** was released in the late 1930's and early 1940's but did not survive.

Cranes (Family Gruidae)

It is easy to speculate that the rare **Whooping Crane** at one time migrated and possibly bred in the prairies and marshes of the county; however, there is no supporting data. Alternatively, there are no records for the **Sandhill Crane** prior to 1964. Since that date, however, the species is apparently a regular migrant and summer resident with a small colony in the northeast quadrant of the county.

Rails, Gallinules and Coots (Family Rallidae)

The **Sora** and **Virginia Rail** are rare to uncommon migrants and summer breeders, most easily found in the marshes at Carlos Avery. The **King Rail** was recorded at Carlos Avery from 1961 to 1964. The data includes a brood in 1963. With the exception of an observation on May 30, all records are from the month of July. The accidental **Black Rail** was observed at Martin Lake on August 14, 1968. The **Common Gallinule** is apparently a rare but regular migrant and summer resident at Carlos Avery. The **American Coot** breeds at Carlos Avery but is much more abundant during migration. In the fall of the year flocks of 5,000 to 15,000 can be found during October on shallow lakes throughout the county.

Plovers and Turnstones (Family Charadriidae)

The **Killdeer** is common throughout the county in spring and summer. In the fall it becomes an abundant migrant and groups of 50 to 200 birds can be found on the sod farms in Lino Lakes. They are present from mid-March till mid-October with stragglers into early November. The **Semipalmated Plover** appears to be a common spring (May) and rare fall (July-August) migrant. The **Piping Plover** is represented by one spring (April 17) and one fall (August 10) record. There are no pre-1976 records for the **American Golden Plover** or the **Black-bellied Plover** but both are apparently rare to uncommon spring (May to early June) and fall (mid-August to late October) migrants. Both have been found on the sod farms and around the marshes at Carlos Avery. The **Ruddy Turnstone** was recorded in the fall of 1969 (August 1) and the spring of 1977 (May 18 through May 31).

Woodcock, Snipe and Sandpipers (Family Scolopacidae)

The **American Woodcock** and **Common Snipe** are migrants and summer

residents throughout the county. **American Woodcocks** can be heard "peenting" in the county during April and May but the only nesting record is from Coon Rapids in 1962. The only nesting record for the **Common Snipe** is from Centerville in 1950 when a nest with four eggs was found on May 14. Currently, courtship flights and territorial behavior can be observed till early July at Carlos Avery and the species undoubtedly nests there. The **Common Snipe** lays claim to the oldest record for the county when, on July 18, 1880, Dr. Roberts notes "flushed bird in tamarac swamp, actions indicated young nearby."

The severe drought of 1976 and 1977 significantly lowered water levels in the shallow lakes and marshes of the county and created many mudflats attractive to shorebirds. As a consequence, many species were recorded, sometimes in large numbers, that may not by typical for the county. Based on published data prior to 1976, the following species appear to be regular migrants; **Solitary Sandpiper, Greater Yellowlegs, Lesser Yellowlegs, Pectoral Sandpiper** and **Long-billed Dowitcher.** The **Upland Sandpiper** was formerly quite common but there have been no records since the spring of 1973. The **Spotted Sandpiper** is a migrant and summer resident.

The **Willet, White-rumped Sandpiper, Baird's Sandpiper, Least Sandpiper, Dunlin, Semipalmated Sandpiper** and **Stilt Sandpiper** were all recorded during migration in 1976 and 1977 but each has only one or two records prior to 1976 so their actual county status is questionable. The **Sanderling, Short-billed Dowitcher, Buff-breasted Sandpiper** (August 16 to August 31, 1977 — sod farm in Lino Lakes), **Marbled Godwit** (April 21, sod farm in Blaine) and **Hudsonian Godwit** (May 18 to June 7, Carlos Avery) are represented only by recent records and their county status is uncertain.

Phalaropes (Family Phalaropodidae)

There is a 1936 nesting record at Linwood Lake for the **Wilson's Phalarope.** The only other records are from the fall of 1976 and spring of 1977. The **Northern Phalarope** was recorded in the spring and fall of 1977 (Carlos Avery).

Gulls and Terns (Family Laridae)

The **Ring-billed Gull** is the most abundant gull species in the county. Flocks of up to 500 can be seen in April and Sept.-Oct. The **Herring Gull** is also common but is less numerous than the **Ring-billed Gull.** Both species migrate in April and May and August through November. The only records for the **Franklin's Gull** are from the fall of 1976 (September 20) and 1977 (October 8). The **Bonaparte's Gull** was recorded at Cedar Creek and, in 1976 and 1977 at Centerville Lake (October 24 to November 1, 1976 and April 24 to May 29, 1977). The **Black Tern** is a common migrant and summer resident and can be found from early May till mid-August. The **Caspian Tern** is an uncommon migrant and in 1934 was recorded at Linwood Lake in mid-June. There is one record for the accidental **Least Tern** on June 18, 1955 at Moore Lake in Fridley. Both the **Common** and **Forster's Terns** occur as migrants and the **Forster's** is a possible summer resident at Carlos Avery and Lino Lakes.

Pigeons and Doves (Family Columbidae)

The introduced **Rock Dove** is common throughout the county. The **Mourning Dove** is a common migrant and summer resident and has been recorded in the winter months in 1922, 1923 and 1971. Since the extinct **Passenger Pigeon** was described as "an abundant summer resident throughout the state," it has been included on the county list.

Cuckoos (Family Cuculidae)

The **Black-billed Cuckoo** is an uncommon migrant and summer resident with a nesting record dating back to 1880. The **Yellow-billed Cuckoo** is a much scarcer species with only three summer and one late May record spanning the period of 1965 to 1976.

Owls (Family Strigidae)

The **Great Horned Owl** and the **Barred Owl** are the two common owls of the county. Both can be found at Carlos Avery (the **Great Horned Owl** is the more common, the **Barred Owl** is most easily found from January into April). There are two **Screech Owl** recods (1935 and 1965) and three records for the **Saw-whet Owl** (1965, 1973 and 1975). The accidental **Boreal** and **Great Gray Owls** have both been recorded twice, the **Boreal Owl** in the winter of 1968-1969 and the **Great Gray Owl** the same year found dead near Coon Lake) and in 1973 (one at Centerville February 25 to February 28). The only record for the **Long-eared Owl** is October, 1973 from Fridley. The **Snowy Owl** is a rare migrant and winter visitant while the **Short-eared Owl** is apparently a rare spring and fall migrant in the county.

Goatsuckers (Family Caprimulgidae)

The **Whip-poor-will** is a migrant and summer resident. It is most easily found on its breeding territories in and around Bunker Hills Park in Coon Rapids and Andover (about eight pairs were present in 1977). They can be heard singing from very late April into mid-July. There are only three fall records. The **Common Nighthawk** is a common migrant and uncommon or rare summer resident.

Swifts (Family Apodidae)

The **Chimney Swift** is apparently a fairly scarce bird in the county. There are only five records covering the period 1934 to 1977. While this may be an indication of the scarcity of observers rather than birds, the species is currently difficult to find in both migration and summer.

Hummingbirds (Family Trochilidae)

The **Ruby-throated Hummingbird** appears to be primarily an uncommon spring and fall migrant. There are four nesting records from 1934 to 1950 and enough recent summer observations to suggest the species may still breed in the county.

Kingfishers (Family Alcedinidae)

The **Belted Kingfisher** is an uncommon migrant and summer resident. There are also winter records from 1943 (Fridley), 1967-1968 (no location given) and 1976 (Rum River, Anoka). Nesting was attempted in the same location at Carlos Avery in 1976 and 1977 but both were apparently lost to predators before any young were fledged.

Woodpeckers (Family Picidae)

Four members of this family are permanent residents in the county, the **Pileated Woodpecker,** the **Red-bellied Woodpecker,** the **Hairy Woodpecker** and the **Downy Woodpecker.** The **Hairy** and **Downy** are comparatively common while the **Red-bellied** and **Pileated** are comparatively scarce (or at least hard to find). In recent years the **Pileated** has been seen at Carlos Avery, East Bethel, near Lake George and along the Rum River in Andover. The **Common Flicker** is just that, a common migrant and summer resident; there are also three winter records. The **Red-headed Woodpecker** is a migrant and summer resident (in 1977 there were at least 10 breeding territories in the eastern two/thirds of the county). There are four winter records for the species. There are only five records for the **Yellow-bellied Sapsucker covering** the period from April 11 to October 3. At present, this is a rather difficult bird to find in the county. There is one record (November 10, 1964) for the **Black-backed Three-toed Woodpecker.**

Tyrant Flycatchers (Family Tyrannidae)

The **Eastern Kingbird** is a common migrant and summer resident throughout the county. The **Western Kingbird** is a rare but regular spring migrant and summer resident. The first recod was July 4, 1947 when a nest with one egg was found. The most recent was a nesting record from July of 1977 near Bunker Hills Park in Andover. The latest fall record is for August 19, 1972. The **Great Crested Flycatcher,** the **Eastern Phoebe,** the **Least Flycatcher** and the **Eastern Wood Pewee** are all uncommon migrants and summer residents. They all can be easily found at Carlos Avery. The **Olive-sided Flycatcher** is a rare but regular migrant. The extreme spring dates range from May 10 to May 29. The fall dates are from August 19 to September 26. There is one summer record (July 4, 1968) at Cedar Creek. **Willow** and **Alder Flycatchers** both occur in the county. Their status is uncertain but the **Willow** is probably a summer resident while the **Alder** is only a spring and fall migrant. The scarce **Yellow-bellied Flycatcher** has been recorded three times in mid-May and twice in the fall. There is one record for the accidental **Scissor-tailed Flycatcher** (June 5, 1959).

Larks (Family Alaudidae)

The **Horned Lark** is a fairly common spring and fall migrant and summer resident. It has been recorded in winter on four occasions.

Swallows (Family Hirundinidae)

The **Tree Swallow** and **Purple Martin** are abundant spring and fall migrants and common summer residents. The **Barn Swallow** is also fairly common throughout the county. The **Bank** and **Rough-winged Swallows** are less common and the **Cliff Swallow** is relatively scarce.

Jays, Magpies, and Crows (Family Corvidae)

The **Blue Jay** and **Common Crow** are common in all seasons in the county. The **Gray Jay** is a casual fall migrant and winter visitant with six records from 1929 to 1976. The **Common Raven** has been recorded three times, all in October and all near Carlos Avery. The accidental **Black-billed Magpie** was observed on November 21, 1958 at Carlos Avery.

Chickadees and Titmice (Family Paridae)

The **Black-capped Chickadee** is a common permanent resident in the county. The **Tufted Titmouse** has been recorded five times between 1909 and 1977. It is a scarce or rare bird in the county. The **Boreal Chickadee** has not been recorded in the county but one was observed on December 29, 1946 in the Isanti County area of Cedar Creek.

Nuthatches (Family Sittidae)

The **White-breasted Nuthatch** is a fairly common permanent resident throughout the county. The **Red-breasted Nuthatch** appears to be primarily a rare spring and fall migrant and winter visitant.

Creepers (Family Certhiidae)

The **Brown Creeper** appears to be a rare migrant and winter visitant. There is one summer record from Carlos Avery (July 4, 1977).

Wrens (Family Troglodytidae)

The **House Wren** and the **Long-billed Marsh Wren** are common migrants and summer residents throughout the county. The **Short-billed Marsh Wren** is also regular but is more difficult to find. The **Winter Wren** has been recorded only four times, in January, April, October and "fall." The casual **Bewick's Wren** nested in the county in 1959 and has also been recorded on June 2, 1952 (Laddie Lake area) and July 14, 1963 (Bunker Lake).

Mockingbirds and Thrashers (Family Mimidae)

The **Gray Catbird** is a common summer resident while the **Brown Thrasher** appears to be less common. The **Mockingbird** has been recorded during six different years, 1958 to 1977. Five of the records are from the spring migration (April 19 to May 27). The other record is from December 19, 1958 (Carlos Avery).

Thrushes, Solitaires, Bluebirds (Family Turdidae)

The **American Robin** is the most abundant member of this family in the county. There is one January (1978) record for the **Varied Thrush.** The **Eastern Bluebird** and **Veery** (at least at Carlos Avery) are fairly common. All are migrants and summer residents. There is one winter record for the **Robin.** The **Hermit Thrush** appears to be an uncommon spring and rare fall migrant, at least in the Carlos Avery area. The **Wood Thrush, Swainson's Thrush,** and **Gray-cheeked Thrush** all appear to be fairly rare in the county with only two or three records for each. The **Townsend's Solitaire** has been recorded in November (1961), December (1966) and January (1959). There is one record for the **Mountain Bluebird** (October 22, 1977).

Gnatcatchers and Kinglets (Family Sylviidae)

The **Ruby-crowned** and **Golden-crowned Kinglets** both appear to be uncommon to occasionally common spring and fall migrants. There is one summer record for the **Ruby-crowned** (July 4, 1925 "singing male"). The **Blue-gray Gnatcatcher** has been recorded only once, August 31, 1976 at Carlos Avery.

Pipits (Family Motacillidae)

There are only four records for the **Water Pipit.** But it is probably a

regular spring and fall migrant in April and October. A flock of 40 to 50 was recorded on October 21, 1968. On October 9, 1977, 35 were observed at a sod farm in Lino Lakes.

Waxwings (Family Bombycillidae)

The **Cedar Waxwing** is common in migration and summer and uncommon in winter. The **Bohemian Waxwing** is an erratic migrant and winter visitant in the county.

Shrikes (Family Laniidae)

The **Loggerhead Shrike** seems now to be a rare bird in the county. A nesting attempt was made in May of 1977 in Andover but all other records are from 1970 or earlier. The **Northern Shrike** is a rare to uncommon migrant and winter visitant. The extreme dates for the county are October 18 to March 25. It can be found throughout the county but is most readily observed in and around the more open areas of Carlos Avery.

Starlings (Family Sturnidae)

The **Starling** is abundant in all seasons in the county. This species was first recorded in the county on December 30, 1939 in Fridley. At present, it is a migrant, summer resident and winter visitant. The available data suggests that its fall migration period is about the same as the **Common Grackle** and **Red-winged Blackbird.** It winters in large numbers around pig farms in the county.

Vireos (Family Vireonidae)

The **Red-eyed Vireo** is the common representative of this family in the county. It is a common migrant and summer resident and can be heard singing at Carlos Avery from early May until mid-September. The **Yellow-throated** and **Warbling Vireos** are also summer residents but are much less common. The **Solitary** and **Philadelphia Vireos** are migrants and there are four records for each species.

Wood Warblers (Family Parulidae)

There are thirty-two members of this family on the county list. The **Yellow Warbler,** the **Common Yellowthroat** and the **Ovenbird** are the common residents in the county. Recently published data from Cedar Creek suggests that the **Blue-winged Warbler** and the **Golden-winged Warbler** may also be fairly common in the north eastern quadrant of the county. Less common residents include the **American Redstart, Mourning Warbler, Cerulean Warbler** (1930's) and the **Black-and-white Warbler.** Rare or casual breeders are the **Prothonotary Warbler** (1964), **Nashville Warbler** (1948) and **Chestnut-sided Warbler** (1934). The casual **Kentucky Warbler** was observed in the county in 1963, 1964 and 1965. Nestings attempts were suspected in 1964 and 1965 (Coon Rapids).

The **Yellow-rumped Warbler** is an abundant spring and fall migrant in the county. There is also a summer record from June 17 to July 14, 1973 in Coon Rapids. The **Tennessee Warbler** and **Palm Warblers** are also fairly common migrants in the county.

The **Orange-crowned Warbler, Northern Parula, Magnolia Warbler, Cape May Warbler, Black-throated Blue Warbler, Black-throated Green**

Warbler, Blackburnian Warbler, Bay-breasted Warbler, Blackpoll Warbler, Pine Warbler, Louisiana Waterthrush, Connecticut Warbler, Wilson's Warbler and **Canada Warbler** are all migrants through the county with only one to five records for each species. The casual **Yellow-breasted Chat** was recorded on May 10, 1970 and May 15, 1977.

Weaver Finches (Family Ploceidae)

The introduced **House Sparrow** is an abundant resident throughout the county.

Meadowlarks, Blackbirds and Orioles (Family Icteridae)

The **Red-winged Blackbird** and the **Common Grackle** are abundant spring and fall migrants and summer residents throughout the county. Both are rare to occasionally common during the winter months. The **Yellow-headed Blackbird** is also a common to abundant migrant and summer resident with a number of colonies in the marshes in the northeast portion of the county. This species doesn't arrive until early May and departs by early September. The **Rusty Blackbird** is a spring and fall migrant but its abundance appears rather variable, ranging from uncommon to occasionally abundant. The **Brown-headed Cowbird** is common in the spring and summer but is comparatively scarce during fall migration. It has parasitized the **Brown Thrasher** (1946), **Nashville Warbler** (1948), **Ovenbird** 1935, 1950), **Indigo Bunting** (1934), **Vesper Sparrow** (1940) and the **Clay-Colored Sparrow** (1935). The **Brewer's Blackbird** is an uncommon to common spring and fall migrant and summer resident. During the summer it can usually be found in the grassy fields around the sod farms along Lexington Avenue in Ham Lake. The **Bobolink** is an uncommon migrant and summer resident in the county. Both the **Eastern** and **Western Meadowlarks** are fairly common in the county with the **Western** the more numerous. The **Northern Oriole** is an uncommon migrant and summer resident. The accidental **Orchard Oriole** has been recorded twice, June 11, 1925 and May 13, 1926.

Tanagers (Family Thraupidae)

The **Scarlet Tanager** is an uncommon migrant and summer resident that can be found at Carlos Avery from mid-May until August. The **Western Tanager** is represented only by one specimen of a hybrid **Western Tanager-Scarlet Tanager** collected on August 17, 1950. There is one unsubstantiated report of a **Summer Tanager** in Lino Lakes.

Grosbeaks, Finches, Sparrows and Buntings (Family Fringillidae)

The **Cardinal** is an uncommon permanent resident. The **American Goldfinch** is common in all seasons in the county. The **Rose-breasted Grosbeak** and the **Indigo Bunting** are uncommon migrants and summer residents most readily found in and around the Carlos Avery area. The **Dickcissel** is a spring migrant and summer resident whose numbers very markedly. The **Pine Grosbeak** appears to be a regular migrant and winter visitant at least as far south as the central portions (Blaine) of the county. It varies from rare to common. Other winter visitants (and migrants) are the **Evening Grosbeak, Purple Finch, Common Redpoll, Pine Siskin, Red Crossbill, White-winged Crossbill** (only three records), **Dark-eyed Junco** and the **Tree Sparrow.** The **Dark-eyed Junco** and the **Tree Sparrow** are usually common while the others are variable from year to year. The rare **Hoary**

Redpoll has been recorded at Cedar Creek and in Blaine in February and March of 1976.

The **Rufous-sided Towhee** and the **Lark Sparrow** are uncommon spring migrants and summer residents. Currently, both species can usually be found in or around Bunker Hills Park from mid-May through July.

The **Song Sparrow, Swamp Sparrow, Chipping Sparrow, Field Sparrow, Vesper Sparrow** and **Savannah Sparrow** are the resident species in the county. The **Song Sparrow** is probably the most abundant species. The **Grasshopper Sparrow, Henslow's Sparrow, Le Conte's Sparrow** and **Clay-colored Sparrow** are also summer residents but are much more difficult to find. Migrants through the county are the **Harris' Sparrow, White-throated Sparrow, Fox Sparrow** and **Lincoln's Sparrow.**

The **Lapland Longspur** and the **Snow Bunting** are both migrants and winter visitants.

COMMENTS

The writer wishes to point out that the above list is based primarily on data published in the various sources noted in the Bibliography, and the field notes of the writer covering only a very limited time period. The writer's comments regarding current abundance should not be considered a definitive description of Anoka's birds since his observations cover an insufficient period to formulate an accurate opinion. It is hoped, however, that this list will encourage those with additional information on Anoka's birds (both past, present and future) to submit the data, in writing, to the Minnesota Ornithologists Union.

ACKNOWLEDGEMENTS

The writer wishes to acknowledge Mr. Robert Janssen who suggested and encouraged the list and Mr. William R. Pieper who provided many of the better records from his notes covering the period 1952 to 1977. A special thanks should go to the many birders who submitted their records over the years and are, in large part, responsible for this list. A special thanks should also go to Patricia M. La Fond who not only assisted in the literature search and field observations but also typed the manuscript.

BIBLIOGRAPHY

Dr. P. L. Hatch, "Notes on the Birds of Minnesota," Henry F. Nachtrieb, State Zoologist, June, 1892, Harrison and Smith, Printers, Minneapolis, 1892.

Roberts, T. S., "Birds of Minnesota," Two Volumes, University of Minnesota Press, 1936.

Roberts, T. S., "Logbook of Minnesota Birdlife," 1917-1937, The University of Minnesota Press, Minneapolis, 1938.

"The Flicker" and "The Loon," The Journal of the M.O.U., 1929-1977.

Green and Janssen, "Minnesota Birds," University of Minnesota Press, 1975.

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IS 300 POSSIBLE IN ONE YEAR IN MINNESOTA?

Kim Eckert

Can one observer see 300 species on one year in Minnesota? For years birders said it was impossible, read and see what happened in 1977.

It is 11:30 p.m., December 31, 1977, New Year's Eve. A few friends and I just got back from a local restaurant, where we celebrated . . . what? A new year? I doubt it, what's to celebrate in that? Maybe that day's Duluth Christmas Bird Count. After all, we just had the best count ever here, though among the 48 species was virtually nothing I needed for my year's list — hard to imagine the likes of Harlequin Duck, Hawk Owl, Varied Thrush and Hoary Redpoll being thought of as the same old thing. But unless a Peregrine or a Gyr comes crashing through my window in the next half hour, I guess that about does it for the best year of Minnesota birding I've ever had (there's just no way I'm awake enough to tear off for Chester Park with flashlight in hand to look for that Townsend's Solitaire seen today but not heard about until this evening). Time to get out the old checklist and look over my tally for the year one last time.

The year certainly began with little if any promise. January 1977 was just about the coldest ever, discouraging even the most serious birder from getting out much. Sure, there was a Carolina Wren at a feeder in the Twin Cities and a Townsend's Solitaire near Fergus Falls (I had just seen it December 31), but I had no reason at the time for chasing after them. After all, while they would have made nice year birds, who in their right mind had any thought of a big year list then? I did manage to get out once that month, however. A group of us with severe cases of cabin fever headed down to Winona and Houston Counties on the 22nd in balmy above zero temperatures. We stopped off at that feeder in Winona to see that incredibly hardy Lark Bunting, I was more than a little startled by two Bobwhites exploding into flight from almost underfoot near Spring Grove, a beautiful adult Golden Eagle soared overhead at Whitewater, and nearby we flushed up a group of Turkeys at dusk. Not a bad day's birding and, though I didn't appreciate it at the time, I had just seen four species that I was not to see again that year.

As cold and discouraging as January was, February through most of May offered little encouragement to compensate. The weather then was pleasantly and consistently warm for the most part, but this caused many spring migrants to drift through casually. Few concentrations or migration waves were noted and many observers considered it one of the dullest springs ever. About the only things worth remembering for me were a Short-eared Owl in Rock County, Greater Prairie Chickens at Rothsay and a large falcon (probably a Peregrine) chasing geese near Salt Lake in April; and in May a disappointing Big Day salvaged by Yellow Rail, Little Gull, Saw-whet Owl and Connecticut Warbler, and a Houston County trip for Yellow-crowned Night Heron, Acadian Flycatcher, Tufted Titmouse and Louisiana Waterthrush. But things started to happen all of a sudden in late May. While I was unable to get up to Moorhead to see that Red Phalarope or over to the Twin Cities for the White-eyed Vireo, at least the Baird's Sparrows at Felton and the Western Wood Pewee in Roseau County stayed until I could make it up there in mid-June.

On this same trip was a Little Blue Heron at Ashby, a Long-eared Owl in the Northwest Angle, a magpie and a nesting pair of Black-backed Three-toeds in Lake of the Woods County. Earlier in June I had a Ferruginous Hawk, a pair of Mockingbirds and the usual Blue Grosbeaks at Blue Mounds, and later that month on the way back from Chicago a stop at O. L. Kipp State Park near Winona yielded singing Henslow's Sparrows.

But as July arrived and I moved from the Sioux Falls area to a temporary Twin Cities address, I still had no idea of working on a big year list. For some reason I never had much interest in such a list, and about all I'd ever done in the past was to sit down in June or July with a checklist, see how many I had up to then, and perhaps keep track for the rest of the year. But I had never seriously went out of my way to run up a big year list — the best I'd ever done was 283 species in 1976, an exceptional year for rarities. There had never been any thought in my mind of reaching 290 in a year, as Ron Huber had done back in 1963, or of matching the record of 291 set by Ray Glassel in 1975. To me totals such as these had always been considered not only awesome but also virtually unbeatable. But as I looked over my list for the year for the first time in early July, it somehow appeared that Ray's record might be within reach, in spite of the depressing winter, the lackluster spring and half a year of not trying already past. And since I had just "retired" from teaching, I'd have plenty of time for birding. If the birds would just cooperate the rest of the year, and as long as some unforeseen tragedy didn't interfere (like finding a job), maybe there was a chance . . .

Things quickly fell into place. A Louisiana Heron was still waiting around at Ashby's Pelican Lake until I arrived July 5, and the following weekend a trip to Big Stone N.W.R. resulted in Cattle and Snowy Egrets at the rookery. On the 12th came a swing down to Wabasha County for Bell's Vireos which had returned to the "usual spot," and two days later I was off for northern Minnesota to fill in some gaping holes in my list. This trip was crucial, to say the least — it would be my last chance to pick up a few necessary species which would soon stop singing. It could hardly have been a better trip: no less than ten new year birds including Sharp-tailed Sparrows in Aitkin County, a singing male Black-throated Blue Warbler at Heartbreak Hill, and, my luckiest find of the trip, a Chukar at Ely (there have been no reports of this elusive and disappearing bird since that July 16). My only "misses" were the always difficult Spruce Grouse (which Paul Egeland and I found off the Gunflint Trail in August — a family of five including the first male I had ever seen in full display) and Bay-breasted Warbler (but an August migrant in Duluth filled in that gap). August birding yielded a frustrating large falcon in Chippewa County (probably a Prairie, just as that large falcon in April was probably a Peregrine), and in Duluth a Merlin, Red Knots (a lucky find — most years I miss it), Buff-breasted Sandpipers and a jaeger (probably a Parasitic — even a luckier find than the knots).

My total as August ended: 280! Surely I could get 10 or 12 more to approach or even beat Ray's 291. A quick check of the blanks on my list showed I had a good chance at at least ten more "regular" species — all it would take would be a couple rarities and the record was mine. But there was one slight complication: no, not a job, but a trip planned months ago (before there were any thoughts of a year list), to take in some pelagic birding trips. I would be out of the state for six weeks during all of September and early October, usually the best time in Minnesota for picking up casual and accidental strays. But there was never any thought of cancelling my trip — even at that stage a year list was not at the top of my priori-

ties.

My luck had not run out. After 11,000 miles of birding through 23 states, I returned to Minnesota with all but a couple of the lifers I was after, and within two hours after crossing the North Dakota-Minnesota line on I-94, I had year bird number 281 at Rothsay: Smith's Longspur. Four hours later I was back in the Twin Cities, anxious for an answer to a six-week-old question — what had I missed? Nothing was the incredible but most welcome answer. September had been cold and rainy and early October even had some snow, and absolutely nothing had been reported which I would have been able to add to my list. There was no time to waste, however. The following weekend Paul Egeland and I were off for Duluth where we picked up a totaly unexpected Barrow's Goldeneye. Three days later a tip from Dick Ruhme finally resulted in calling Screech Owls at Purgatory Creek in Eden Prairie. One week later a trip to Mille Lacs, Duluth and the North Shore resulted in four more: an unexpected Red-throated Loon (only my second Minnesota sighting) plus Surf Scoter, Pine Grosbeak and Bohemian Waxwing (all more or less expected). That just about did it: 287, making it four to tie and five to win, two whole months left, with five strong possibilities yet to see. The only question left was how many more than 291 could I get? My guess was 295. Other gueses ran as high as the ridiculous figure of 300! Some of us used to speculate on whether or not 300 in a year was possible, and I was always one of the first to say no. After all, until this year the 290's seemed impossible enough to me. But wouldn't 300 be awfully nice . . .

Having left South Dakota and not really liking life in the Twin Cities, I finally saw no reason not to move to where I always wanted to live — Duluth. On the first of November I found a house, and before heading back to pick up my things, a tip from Janet Green resulted in number 288: a not-counted-on Thayer's Gull at nearby Eagle Lake. The next weekend I was back, trying to unpack when news of that Vermilion Flycatcher near Fergus Falls arrived. Jan and I picked up Jo Blanich and Terry Savaloja in Crosby, and not only was the flycatcher still there but also a Prairie Falcon rewarded our side trip to Rothsay (this looks much better on my list than "large falcon, sp."). But the trip wasn't over yet: a side trip to Mille Lacs got us a Little Gull (unfortunately not needed for the year) and two California Gulls (a third state record)! With two unexepected Minnesota lifers, my list for the year hit 290, and for the first time it looked like 300 might just be within reach — but it would take a lot of doing. A Goshawk at Hawk Ridge November 11 tied Ray's record, and four days later a totally unexpected Purple Sandpiper found by Steve Blanich in Aitkin County made it 292, the new Minnesota record. With that, 300 looked a whole lot closer. And as incredible as November had already been, the pace never let up: a Hawk Owl spotted by Dave Evans a mile from my house on the 19th (293), I find a lost Mountain Bluebird at Stoney Point on the 21st (294), Hoary Redpolls in Lester Park on the 23rd (295), two Harlequin Ducks at Canal Park on the 28th (296), Glaucous Gulls at Grand Marais on the 29th (297), and a Varied Thrush at a Duluth feeder on the 30th (298). What an incredible November that had been: the rarities just never stopped showing up, and I managed to add no less than 11 year birds during the mouth — seven of them species I had not been counting on! A whole month left and only two to go for 300 — it would be a cinch . . . or would it? I still needed a Snowy Owl but they were long overdue in Duluth and maybe they'd never come at all as was the case in 1969 (when I had made out my list last summer, I had this species checked off but, since I couldn't remember where or when I saw it, I thought it best to cross it off — a de-

cision I hoped I wouldn't regret). Other possibilities: Boreal Owl (fat chance of that — I'd been looking for that bird for 13 years), Northern Three-toed (a few were out there somewhere, but where?), Gyrfalcon or Iceland Gull (good luck!), Carolina Wren or Townsend's Solitaire (why didn't I get them last January!?). Some cinch!

December 10. Paul Egeland tries to get a car load from the Cities to meet me in Duluth and drive up to Grand Marais. But it's well below zero, no one else is interested, and Paul almost stays home. When the phone rings at 8 a.m. I'm sure it's him saying he won't be coming. It's Paul all right, but he's at the Port Terminal and just saw a Snowy Owl. I say I'll be there in a half hour; it takes 20 minutes — 299. Off we go for Grand Marais. But the harbor's mostly frozen, there's no fishing activity, and there's no way that Ivory Gull will return from last year. So we cruise through town looking at feeders. Nothing. What to do with an hour of daylight? I suggest cruising a back road for Boreal Owls — I must really be desperate for something to do: the odds must be about 100 to 1. We slowly drive west out of town on County Road 7 for a few miles, scanning the trees along the road for suspicious lumps. A side road to the right looks inviting but we somehow end up hitting the Gunflint Trail. A quick U-turn and just as it's almost too dark to see anything we turn back on 7. No luck, but when you expect nothing you're never disappointed — Suddenly Paul slams on the brakes and his voice is unnaturally high-pitched: "There's a little owl!" There it is, 15 feet up in a birch next to the road, but the damned thing looks too small. We back up next to it and I'm sure it will just be a late Saw-whet. It's on my side, but why won't the electric window come down — my thumb was red from pushing up, not down, on the button! I finally figure out which way is down, we stop next to the bird, it has its back to us but suddenly turns around and gives us an unfriendly glare before it flies off. Black facial frames! Boreal Owl! My most wanted bird . . . a North American lifer . . . a Minnesota lifer . . . number 300 for the year . . . the most imaginative writer alive could harly have written a better script (well, he could have made it December 31).

And that was it, my last bird for the year. It took no less than an "impossible" Boreal Owl to reach the "impossible" total of 300. Incidentally, I was not the only one in 1977 to break Ray's record: Bob Janssen finished the year with no less than 296. The latest field checklist (January 1976) shows I missed only Peregrine Falcon, King Rail, Whimbrel, Burrowing Owl, Northern Three-toed Woodpecker and Sprague's Pipit on the regular list (all had been seen by someone during the year), while adding the following casuals and accidentals: Little Blue Heron, Snowy Egret, Barrow's Goldeneye, Prairie Falcon, Thayer's Gull, Mountain Bluebird, Baird's Sparrow, Louisiana Heron, Purple Sandpiper, California Gull, Little Gull, Western Wood Pewee and Vermilion Flycatcher. About the only question left is could I have done better (and will anyone do better in the future)? Definitely — as well as I did, there were still three or four species more I could have had if I had started my list in January rather than July. Also remember that January through most of May was relatively birdless, and that I was out of the state for six weeks in fall. Someone will get 301 or more one of these years.

Midnight. January 1, 1978. Might as well count it up one last time just to make sure . . . 296, 297, 298, 299 . . . Hmm, maybe I miscounted. I mean, of course I miscounted, didn't I? One, two, three . . .

STATUS OF GREAT BLUE HERONS ON THE CHIPPEWA NATIONAL FOREST

John Mathisen and Ann Richards

A survey of nesting Great Blue Herons in the Chippewa Forest. Classified as a "sensitive" species, the Great Blue Heron selects nesting sites remote from human presence. Rookeries can be protected on Natural Forest lands by establishing buffer zones.

The Chippewa National Forest encompasses a gross area of 1.6 million acres in north central Minnesota. A notable feature of this National Forest is the abundance of lakes, rivers and wetlands, important habitats for herons and other water birds. There are 1,321 lakes comprising 347,784 acres and 300,000 acres of wetlands, which together constitute 40 percent of the area (Mathisen, 1966).

Great Blue Herons (**Ardea herodias**) are common breeding birds on the Chippewa National Forest. Classified as a "sensitive" species by the U.S. Forest Service, there is direction to protect and enhance breeding colonies (U.S. Forest Service, 1974). These birds nest in traditional colonies or rookeries, sometimes consisting of several hundred breeding pairs (Bent, 1968).

Inventory and Data Collection

An inventory of heron rookeries was undertaken in 1976 to learn more about the status and breeding biology of these birds. An aerial survey located breeding colonies and ascertained the exact locations of rookeries previously reported. Low-level aerial photos, taken at each site, assisted in making nest counts and provided a record of colony location with respect to other features of the landscape.

Each rookery was then examined on-the-ground to determine its size and characteristics. Ground reconnaissance was done in the fall or winter to avoid disturbing the birds.

Information compiled at each rookery related to the trees supporting the nests, size of the area occupied, number of nests, distance from water, disturbance hazards, and other information considered useful for assessing nesting requirements and management needs.

Average tree heights and nest heights were obtained with a relascope, by taking 5 or 6 measurements of typical trees at each rookery. The size of the area occupied by the rookery was determined by traversing the outside edge with a compass and by pacing. Ocular estimates aided by aerial photographs were made to determine the number of nests in each rookery.

Results

A total of 12 active rookeries was located within the boundary of the Chippewa Forest. Seven of these were on National Forest land, and five on State of Minnesota land. This should not be construed as a total inventory; almost certainly all rookeries have not been located. Records indicate another 16 sites were abandoned during the past 10-15 years, and at least some of these presumably re-located within the Forest.

Table 1 provides information on the characteristics of all rookeries examined.

Most heron rookeries on the Chippewa are in very isolated locations, indicating a low tolerance level for human activity. Herons appear to select nest sites in a variety of tree species with aspen most commonly selected. Five of the 12 rookeries were located in snags over open water, as in beaver ponds or similar man-made impoundments.

Table 1. Characteristics of Great Blue Heron Rookeries, Chippewa National Forest

Name	No. of Nests	Size of Area (Acres)	Nest Tree Species	Condition of Nest Tree	Average Nest Ht. (Ft.)	Average Tree Ht. (Ft.)	Average Tree Diam. (Inc.)
Jack Lake	15	1	Aspen, Elm	Dead	50	60	13
Pike Bay	30	2	Ash, Birch	Dead	50	65	—
Windigo Creek	41	1	Aspen	Fair	55	62	15
Bigfork	100	6	Aspen, Birch	Good	65	75	17
Morph	60	12	Aspen	Dead	—	—	—
Bag Lake	3	—	Ash	Fair	55	64	21
Squaw Lake	23	2	Aspen	Fair	53	59	15
Haynes Lake	20	2	Aspen, Spruce	Dead	50	60	15
Mud Lake	75	2	Spruce, Cedar	Dead	40	55	11
Boy River	60	4	White Pine, Aspen	Dead	55	60	16
Sand Lake	150	3	Aspen	Good	60	70	17
Turtle River	50	2	Aspen, Spruce	Dead	50	60	15
Average	52	3			53	63	15

Distance of the rookeries from possible feeding areas (lakes over 100 acres, and streams) varied from 0 to 2.5 miles, averaging 1.1 miles. While living trees supported a third of the nests, others were in dead trees, apparently killed by the birds' continued use or from beaver flooding.

Nest height ranged from 50 feet to 70 feet, averaging 53 feet. The number of nests per rookery ranged from 3 to 150, averaging 52. The height of trees selected for nest sites ranged from 55 feet to 75 feet, averaging 63 feet.

Rookeries were located in all major forest types, including upland conifer, lowland conifer, upland hardwood and lowland hardwood. In almost all cases selected trees were in mature or old-growth stands. Trees above the surrounding canopy appeared to be an important criterion for nest site selection.

It appeared that Great Blue Herons tend to select nesting sites remote from human presence. All existing rookeries were at least two miles from human dwellings or other significant man-made features of the landscape. None was visible from a surfaced road; the distance from such a road ranging from 0.3 to 2.0 miles, and averaging 0.78 miles.

Protection and Management

The heron rookery inventory provides a basis for the protection and management of an interesting and important component of the wildlife community on the Chippewa National Forest.

Werschkul et al. (1976) showed positive correlation between nest occupancy, colony size and fledging rate with human disturbance from logging operations in Oregon. Since the Chippewa is an intensively managed forest, the land manager must face the problem of coordinating land use activities with the habitat and isolation requirements of herons.

Heron rookeries are protected from human disturbance on National Forest lands by establishing two buffer zones where timber harvest or other land use activities are planned in the area. The first zone is 330 feet or 5

chains (in foresters' vernacular) from the outer edge of the rookery. No land use activity is permitted in this area at any time during the active life of the rookery. A second buffer zone of 660 feet (10 chains) from the periphery is also established where land uses are permitted, but only during the non-nesting period (August 1 to March 1).

Although these zones have been in effect for a number of years and are somewhat arbitrary, due to the lack of published studies dealing with the vulnerability of herons to human disturbance, the work of Werschkul et al. in Oregon, appears to lend credibility to our buffer zone distances. He found, through comparative studies of disturbed versus undisturbed rookeries, that the average distance from a point of disturbance (logging) to inactive nests was 485 feet versus 718 feet for active nests.

Heron rookeries, and breeding sites of other sensitive species are considered "administratively confidential" by the Forest Service and their locations are not revealed to the general public. Whenever possible, roadways traversing the buffer zones are closed during the breeding season.

Literature Cited

Bent, A. C. 1968. Life histories of North American marsh birds. pp 101-114.

Mathisen, J. E. 1966. The breeding population of waterfowl on the Chippewa National Forest. The Loon 38(1):24-30.

U.S. Forest Service. 1974. The fairest one of all.

Werschkul, D. F., E. McMahon, and M. Leitschuh. 1976. Some effects of human activities on the great blue heron in Oregon. Wilson Bull. 88(4): 660-662.

Chippewa National Forest, Cass Lake, MN 56633.

GROWTH AND BEHAVIOR OF RUFFED GROUSE CHICKS

Stephen J. Maxson

Nine eggs from a Ruffed Grouse nest were incubated artificially. Growth rates and behavior of this interesting species are well documented.

During a radiotelemetry study of female Ruffed Grouse (**Bonasa umbellus**) at the Cedar Creek Natural History Area, Anoka County, a hen was killed by a predator on 29 May 1971 several days before its eggs were due to hatch. Despite the fact that the eggs had not been attended for about 24 hours following predation of the hen, nine of ten hatched in an incubator on 1 June. At first the chicks were kept in a cardboard box under a brooder lamp and fed live insects plus chicken starter mash. During the early stages the mash was largely ignored. Even when insects and mash were mixed together the chicks carefully picked out the insects and left the mash. When one week old they were moved to an outdoor wire enclosure during the day. All were banded at two weeks and thereafter weighed weekly throughout the summer. When five weeks of age they were moved to a large outdoor enclosure. The chicks readily consumed insects throughout the summer but gradually more mash was eaten until by August it constituted the major portion of their diet. Clover supplemented their diet in late July and August. When fully grown the birds were maintained on a diet of commercial pigeon food consisting of mixed grains.

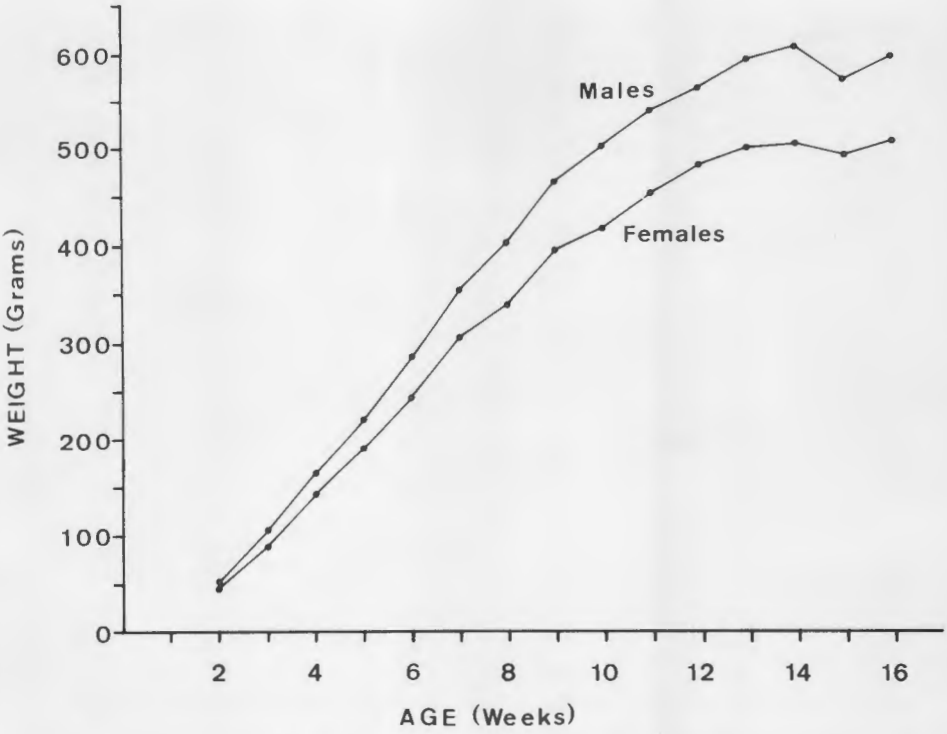

Fig. 1. Average weights of four male (upper line) and five female (lower line) Ruffed Grouse juveniles from weeks 2-16.

GROWTH

Growth rates of the chicks (four males, five females) were well ahead of those reported by Bump **et al.** (1947) but were similar to those given by Fay (1963). One chick weighed 11.6 grams the day of hatching. Two weighed 21.4 and 22.0 grams when one week old. Average weights from weeks 2-16 are illustrated in Figure 1. At two weeks males were already 8% heavier than females. Thereafter, males were consistently 13-17% heavier than hens. After a steady increase, all birds lost weight between weeks 14-15 but increased again by week 16. (All birds were wing clipped at 14 weeks and the adjustments to flightlessness may have influenced the weight loss between weeks 14-15.)

Plumage and size changes during the first five weeks are illustrated in Figures 2-7. At hatching (Fig. 2) the chicks were covered with down but the primaries were already visible. These grew rapidly reaching a length of 6 centimeters by the age of one week (Fig. 3). By this time the chicks could already fly several meters. At two weeks (Fig. 4) contour feathers were emerging on the upper breast and sides of the neck but the lower breast, belly, head and most of the neck remained downy. Tail feathers were just beginning to emerge. When three weeks old (Fig. 5) most of the breast, back, and belly were covered by contour feathers while crest feathers were starting to emerge. Tail feathers were about 2.5 centimeters long and a few primaries were starting to molt. (For a detailed description of the flight feather molt sequence see Bump **et al.** (1947:84-90.) At four weeks (Fig. 6) contour feathers had

Fig. 2. Ruffed Grouse chick on the day of hatching.

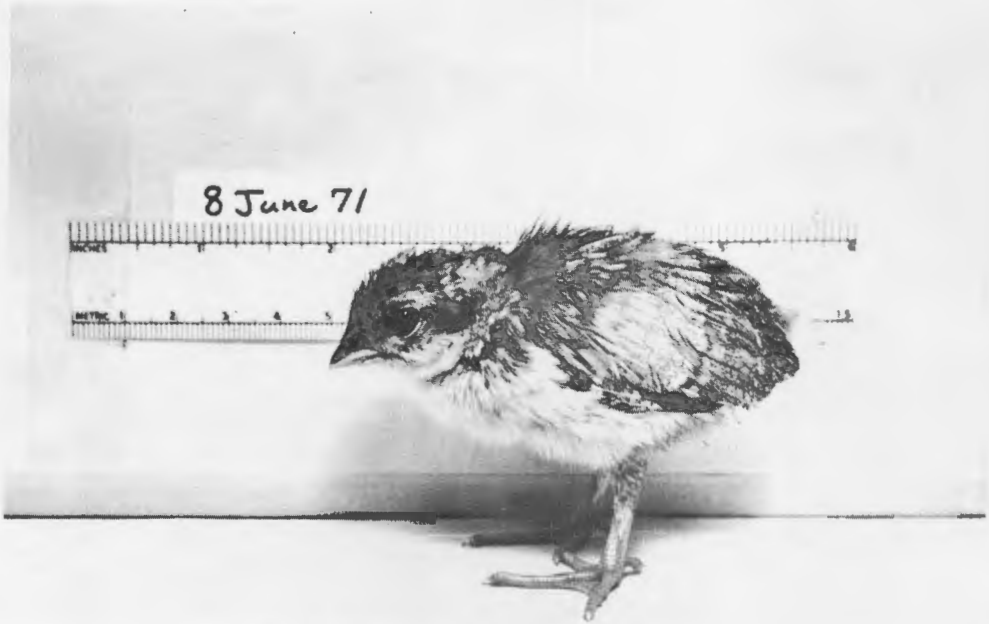

Fig. 3. One week old Ruffed Grouse chick.

Fig. 4. Two week old Ruffed Grouse chick.

Fig. 5. Three week old Ruffed Grouse chick.

Fig. 6. Four week old Ruffed Grouse chick.

Fig. 7. Five week old Ruffed Grouse chick.

replaced down on the head and neck while tails were about six centimeters in length. Between weeks four and five (Fig. 7) little notable plumage change occurred except that tail feathers increased in length to about 7.5 centimeters. Observations of known age wild broods indicated that four-five week old grouse flew nearly as well as adults.

BEHAVIOR

Newly hatched chicks were somewhat wobbly on their legs for the first few hours. Little food was actually consumed the first day, although the chicks pecked at small insects that moved about. They also pecked at conspicuous inanimate objects such as spots on their cardboard box cage. Initially, these pecking movements were poorly coordinated, and a chick frequently made several attempts before hitting the object. By the end of the first day most chicks walked strongly and ate small insects. By the second day the chicks actively fed on insects and could jump up and catch insects on the screen cover of their 17 centimeter tall box. By the morning of the third day the chicks were capable of jumping out of the box.

Although the chicks developed seemingly insatiable appetites and consumed large quantities of insects daily, they were somewhat selective in the insects they woud eat. Flies (**Diptera**), grasshoppers (**Orthoptera**), dragonflies, damselflies (**Odonata**), caterpillars, butterflies, small moths (**Lepidoptera**) and leaf bugs (**Miridae**) were readily consumed. However, stink bugs (**Pentatomidae**), small ground beetles (**Carabidae**), small scarab beetles (**Scarabaeidae**), and ants (**Formicidae**) were eaten only when the chicks were very hungry. On numerous occasions insects in the latter group were observed crawling unmolested inside the chick's cardboard box cage. When the chicks were moved to an outdoor enclosure, ants were frequently observed crawling about inside, but were usually ignored by the ever-hungry chicks.

Chicks were observed preening as early as the day after hatching. Dustbathing began at ten days of age. Thereafter dustbathing and sunning were common daytime activities. At four weeks one male was observed slowly strutting about with its tail raised and fanned, wings lowered and almost touching the ground, and neck feathers erected (the elongated ruff feathers had not yet developed). Periodically it gave a series of head shakes. These were slow at first but became more and more rapid as the series progressed. With each head shake it expelled an audible "huff" of air. At the conclusion of the head shaking sequence it rushed in an arc toward another bird while emitting a loud hiss. The displaying went on for about 30 minutes. Four days later another male was seen giving identical displays. With the exception that the birds were still in juvenile plumage, these displays were the same as those given by male Ruffed Grouse during the breeding season and are described by Allen (1934) and Hjorth (1970). Allen (1934) noted this behavior in chicks as young as seven-eight days old (although they have no tails to fan at that age (Fig. 3). I did not observe these displays again until early November after the birds were fully grown.

ACKNOWLEDGEMENTS

I am grateful to the personnel of the Cedar Creek Natural History Area for their cooperation during the study. This investigation was supported in part by the U.S. Atomic Energy Commission (COO-1332-108).

LITERATURE CITED

Allen, A. A. 1934. Sex rhythm in the ruffed grouse (**Bonasa umbellus** Linn.) and other birds. Auk 51:180-199.

Bump, G., R. W. Darrow, F. C. Edminster, and W. F. Crissey. 1947. The ruffed grouse: life history, propagation, management. New York

State Conserv. Dept., Albany, 915 pp.
Fay, L. D. 1963. Recent success in raising ruffed grouse in captivity. J. Wildl. Manage. 27:642-647.
Hjorth, I. 1970. Reproductive behavior of Tetraonidae with special reference to males. Viltrevy 7:183-596.
Dept. of Biology, Univ. of North Dakota, Grand Forks, ND 58202

RESULTS OF AN OBSERVATION CARD SURVEY FOR SANDHILL CRANES IN MINNESOTA FOR 1977

Carrol L. Henderson

Current status and distribution of the Sandhill Crane in Minnesota was obtained by the use of observation cards. A total of 133 observations of 4182 cranes were made. Seasonal use of habitat and breeding distribution and totals are listed.

ACKNOWLEDGEMENTS

This survey was first proposed by Area Wildlife Manager Larry Bernhoft at Baudette, and it represents an inter-agency effort involving persons from the United States Fish and Wildlife Service, the United States Forest Service, The Nature Conservancy, the University of Minnesota at Crookston, the University of Minnesota, St. Cloud State University, the United States Soil Conservaion Service, and the Department of Natural Resources. Within the Department of Natural Resources, field personnel from the Divisions of Forestry, Ecological Services, Enforcement and Fish and Wildlife all submitted sighting data. Grateful appreciation is extended to everyone who contributed crane sighting cards and to the various agency managers who facilitated the coordination and implementation of this extensive effort. A list of persons who submitted crane observation cards is included in Appendix 1.

INTRODUCTION

In 1977, the Minnesota Department of Natural Resources initiated a nongame wildlife program within the Division of Fish and Wildlife. One of the first goals of that program has been to assess the current status and distribution of the Sandhill Crane in Minnesota so that appropriate research and management efforts can be directed toward this important species as more nongame funding becomes available.

METHODS

An observation program was established in cooperation with field personnel of the Department of Natural Resources, United States Fish and Wildlife Service, United States Forest Service, the University of Minnesota, St. Cloud State University, and the Nature Conservancy. Observers were supplied with keysort observation cards to fill out each time that cranes were observed. They were instructed to submit completed cards to the nongame supervisor in St. Paul on May 1, August 1, and December 1.

RESULTS

Cooperation has been excellent in the first year of this program's operation. Observers have submitted 133 crane observation cards and reported seeing a total of 4,182 cranes in 1977. During the spring migration period in March and April there were 19 sightings totaling 1,371 birds. From May

through August, there were 105 sightings totaling 656 cranes, and in September and October there were 9 sightings totaling 2,155 cranes. The statewide distribution of sightings of summer resident cranes is shown in Figure 1 by township.

DISCUSSION

Breeding Sandhill Cranes now occur in Minnesota in at least fourteen counties in two separate regions: the northwest and east central. In the northwest region cranes nest in Beltrami, Lake of the Woods, Mahnomen, Marshall, Kittson, Pennington, Polk, and Roseau Counties. Sightings documented the occurrence of 61 breeding pairs which

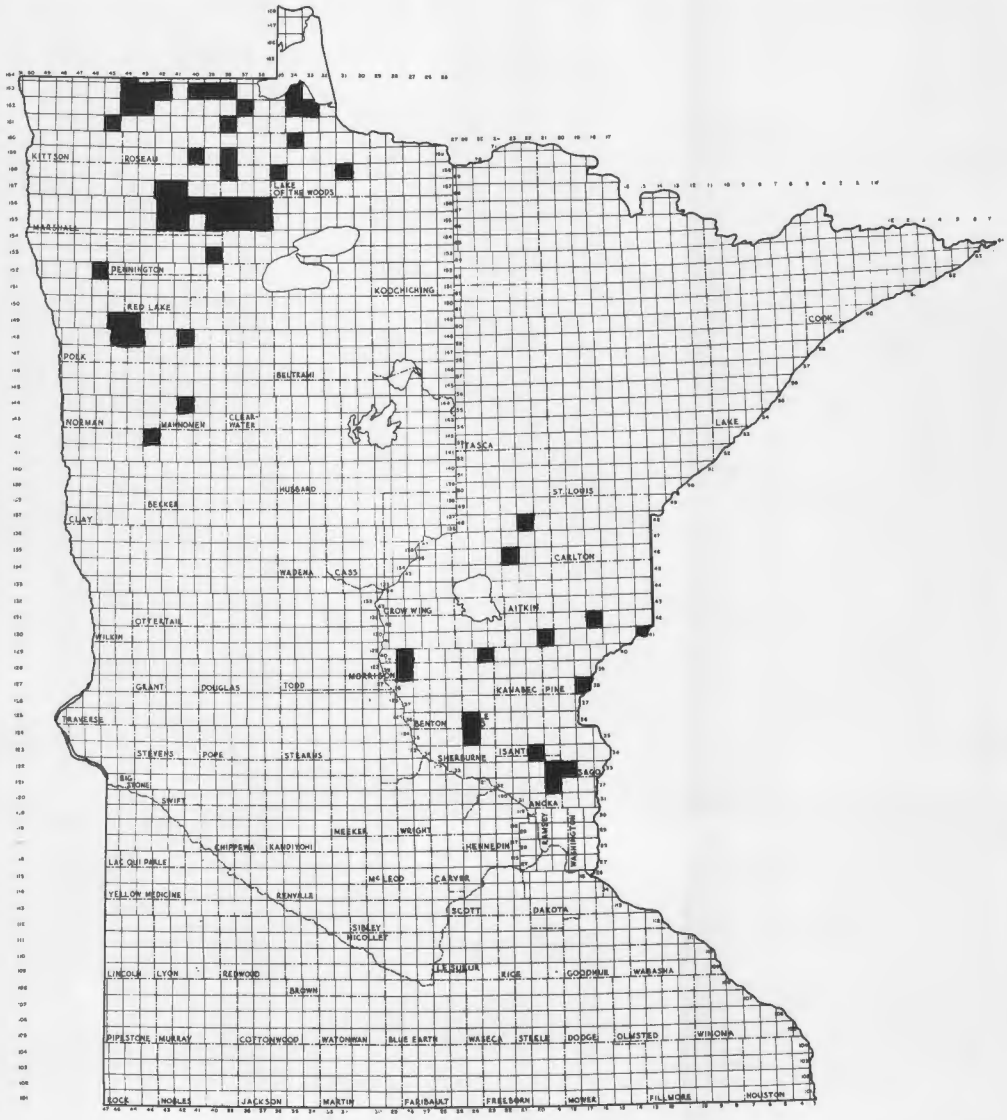

Fig. 1. Location of Sandhill Cranes observed in Minnesota from May through Aug., 1977.

produced at least 49 young. Non-breeding birds present through the summer totaled 189, so the total fall count of resident cranes in the northwest would be a minimum of 360. Since much of the Sandhill Crane nesting habitat in the northwest is in inaccessible bog country, the actual population could easily range from 500 to 1000 resident birds.

A breeding population of Sandhill Cranes also occurs in seven counties of east central Minnesota. Thes counties include Anoka, Aitkin, Kanabec, Mille Lacs, Morrison, Pine, and Sherburne. Observers reported seeing 15 breeding pairs which produced 12 young, and 12 nonbreeding birds were also seen. The total fall count would then be 54 Sandhill Cranes. If 25 percent to 50 percent of the cranes present were observed, as was assumed for the northwest, then the total east central population could contain from 100 to 200 Sandhill Cranes.

The total number of Sandhill Cranes breeding in the state for 1977 would then total at least 76 breeding pairs which produced at least 61 young. A total of 201 nonbreeding birds were also present.

The actual number of resident Sandhill Cranes in Minnesota possibly ranged from 150 to 300 breeding pairs which produced from 150 to 300 young. The number of nonbreeders in 1977 is estimated at 300 to 600, for a total fall population of 600 to 1200 birds.

SEASONAL USE OF CRANE HABITAT

For purposes of analysis the reports were separated into four periods — March through April, May through July, August, and September through October.

March through April

Habitat use by migrating Sandhill Cranes was reported on 16 occosions. Three sightings of large flocks occurred in Norman County on April 13 and accounted for 1300 of the 1363 birds seen in this period. All other flocks contained 15 birds or fewer. The only use which cranes made of row crops was in corn stubble. Thirty-nine percent of all cranes were seen foraging in corn stubble, 22 percent were in spring wheat, and 37 percent were in wet meadow habitat. The remaining two percent apparently were family groups returning to resident nesting areas and they were seen on plowed ground, alfalfa hayland, summer fallow, marshes (type unspecified), and along a river.

May through July

Resident cranes were typically secretive from May through July. Only 51 cards were reported for this three month period and they described the sightings of 243 cranes. Eight sightings of large nonbreeding groups were made in June and July in Beltrami, Marshall and Sherburne Counties. Beltrami County flocks contained 55 and 31 birds, and Marshall County sightings reported 21, 17, and eight birds. A flock of six was seen in Sherburne County on June 9. These groups then accounted for 138 of the 243 birds seen (57%). The remaining 43 sightings involved groups of four or fewer cranes.

Twenty-two percent of all cranes seen were in small grain fields. Most were in unharvested wheat, oats, and flax. A few birds were observed in barley and in harvested wheat.

Seventeen percent of the cranes observed were in various types of grasslands. Unmowed alfalfa and prairie accounted for 17 of 40 grassland sightings. Mowed alfalfa and prairie accounted for four grassland sightings; disked alfalfa and summer fallow totaled six sightings; grazed prairie and pasture totaled eight sightings; and summer fallow and plowed old fields accounted for five sightings.

Only ten percent of all cranes observed were in wet meadows. The actual use by cranes may be greater than this percentage indicates because of the relative inaccessibility of this type of habitat. Three cranes out of

25 seen in this cover type were in recently burned wet meadows.

The greatest number of cranes, 56 percent, was observed in marsh habitat. Where the type was specified, nine cranes were in type 2 marshes and six were in type 3 marshes.

River, floating sedge marsh, and recently bulldozed and cleared land accounted for the other five percent of the cranes observed.

August

Resident crane families became much more conspicuous during August, and 47 cards were turned in for that one month period. It is felt that most of these families were still local residents on or near breeding areas. Four of the 47 sightings were of large nonbreeding groups of 50, 34, 23, and 21 cranes in Roseau and Marshall Counties. These sightings accounted for 128 of the 326 cranes seen during this period (39%). Another category of sightings emerged during August — groups of breeding pairs and young of the year. These groups ranged in size from six to 25. Three example flocks seen in Beltrami County, for instance, contained 15 adults and ten young, four adults and two young and six adults and four young. Nine sightings of groups of families totaled 102 birds (31%). Thirty-four sightings, however, consisted of groups of four or fewer birds. Most were single breeding pairs with young of the year and these totaled 96 cranes (30%).

Use of small grain increased considerable in August. Twenty-two percent of the cranes seen from May through July were in small grain fields, but 43 percent of the cranes seen in August were feeding in small grain fields. Most fields were cut and swathed oats (82 percent of small grain use), wheat (8 percent), barley (6 percent), and rye (4 percent).

The percent of cranes observed in grasslands increased slightly from seventeen percent in May through July to 22 percent in August. Most grassland use (66 percent) was in pastures, while 23 percent of grassland sightings were in old fields (summer fallow), and 11 percent were in alfalfa fields.

The number of cranes observed in wet meadows comprised 14 percent of all cranes seen in August. This was a slight increase from the 10 percent recorded from May through July.

Apparently cranes were spending less time in marshlands at this time of year, and more time was spent feeding prior to migration because the percentage of cranes seen in marshes was only 16 percent, compared with 46 percent recorded from May through July. The marsh type was recorded for 20 cranes. Fifteen were seen in type 1 marshes, four in type 2 marshes, and one was seen in a type 4 marsh.

Other observations included the sighting of three cranes along rivers and ten on bulldozed sites for a total of five percent of all sightings.

September through October

Nine sightings have been reported for the fall migration period in September and October and included a total of 2,155 cranes. These observations obviously include sightings of resident birds and Canadian migrants. Four large flocks in Roseau County included 1,000, 500, 600, and 40 birds. The other five sightings concerned groups of four birds or fewer in Becker, Anoka, and Morrison Counties.

The flocks in Roseau County were observed in swathed wheat and oats and in alfalfa fields. All were in the vicinity of the Roseau River Wildlife Management Area.

Five small groups were seen in marshes, two of which were type 2, and two were unspecified. The other group of four was in a harvested wheat field which was partly disked and partly plowed.

HABITAT SUMMARY

A summary of all habitat use is given in Table 1 and it shows the relative amounts and changes in habitat use by season. While the signifi-

cance of wet meadows and marshes is probably under-emphasized because of inaccessibility and lack of observers in those habitats, this table does identify some of the seasonal habitat preferences shown by this species. As more data accumulates, this data will be important for identifying management needs and opportunities.

LAND OWNERSHIP

Based on the number of cranes observed in 1977, 29 percent of the cranes occurred on state-owned land, 11 percent occurred on national wildlife refuges, 13 percent were on Conservation Area and Trust Fund Lands, and five percent were on The Nature Conservancy Lands.

The recovery of Sandhill Cranes in Minnesota is largely due to the land acquisition programs of the Minnesota Department of Natural Resources, the United States Department of Inte-

Table 1. Number of Sandhill Cranes Observed by Habitat Type and Season

	Mar.-Apr.	May-July	August	Sept.-Oct.	Total
1. **Row Crops**					
Corn stubble	531	0	0	0	531
2. **Small Grain**					
Wheat	300	23	11	754	1088
Oats	0	5	112	750	867
Other	7	25	14	0	46
Subtotal	307	53	137	1504	2001
3. **Grassland**					
Alfalfa	8	13	9	600	630
Prairie	0	16	0	0	16
Improved pasture	0	2	53	0	55
Summer fallow	2	9	18	0	29
Subtotal	10	40	80	600	730
4. **Wet Meadow**	503	25	45	0	573
5. **Marsh**					
Type 1	0	0	15	0	15
Type 2	0	9	4	8	21
Type 3	0	6	0	0	6
Type 4	0	0	1	0	1
Unspecified	11	97	31	43	182
Subtotal	11	112	51	51	225
6. **River**	1	2	3	0	6
7. **Other**	0	11	10	0	21
TOTAL	1363	243	326	2155	4087

rior, and The Nature Conservancy. Approximately 45 percent of all cranes observed in 1977 were utilizing these wildlife areas. Another 13 percent of the crane population identified in 1977 was on state-owned Conservation Area and Trust Fund Lands which are proposed as Wildlife Management Areas, but that designation has not yet been finalized. That decision rests with the Commissioner of Natural Resources and will probably be made in the coming year. The remaining cranes, 42 percent, were utilizing habitat on land that was either privately owned or county-owned. Much of this habitat is in jeopardy because of extensive land-clearing, drainage, and irrigation projects.

In the northwest, the most important publicly-owned crane habitats are in the Roseau River Wildlife Management Area, the Red Lake Wildlife Management Area, Beltrami Island State Forest, Eckvoll Wildlife Management Area, and the Agassiz National Wildlife Refuge. A pair of cranes also raised one young in the vicinity of the Pembina Trail Preserve in Polk County, which is owned by The Nature Conservancy.

The most important publicly-owned crane habitats for the east-central population are the Carlos Avery Wildlife Management Area, Mille Lacs Wildlife Management Area, Rice Lake National Wildlife Refuge, Sherburne National Wildlife Refuge, and the Grayling Wildlife Management Area. Other cranes are found in the vicinity of the St. Croix State Forest, Rice-Skunk Wildlife Management Area, Cedar Creek Natural History Area, and Kunkel Wildlife Management Area. A nesting pair of cranes raised two young on the Crane Meadows preserve in Morrison County. This area is owned by The Nature Conservancy. Several other breeding pair territories are found on private lands in Morrison County and the possibility of preserving these areas should be investigated.

SUMMARY

The encouraging recovery of the Sandhill Crane in Minnesota can be expected to continue in the future as the birds adapt to new habitats, but the loss of existing nesting areas on private lands may offset these gains. If any significant increases occur, a management strategy will be necessary to cope with additional crop depredation problems.

Nesting habitat, mainly type 2 and type 3 wetlands, should be acquired where possible to help preserve the crane lands. Wildlife managers are encouraged to use prescribed burning on potential nesting areas to reduce the encroachment of brush, and to identify the management techniques which are the most effective in maintaining an adequate amount of crane habitat and in handling crop depredation problems.

The observation card program will be continued in 1978, and further research and field studies will be planned as funding becomes possible. Persons who expect to see Sandhill Cranes in Minnesota in 1978 should contact the nongame supervisor, Section of Wildlife, Department of Natural Resources, Centennial Building, St. Paul, Minnesota 55155, to obtain a supply of crane observation cards.

APPENDIX 1

Persons who submitted observation cards:

United States Fish and Wildlife Service
Larry Hanson, Detroit Lakes
Rollin Siegfried, Detroit Lakes
Rich Joarnt, Detroit Lakes
Daniel Morrison, Detroit Lakes
Wes Thompson, Sherburne NWR
John Wilbrecht, Sherburne NWR
A. W. Niedecker, Sherburne NWR
W. D. Vasse, Agassiz NWR
J. Alderson, Agassiz NWR
Prososki, Agassiz NWR
Roy Ruud, Agassiz, NWR
L. Thornbloom, Rice Lake NWR

The Nature Conservancy
John Dorio, St. Cloud
Steven C. Hanson, St. Johns Univ.

United States Soil Conservation Service
Alan Gustafson, Crookston

University of Minnesota - Minneapolis
D. F. Parmelee, Minneapolis

University of Minnesota - Crookston
Dan Svedarsky, Crookston

Department of Natural Resources - Section of Wildlife
D. F. Rhode, Carlos Avery WMA
Walt Rohl, Carlos Avery WMA
Velma Rohl, Carlos Avery WMA
Lloyd Knudson, Carlos Avery WMA
Roger Johnson, Carlos Avery WMA
Conrad Christianson, Carlos Avery WMA
Paul Rice, Carlos Avery WMA
Jack Jensen, Roseau River WMA
Loris Danielson, Roseau River WMA
David Urich, St. Paul
Larry Nelson, St. Paul
Al Berner, Madelia
Jack Mooty, Grand Rapids
Dave Dickey, Aitkin
Jon Cole, Red Lake WMA
Phil Watt, Red Lake WMA
Gary Johnson, Little Falls
Dick Tuszynski, Cambridge
Larry Bernhoft, Baudette
Lee Hemness, Hinckley
Rob Naplin, Willmar
Terry Wolfe, Crookston
Robert Farmes, Thief River Falls

Division of Forestry - DNR
Robert Ludwig, Eagle Head
Arnold Ostgarden, Hinckley
Byron Korby, Hinckley
George Saul, Grygla
Marc Thompson, Grygla
Steve Morgan, Greenbush
Jim Steinberg, Williams
Gary Johnson, Wannaska
Grey Kvale, Wannaska
Richard Olson, Wannaska

Section of Ecological Services - DNR
LeRoy Dahlke, St. Paul
Dan Swanson, St. Paul

Division of Enforcement - DNR
R. L. Simmon, Roseau
Reid Alter, Sauk Centre
L. E. Peterson, Stacy, Minn.

Other Contributors
Oscar Nehus, Pennington County

Nongame Supervisor, Section of Wildlife, Division of Fish and Wildlife, Department of Natural Resources, 390 Centennial Building, St. Paul, Minnesota 55155

A CLARK'S NUTCRACKER IN DULUTH — On Saturday, December 3, 1977, I paused in our dining room at 11:30 to watch the birds at our feeder on this clear, but cold morning. Several species of birds and a red squirrel were present when a jay-sized bird darted in around the spruces and landed in the apple tree that is about eight feet from the dining room window. The bird was grayish-white on its back and belly, and its folded wings were black with a white patch in the lower back area of the wing. Its tail was black. My first thought was 'gray jay,' but another very persistent thought was 'Clark's Nutcracker,' a bird I had seen many times at Mt. Rainier where I worked as a park naturalist. The bird stayed for about one minute, perching in the tree, then quickly flew away. As I looked in Robbins, I confirmed most of the markings of the Clark's Nutcracker except the white outer tail feathers that I didn't notice. One other marking on the bird was what seemed to be a dirty patch on the lower cheek. It looked like the black moustache of a flicker, only much lighter. If I had seen the bird at a distance, I might have confused it with a shrike, but it was so close and the light was so good, I am convinced it could be nothing other than a Clark's Nutcracker, the first since 1973, according to Green and Janssen. **Diane Carroll, 529 Everett Street, Duluth, MN 55803.**

MOUNTAIN BLUEBIRD WINTERS NEAR LESUEUR — For a number of years I have been hoping to see an Eastern Bluebird during the winter months. On January 14, 1978, Paul Egeland, Ray Glassel and I were birding the Minnesota River Valley. During the late morning we were south of LeSueur near the LeSueur Country Club when we saw a bluebird fly across the road about 50 to 75 yards in front of the car. We noted the characteristic size, shape and flight pattern of a bluebird. Because of the bright sunny skies we could not determine any color on the bird. The bird flew to the west and landed in the top of a tall cottonwood tree about 200 yards off the road. I put a 20X scope on the bird and said "I wonder if that bird is a Mountain Bluebird." As I watched the bird in the bright sunlight, I thought I saw some rusty coloration on the breast so conservatively identified the bird as an Eastern Bluebird. We birded the area for a short while noticing a number of American Robins, several Pine Grosbeaks and a large flock of Cedar Waxwings in a large group of nearby Junipers. On February 18, Paul Egeland, Dick Ruhme and I decided to bird in the LeSueur area. We saw a flock of 100+ Cedar Waxwings and at least 30 American Robins feeding in the hackberry trees near downtown. We went back to the area near the Country Club. As we

walked into the junipers we saw a few Cedar Waxwings and then flushed a bluebird which flew off to the East. We found the bird about 100 yards away in an oak tree but right in the bright sunlight. The bird flushed and flew back to the junipers. A few minutes later Paul located the bird and called Dick and I over to see a female Mountain Bluebird. The lower back and the tail were an azure blue, a very different color than an Eastern Bluebird. The back, nape and crown were a brownish-gray, the breast was gray lighter toward the belly. The throat had a tinge of brown. The bird appeared to be about the same size as an Eastern Bluebird. We saw the bird perched in a juniper and shortly it flew from this perch and hovered in front of a lower bush and picked off a berry and ate it and then returned to another perch. We presumed that this was the same bird we had seen in the area on January 14. The bird was seen by a number of observers on February 19 and was seen by Manse Brackney on February 26. A thorough search of the area by Byron Bratlie, Ray Glassel and myself, at different times on March 5, failed to locate the bird. Kim Eckert saw the bird on March 20. There are only two previous winter records for the Mountain Bluebird in Minnesota, both from the North Shore of Lake Superior. **Robert B. Janssen, 14321 Prince Place, Minnetonka, MN 55343.**

CLARK'S NUTCRACKER IN SOUTH MINNEAPOLIS — About 11:00 A.M. on December 24, 1977 I was watching the bird feeders in our back yard when a large bird flew in under the shrubbery about ten feet from the window. The size, markings of gray, white and black patternings, the crow-like shape, but smaller, and the long dark and pointed bill and white head area all added up to identification of the bird as a Clark's Nutcracker, as distinguished from the somewhat similar Mockingbird or a Gray Jay. My wife, Jane, came to the window and also observed the bird for about three or four minutes as it picked at fallen sunflower seeds. It seemed to be interested in an area where mice have taken up residence in a retaining wall. After a few minutes observation, a neighbor's dog ran through the yard, frightening the bird away, not to return again, although we were watching for another appearance. **Manse Brackney, 5025 - 12th Ave. S., Minneapolis, MN 55417.**

BIRDING FROM AN ARMCHAIR — Imagine birds from many countries waiting to be observed and identified. You don't even have to be quiet; and for a close-up view, reach for your magnifying glass instead of your binoculars. This is philatelic ornithology — or bird watching with stamps. Stamp collecting as a hobby is not new, but collecting certain specific topics is relatively new — the last 30 years as evidenced by the growth of the American Topical Assn. — over 12,000 stamp collectors who specialize in some topic or theme in stamps. An equal number of collectors specialize in this way but probably never join the A.T.A. or other stamp organization. Collectors may arrange their bird stamps in any manner — the two usual ones are by country or by families of birds. The latter has the advantage of assembling all owls, e.g., together regardless of the nation that issued the stamp. In this way a person can carefully study the similarities and differences between owls and maybe even learn the latin name which is used to identify each species. Fortunately most stamps are labelled in this manner. One of the best identification guides is the A.T.A.'s Handbook #82 entitled "Birds of the World on Stamps." Our own Byron Bratlie was one of the major contributors to this handbook and is recognized as a

world authority on bird stamps. Many readers will remember his illustrated slide talk last December at our paper session in Minneapolis. At that time Mr. Bratlie stated that there are abou 3200 bird stamps with 1400 different species shown, of the 160 families of birds, all but 20 are shown on stamps. Regardless of how you arrange your bird stamps, the fun is working with your collection, viewing the beautiful artwork, and sharing it with others. In the past two years, we have had two informal gatherings at homes in the Twin Cities. There are no officers, no dues — just a group of friends sharing their hobby. Anyone else interested? Send your name to the author. WARNING! This may be contagious! Our President, Vice-President, former Treasurer, and now even our Secretary have been infected with this disease. Visit us — but be warned . . . you may become "licked" by a stamp and become one of us. **Harvey E. Djerf, 217 N. Trenton, Lane, Minneapolis, MN 55427.**

POSSIBLE FALL THAYER'S GULL AT BLACK DOG — In **The Loon** 48:72 I reported the occurrence of a Thayer's Gull at the Black Dog Power Plant, Dakota County on January 2, 1976. On November 14, 1977 I was birding around Black Dog Lake and found hundreds of Ring-billed Gulls plus a few Herring Gulls present over the water. I saw two different looking gulls in the milling flock of birds. One individual appeared to be a possible Thayer's Gull and the other a possible adult Glaucous Gull. It was difficult to get extended looks at any of the birds because they were moving and milling about so rapidly. I decided to try the area behind the plant and here I found a flock of about 200 - 250 Ring-billed Gulls plus a few Herring Gulls loafing on a mud flat. There was a single large gull standing in the water and away from the main flock. With the aid of a 20X scope, I identified this bird as a Thayer's Gull. Here is a description of the bird taken from my original field notes: "Size that of a Herring Gull, head white but mottled with dark, mottling extended onto breast which was white. Bill, dark, especially lower mandible, some light or flesh color at basal end of upper mandible. Back mottled, brownish on white or grayish. Wings were most interesting. Saw them folded only as bird did not fly while under observation. Primaries were light brownish about the same as the back. As the bird bathed and flashed the wings, noted some light transverse barring. (A rough sketch was made of this barring.) At first I thought the primaries may have been dark but this turned out to be the dark of the tail. The primary feathers (folded) laid very neatly on the dark tail band. The tail was similar to a 2nd year Herring Gull, dark on the end (banded), light in center." The bird was too distant to flush so as I stated in my field notes, I did not see the bird fly but from previous experience with this species, I feel confident that I was looking at Thayer's Gull. **Robert B. Janssen, 14321 Prince Place, Minnetonka, MN 55343.**

HORNED LARK HIGHWAY CASUALTIES — On November 25, 1977 between Perham and Detroit Lakes in Otter Tail County, a hundred or more dead Horned Larks and over 600 live larks were seen along the way. Many small flocks were using the highway and adjacent edge of the highway shoulder, as everywhere else was a coating of ice and deep snow. The reaction of the larks to approaching cars often made it almost impossible to avoid hitting them with the car. They flew low, a loping leisurely flight sometimes directly over the highway, very seldom directly away from it.

Snow Buntings seen that day flew swiftly up and away from the road to escape easily as do resident pairs of Horned Larks seen along the roads in late winter. **William H. Longley, 532 W. Broadway, Forest Lake, MN 55025.**

UNUSUAL DIURNAL HUNTING BEHAVIOR OF A LONG-EARED OWL — The Long-eared Owl is one of the least known of all the Minnesota owls, not because it is particularly rare, but partly because of its strictly nocturnal nature. Therefore, it is interesting that on February 18, 1978 Mark Otnes and I observed one hunting at 4 p.m., about one hour before dusk. We were cruising along the old gravel North Shore Rd. just east of the Lakewood Rd. looking for Boreal Owls, when I spotted a Long-eared perched in typical posture next to the trunk of a poplar on the edge of an open brushy field. It was about half again as large as the Boreal Owls we had been seeing, with its ears and rusty face dimly but definitely visible in the late afternoon light of an overcast day. Just as we stopped, the owl took off and headed away from us out over the field in a leisurely, erratic, bouyant flight which reminded us exactly of the Short-eared Owl's typical behavior. We were also surprised to see a buffy wing patch at the base of its primaries and a black "wrist" mark on the underside of its wings, making it look even more like a Short-eared. After a minute it landed in a tree at the far edge of the field about a quarter mile away, and we drove toward it for another look since we were beginning to wonder if it really was a Long-eared (neither we or anyone I talked to that winter had ever seen a Long-eared hunting so leisurely to observe its field marks clearly in flight). As we approached, the owl flew towards us in the same manner over the field and, except for its rounded rather than pointed wings, it looked very much like a Short-eared Owl. But it landed on a pole next to the road, and we confirmed it to be a Long-eared by its size, upright posture, rusty face and ears. Finally, it flew off again low over the field in the same way and eventually landed out of sight in some trees about a half mile away. Long-eared Owls are unusual enough in late winter in notheren Minnesota, but to see one looking and hunting just like a Short-eared during the day time was even more noteworthy. **Kim Eckert, 9735 North Shore Dr., Duluth, MN 55804.**

RED-BREASTED MERGANSERS BREEDING IN CASS COUNTY — When I first saw merganser ducklings at Leech Lake, Cass Co., in 1971, I assumed they were Common Mergansers. I continued to assume this when broods were seen again in 1972-73. In 1974, it became apparent that mergansers breeding at Leech Lake were Red-breasted Mergansers. a fact that was substantiated by specimen collection in 1975. In 1975-77 there have been one to four broods per year, all appearing in June. Broods were all in the vicinity of Pelican Island, 4 mi. N. of Whipholt, Cass Co. In most summers since 1973 a few pairs have been in residence near Pelican Island. No nests have been found. In 1976 about 20 adults summered in the area. Green and Janssen (1975) considered the Red-breasted Merganser as a summer resident "along the shore of Lake Superior in Cook, Lake, and St. Louis Counties"; and as a rare breeding bird at Mille Lacs and Big Sandy Lakes, Aitkin Co. They questioned the validity of other breeding records. In view of continued breeding and summer residency at Leech Lake, the Red-breasted Merganser should be considered an uncommon but regular breeding bird in Cass Co. Summering mergansers seen elsewhere in north central Minnesota should be closely examined, keeping in mind the possibility of their

being Red-breasted.

RED-BREASTED MERGANSER BROODS

Year	Size Brood 1	First Appearance	Size Brood 2	First Appearance
1975	3	26 June	8-10	30 June
1976	19*	6 June	31**	27 June
1977	4	17 June	8-10	27 June

*Combined broods of two hens
**Combined broods of four hens including those appearing 6 June

Literature Cited: Green, J. C., and R. B. Janssen. 1975. Minnesota Birds, U. of Minn. Press, Minneapolis. **Lewis W. Oring, Department of Biology, University of North Dakota, Grand Forks, ND 58202.**

CALIFORNIA GULLS, CLAY COUNTY — While returning to Fergus Falls from Moorhead on April 10, 1978, I chanced to notice a number of gulls standing on the edge of a slough about 100 feet west of the highway. The location was: four to five miles north of the city of Barnesville, Clay County, along the southbound lanes of Interstate 94. Noticing that some of the gulls appeared darker mantled than others, I stopped for a look. Utilizing 10x35 binoculars, I was able to identify six adult Ring-billed Gulls, one adult Herring Gull and three adult California Gulls. The description of the California Gulls, taken from field notes recorded at the time of the observation, is as follows: distinctly smaller than the Herring Gull; similar in size to the Ring-billed Gulls; black and red spot on the lower mandible; mantle darker than the two aforementioned gull species; greenish legs. The time was 12:00 noon, the sky cloudy, the visibility good. The California Gulls were observed for two to three minutes. Later the same day the field notes were compared with Peterson's **FIELD GUIDE TO THE WESTERN BIRDS.** **Gary L. Otnes, Route 1, Box 181, Fergus Falls, MN 56537**

PURPOSE OF THE MOU

The Minnesota Ornithologists Union is an organization of both professionals and amateurs interested in birds. We foster the study of birds, we aim to create and increase public interest in birds and promote the preservation of birdlife and its natural habitat.

We carry out these aims through the publishing of a magazine, **The Loon;** sponsoring and encouraging the preservation of natural areas; conducting field trips; and holding seminars where research reports, unusual observations and conservation discussions are presented. We are supported by dues from individual members and affiliated clubs and by special gifts. The MOU officers wish to point out to those interested in bird conservation that any or all phases of the MOU program could be expanded significantly with gifts, memorials or bequests willed to the organization.

SUGGESTIONS TO AUTHORS

The editors of **The Loon** invite you to submit articles, shorter "Notes of Interest" and black/white photos. Photos should be preferably 5x7 in size. Manuscripts should be typewritten, double-spaced and on one side of the sheet with generous margins. Notes of interest should be generally less than two typewritten pages double-spaced. If reprints are desired the author should so specify indicating number required. A price quotation on reprints will be sent upon receipt of information.

Club information and announcements of general interest should be sent to the Newsletter editor. See inside front cover. Bird-sighting reports for "The Season" should be sent promptly at the end of February, May, July and November to Robert Janssen. See inside front cover.

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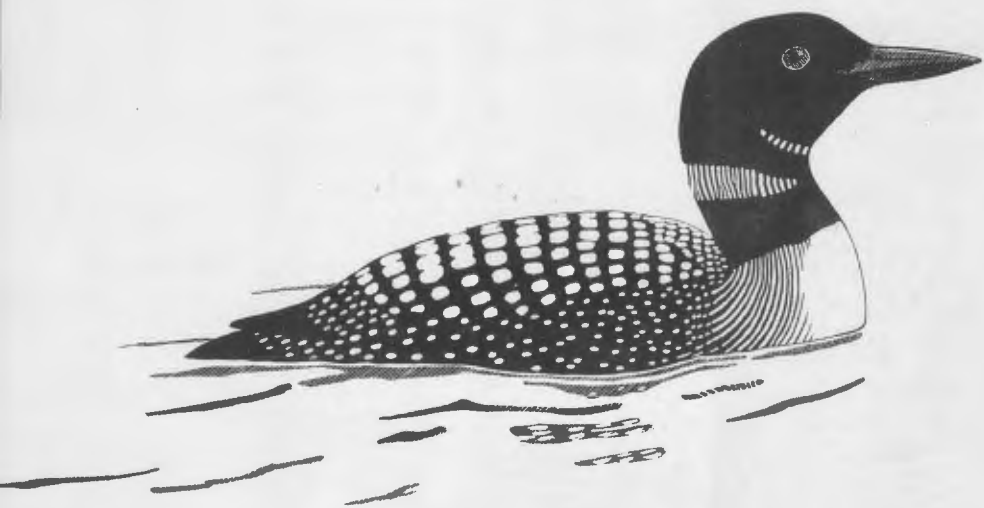

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EDITOR OF THE LOON: Robert B. Janssen, 10521 S. Cedar Lake Rd., Minnetonka, MN 55343 (phone 612-546-4220), The editor invites articles, short notes, and black/white illustrations obout birds and nature. See back cover for details.

"The Season" section of **The Loon** publishes reports of bird sightings throughout Minnesota. We particularly invite reports from parts of the state that have been neglested or covered lightly in past reports. To become a contributor to "The Season," request the report forms from the **EDITOR OF "THE SEASON," Mrs. Janet Green, 9773 North Shore Drive, Duluth, Minnesota 55804. (phone 218-525-5654).**

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EDDIE T. ORIOLE PAGE

As a result of our plea two issues ago for more input from readers, no less than seven letters somehow survived the wilds of wolf-ridden Koochiching County and the wilderness of the U.S. Postal Service, safely reaching their destination here in beautiful downtown Mizpah. Now while seven letters is hardly an overwhelming response, it's certainly an encouraging improvement over the virtually negligible reader input of the past. We sincerely hope this dialogue can continue as many more of you follow the example of our first seven correspondents: Ruth Andberg of Anoka, Kristine Stuart of Marshall, Vince Herring of Rochester, Ron Kneeskern of Austin, Karen Rose of White Bear Lake, Keith Denis of Thunder Bay, Ontario and Bette Jung of Hastings.

Space limitations unfortunately rule out printing the contents of all seven letters here, but we'll start with three that seemed especially timely and specific, and hopefully we'll have time to quote the other four in future issues.

Bette Jung writes:

"In the Spring issue of **The Loon** you asked for comments on its contents. Upon perusing the Summer issue, I decided to write as I missed some of the features I really like such as the President's Page, Bert Lystor and/or Eddie T. Oriole, book reviews and seasonal reports.

"To start out with a negative response (I will end positively) I wish academic papers, for the most part, could be eliminated. I really have no desire to know growth rates, etc., of incubated Ruffed Grouse chicks. On a scale of ten, in order of interest, I would rank the academic articles from the Summer issue as follows:

1

2

3 "Results of an Observation Card Survey for Sandhill Cranes . . ."

4

5 "Breeding Birds of Burned and Unburned Areas . . ."

6

7 "Status of Great Blue Herons on the Chippewa National Forest."

8

9

10 "Growth and Behavior of Ruffed Grouse Chicks"

Actually, Snowden's article on migratory waterfowl and La Fond's annotated Anoka County list are academic in nature, but they are interesting to me as a birder — a fine line to draw, I suppose.

"It is of little import to me whether the cover is in black and white or color. Also, the increase in dues does not particularly distress me. I cannot fault the Records Committee. However the seasonal reports and Notes of Interest are a must. I cannot imagine any half-serious birder not being interested in them, let alone a "hard core" birder. I have no judgments to make about the 300 Club. I heartily envy people who can pick up and go at a moment's notice to look for a Purple Sandpiper in Aitkin County. As a suggestion for a future article though, it would be interesting to know how you evaluate a birder's list when he or she reaches the goal.

"As I have expressed thoughts about the present magazine, I would also like to suggest some additional material and articles that I would enjoy reading: —many more such as Kim's two in the current issue; —articles such as "where we went," "what we saw" at Salt Lake or Brainerd or anywhere else in the state; —perhaps a "letter to the editor" sort of thing. Letters to editors never fail to intrigue

me.

"I appreciate the opportunity to express my views. I probably would not have done so had you started as usual with President's Page and Bert Lystor.

"P.S. All in all, Bob, as Editor of **The Loon,** I feel you are to be commended for the time and effort you take to put out an interesting specialized magazine — no small task in my estimation."

Then there were these two letters which came up with what we think is an excellent idea. Vince Herring says:

"After seeing the M.O.U. 300 list many times in **The Loon,** I wondered why not recognize a 200 Club for 200 birds in a county. Even the top birders probably only qualify in three to four counties at the most. It would encourage people to bird in other counties. It would seem to be more attainable to reach 200 county birds than 300 in Minnesota because most people don't have time to travel throughout the state. It might also encourage people to bird more and give more people a chance to reach the club. Please let me know what you think of this idea."

And Keith Denis adds:

"My opinion of the '300 Club.' It's a challenge. It necessitates keeping field notes (which I think is the most important chore of a 'birder'). To the questioning soul it must be satisfying to confirm an accidental or rare species. It can develop cooperation between birders. Perhaps it can even result in more thorough studies of different areas of the state. Mm . . . an off-shoot could be a '200 Club' of a county. Would have written sooner but am just recovering from a cancer operation and it took me two days to write the enclosed letter. Just had to let you know that **The Loon,** like the people belonging to the MOU, have long been appreciated by us who live north of the border."

So, here are a few county lists above 200 that we know about, and we hope to hear of a lot more. If you now have 200 species or more in any county (we're especially interested in those outstate counties in which few birders live), send us your totals. And if you don't have 200 yet in your county, why not get started on it today? Your efforts in your local area can add significantly to our knowledge of Minnesota birds.

County	Observer	Total
Aitkin	Terry Savaloja	255
	Jo Blanich	237
Anoka	Ken La Fond	237
Crow Wing	Terry Savaloja	233
	Jo Blanich	222
Dakota	Ray Glassel	230
Goodhue	Ray Glassel	228
	Bob Janssen	224
Hennepin	Bob Janssen	266
	Ray Glassel	260
Lac Qui Parle	Bob Janssen	204
	Ray Glassel	200
Lyon	Paul Egeland	251
Olmsted	Joan Fowler	214
	Vince Herring	201
Ramsey	Ray Glassel	201
Rock	Kim Eckert	237
St. Louis	Jan Green	280
	Kim Eckert	260
	Bob Janssen	254
	Ray Glassel	241
Stearns	Kim Eckert	230
Wabasha	Ray Glassel	204

A STUDY OF NESTING RED-TAILED HAWKS IN CENTRAL MINNESOTA

Robert T. Bohm

The Red-tail is Minnesota's most common nesting buteo. A nesting study in Benton and Morrison Counties revealed 29 nests in 1976 and 43 in 1977. Nest site selection and productivity are discussed in detail.

INTRODUCTION

The Red-tailed Hawk is a ubiquitous North and Central American raptor. Its range is extensive, north to the tree limits of Alaska and Canada, east to Nova Scotia, and south to Panama and many of the Caribbean Islands (Bent 1937). The Red-tail nests throughout Minnesota during spring and summer; in winter it is rare (northern half of the state) to uncommon (southern half of the state) (Green and Janssen 1975). In central Minnesota it is the largest, heaviest, and most common nesting buteo. In spite of its abundance, however, the Red-tail has escaped the attention of most researchers in this state. I am aware of only one study in Minnesota that included Red-tail nesting data — an investigation by Le Duc (1970) near Winona. The Red-tail has been a more popular subject in other states. Various aspects of population dynamics were studied in California (Fitch et al. 1946; Wiley 1975), Wisconsin (Orians and Kuhlman 1956; Gates 1972), Michigan and Wyoming (Craighead and Craighead 1956), New York (Hagar 1957), Montana (Seidensticker and Reynolds 1971), Alberta, Canada (Luttich et al. 1971), and South Dakota (Dunstan and Harrell 1973). Other investigations involved analyses of: environmental pollution and Red-tail population trends in North America (Henny and Wight 1972), the ecology of Red-tail predation (Luttich et al. 1970), and post-fledging activities of juvenile Red-tails (Johnson 1973). This study of the Red-tailed Hawk was conducted in 1976 and 1977 as part of a graduate research project at St. Cloud State University. Primary objectives were analyses of nest site selection and productivity.

THE STUDY AREA

Active Red-tail nests were observed in Benton, Morrison, Sherburne, and Stearns Counties. The majority of these, however, were located in western Benton County and south-central Morrison County, the primary study area (Figure 1).

Although extensively farmed, Benton and Morrison Counties contain scattered woodlots, especially along water courses and on less desirable agricultural land. Woodlots are composed primarily of northern pin oak and trembling aspen. Tamarack, green ash, American elm, and black willow occur in lower areas. Jack pine, large-toothed aspen, and balsam poplar are found along the northern border of the study area. Less common species present include basswood, black ash, bur oak, red oak, and white pine.

Terrain in both counties is flat to gently undulating. The study area in Morrison County and northern Benton County is characterized by sandy soil; the soil in southern Benton County is a sand-loam mixture. Marshes and wetlands are periodically dry. The largest body of water in the study area is Little Rock Lake, a shallow eutrophic lake of approximately 1300 acres.

Primary agricultural crops in the study area are corn, soybeans, and small grains. Dairy and beef cattle are

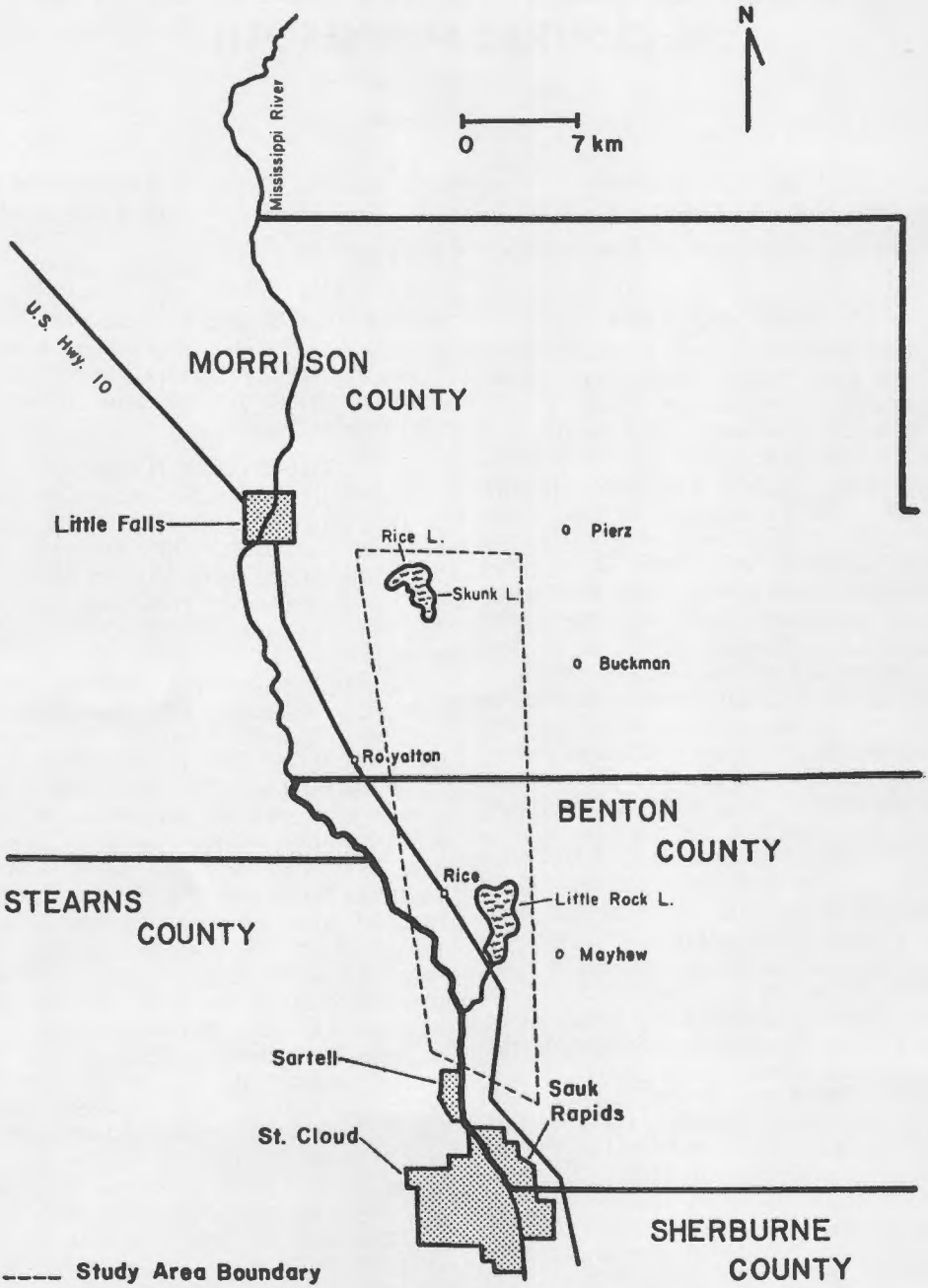

Figure 1 — The primary study area.

common and poultry farms numerous. In recent years large numbers of center-pivot irrigation systems appeared within the study area. The clearing of fencerows and woodlots has rapidly accelerated to provide the space necessary for their operation. Both counties are undergoing rapid urbanization and rural development.

MATERIAL AND METHODS

The majority of field work was completed between mid-March and mid-August of each year. A 15-60x spotting scope and 10x by 50 binoculars were used as observational aids. Most nests were found in early spring by systematically searching areas frequented by Red-tails. Because their nests were generally quite large and constructed almost entirely of sticks, they could usually be differentiated from those of other species. The locations of nests discovered during the winter were plotted on maps and rechecked for spring-time activity. The presence of white-wash, loose feathers, freshly broken branches, or fresh sprigs of vegetation on or near the nest indicated possible Red-tail activity. Territorial defense behavior by Red-tails, the circling and calling above an intruder in the nest vicinity, also suggested an active nest. Searching for nests was most effective before the foliage was fully developed.

Nest and tree heights were determined with a Relaskop, a measuring instrument sometimes used by foresters. Nest dimensions and nest tree dbh were also recorded. Climbing equipment was used when necessary. Nestlings were banded when four to five weeks old. An effort was made during work at nest sites to attract as little human attention as possible.

RESULTS AND DISCUSSION

Red-tails were first observed in the study area on 15 March 1976 and 14 March 1977. The spring hawk migration in 1977 appeared to be more gradual than in 1976 when an extremely large number of migrating hawks passed through central Minnesota during a one to two day period in late March. While on a birding field-trip a few miles east of Sauk Rapids, on 26 March 1976, I and several companions witnessed a tremendous number of migrating raptors. There seemed to be a hawk on every available perch, and we were amazed at the many Red-tail color variations we saw. The Red-tails that were sighted in the study area prior to the peak migration periods appeared to be mainly local nesting birds. On 5 May 1976 I examined a nest that contained a pipping egg. Using a 30 day incubation period, the egg would have been laid about 5 April 1976. My first observation of an incubating Red-tail in 1977 was on 28 March; the earlier start perhaps resulting from the mild late winter weather.

Nest Site Selection

Seventy-two active Red-tail nests were examined during this study; 29 in 1976 and 43 in 1977. Nests were typically large, bulky, and except for the shallow depression or cup containing the eggs, quite flat. They were contructed almost entirely of small branches 1/4" to 1/2" in diameter and approximately 1-1/2' in length. Nest size ranged from 13"x16"x17" (narrowest diameter x widest diameter x depth) to 30"x37"x22". Nest cups were 8"-12" in diameter, 4"-6" in depth, and usually lined with corn leaves.

Red-tail nests, in central Minnesota, were often located on woodlot edges (Figure 2); in some instances they were found in clumps of isolated or widely scattered trees (Figure 3). They were usually constructed in an upper crotch. The average nest height in a Wisconsin investigation where the favored nest tree was American elm was 57' (Orians and Kuhlman 1956). In South Dakota, where nests were most often found in cottonwood and ash, the average height was 63' (Dunstan and Harrell 1973). Red-tails favored red oaks in the river valleys near

Figure 2 — Red-tail nest located at the edge of a woodlot.

Winona, Minnesota; the average height being 58.5' (Le Duc 1970). I found the average nest height in central Minnesota to be 44.6' (range: 26' to 63'). Nests were found in 11 tree species; the majority were in northern pin oak, the most common tree in the study area (Table 1).

Seventy-four percent (53 of 72) of the nests were located on or near woodlot edges; 26 percent (19 of 72) were located 15 or more yards into the woods. Some of the nest sites in the first category, which I termed "edge nests" were in situations such as in pastures, fields, and deserted farmsteads. Although Red-tails seemed to prefer edge nests, the percentage of these may be biased high since they were often easier to locate than those in woodlot interiors.

Nests were generally built in a location that provided good access for the adult birds; they were always in or above the upper tree canopy. The typical nest was located at 81% of the nest tree's total height (range: 71% to 98%). Although I expected that nests in woodlot interiors might be built closed to the tops of the trees than nests in edge trees (for better access to the nest), this was not so. Each type averaged 81%. Some nests were in direct sunlight for most of the day; others were shaded. The directions that nests faced and dbh of nest trees varied considerably, as did the spatial distribution of the surrounding trees. Sixty-nine nests were constructed in crotches against the main trunk or in crotches formed where the primary tree axis divided into secondary branches. Three nests

TABLE 1. The number of nests per tree species, the range in height (in feet), and the average nest height (in feet) or Red-tailed Hawk nests in central Minnesota in 1976 and 1977.

Tree Species	Number	Range	Average Height
Northern pin oak	44	26 to 56	43
Green ash	8	40 to 57	51
American elm	5	33 to 45	39
Trembling aspen	3	49 to 56	52
White pine	3	51 to 56	53
Basswood	2	39,45	42
Bur oak	2	41,52	46
Jack pine	2	37,47	42
Black ash	1	63	63
Red oak	1	51	51
Tamarack	1	30	30
TOTAL OR AVERAGE	72	26 to 63	44.6

(one in a pin oak and two in American elms) were on horizontal branches far from the main tree axis. Seven nests were constructed on the tops of old leaf nests of squirrels. Three nests were in dead trees. Although all deciduous hardwoods and softwoods in the study area were leafless when nesting was initiated in late March and early April, the fact that one nest tree was little more than a broken snag did not deter a pair of Red-tails from utilizing it in 1976 as well as in 1977.

Nests were often built surprisingly close to areas of human activity. This was probably done out of necessity as in many areas the only remaining trees were those surrounding a farmstead. The average distance from a nest to the closest inhabited human dwelling was 0.37 miles (range: 0.05 to 1.3 miles). The average distance from a nest to the closest improved road was 0.31 miles (range: 0.12 to 0.62 miles).

I did not attempt to calculate the nest density for the entire study area because I did not know the locations of all nests and because it contained a number of sizable areas that were unsuitable for nesting. In 1977, however, I selected a portion of the study area that I felt was "good" nesting habitat (Figure 4). I believe I located all active Red-tail (and Great Horned Owl) nests in the 18 square mile area. Ten nests or one per 0.56 square mile were found. Table 2 compares this density to those from other investigations.

Red-tails frequently used the same nest in consecutive years. In 1977, 17 of the 29 nests used in 1976 were unavailable; Great Horned Owls appropriated 13, 3 had disappeared completely (apparently due to weathering), and one nest tree was cut during the winter. Six of the remaining 12 nests (50%) were re-used by Red-tails in

Figure 3 — Red-tail nest in clump of isolated trees.

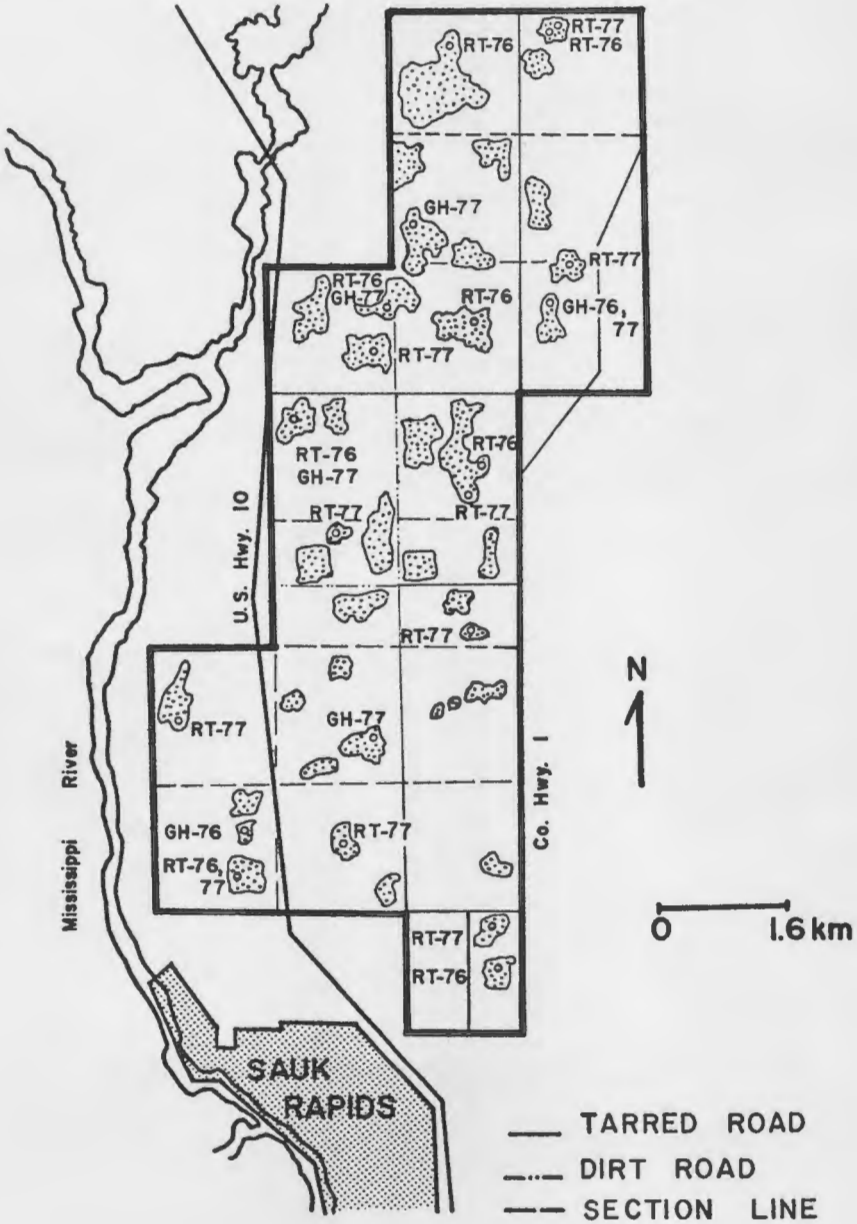

Figure 4 — A section of the study area showing locations of woodlots, Red-tail (RT) nests, and Great Horned Owl (GH) nests.

TABLE 2. A comparison of red-tailed hawk nest densities from several North American investigations.

Investigator (s)	Years of Study	Location	Nest Density
Fitch et al.	1939-1941	California	2.0 per sq. mi.
Bohm (present study)	1976-1977	Minnesota	0.56 per sq. mi.
Hagar	1951-1952	New York	0.45 per sq. mi.
Luttich et al.	1966-1969	Alberta, Canada	0.37 per sq. mi.
Orians and Kuhlman	1953-1955	Wisconsin	0.35 per sq. mi.

1977. Five pairs of Red-tails built nests in the same woodlots that contained active Red-tail nests during the previous year, at distances of 47, 159, 168, 175, and 217 yards from the old nest trees. Two of these moves were prompted by nest takeovers by owls.

PRODUCTIVITY

I observed 23 nests during the time that eggs were present. The average clutch contained 2.26 eggs (Table 3).

TABLE 3
Clutch size frequencies of Red-tailed Hawks in central Minnesota in 1976 and 1977.

Eggs per clutch	1976	1977	Total
1	2	2	4
2	5	4	9
3	6	4	10
AVERAGE	2.31	2.20	2.26

Average clutch sizes were found to be 2.0 in Alberta, Canada (Luttich et al. 1971), 2.53 in California (Wiley 1975), and 2.9 in Montana (Seidensticker and Reynolds 1971). Henny and Wight (1972) found that Red-tail clutches in the northwestern states (mean - 2.96) tended to be larger than clutches in the Great Lakes states (mean - 2.72), southcentral states (mean - 2.44), and southeastern states (mean - 2.11).

I considered a nest to be successful if at least one nestling survived to four to five weeks of age. I found one of the 29 nests after an unknown number of young had fledged from it. An immature Red-tail was near the nest and both adult hawks circled above me when I climbed to it. Upon closer examination I found that it contained fresh prey remains. I therefore assumed it to be successful.

Sixty-one percent of all nests were successful; 39% were failures (Table 4). Failure rates were substantially higher in 1977 when nearly one half of the attempted nests were unsuccessful. Failure rates in other investigations were 27% in California (Fitch et al. 1946), 26% in Wisconsin (Orains and Kuhlman 1956), and 41% in New York. (Hagar 1957).

TABLE 4. Red-tail nesting success in central Minnesota in 1976 and 1977.

Year	Number of Nests	Successful	Percent	Unsuccessful	Percent
1976	29	21	72	8	28
1977	43	23	53	20	47
TOTAL	72	44	61	28	39

In 1976, three of the unsuccessful nests (previously containing eggs and/or young) were empty at the time the nestlings should have been approximately five weeks old. The fate of two of these was unknown. I believe the third was robbed by humans; an active Great Horned Owl nest nearby was also empty. Both nests were in an area being residentially developed and were in easily climbable trees. Four of the remaining unsuccessful nests contained eggs and, in one case, a dead nestling in addition to a pair of eggs. I believe that my frequent presence at one of these nests caused a desertion. Desertion by adult Red-tails is an unpredictable and often frequent occurrence (Hagar 1957; Luttich et al. 1971; and Seidensticker and Reynolds 1971). It seems to occur most often early in the nesting cycle. Fitch et al.

(1946) found that nearly all of the nests that were investigated during nest construction were subsequently deserted. In the case where a nestling (less than a week old) apparently starved in the nest, it seemed likely that an adult may have been killed. Desertion, however, remained a possibility. The last unsuccessful nest contained two nestlings that disappeared between the ages of three and four weeks. I saw both adult hawks when I checked the nest but it was not possible to determine the cause of failure. It is interesting to note, however, that the construction of a new suburban home began less than a block from the nest after incubation had begun.

I determined the probable causes of eight nest failures in 1977. One nest contained a single egg that had a small hole in it, perhaps made by a Blue Jay or Common Crow. The adult Red-tails, unaware of this, still incubated the odoriferous egg. Another nest, which contained freshly broken eggs on the day that I inspected it, may also have been destroyed by an avian or mammalian predator. At least one failure was caused by direct human interference. The trunk of the tree had been partially chopped through with an axe. The nest was abandoned when I checked it and the adult hawks had apparently departed from the area. The nest was quite visible from a road, approximately 50 yards away. Two additional active nests, a little over a mile apart, were destroyed in mid-May by high winds. Both nest trees, and many others in the vicinity were broken, twisted, or uprooted. I observed adult Red-tails at both nest sites after the storm; however, no nest or nestling remains were found. Three more active nests were probably destroyed during a severe hail storm south of St. Cloud in late May. I checked the nests two days after the storm and all were severely dilapidated. At least one adult Red-tail was seen in the vicinity of each nest. The causes of the remaining 20 failures were unknown. Some of these nests were abandoned early in the nesting cycle and it is possible that renesting attempts were made elsewhere. I do not believe that my activities at nest sites caused any desertions in 1977.

Nest failures in other states were attributed to: farming disturbances, predation by Common Ravens, and nest robbing by humans for falconry purposes (Wiley 1975); predation by California Jays and blood-sucking flies, and trampling by adult Red-tails (Fitch et al. 1946); and interference from Great Horned Owls (Hagar 1957).

I knew the size of clutches in 23 nests during this study. Five of these nests failed. Some egg or nestling mortality occurred in seven of the remaining 18 (39%) nests. Single addled eggs were found in two instances and the young disappeared apparently after hatching in the other cases. Partial mortality in nests may be a relatively common phenomenon among Red-tails (and other raptors as well).

Successful nests produced 1.79 young during this study; 1.07 were produced per initial nesting attempt (Table 5). The numbers of young produced in successful nests in other studies were 1.6 in California (Wiley 1975), 1.9 in Wisconsin (Orians and Kuhlman 1956), and 2.35 in South Dakota (Dunstan and Harrell 1973). Seventy-three young Red-tails were banded during this study: two nests, each containing a pair of young, were inaccessible.

TABLE 5. Red-tail nestling productivity in central Minnesota in 1976 and 1977.

	Nestlings per nest			Total Young	Young per Successful Nest	Young per Nesting Attempt
Year	1	2	3			
1976	8	10	2	34	1.70	1.17
1977	6	14	3	43	1.88	1.00
Total	14	24	5	77	1.79	1.07

LITERATURE CITED

Bent, A. C. 1937. Life Histories of North American Birds of Prey. Part 1. U.S. Natl. Mus. Bull. 167, 409 pp.

Craighead, J. J., and F. C. Craighead. 1956. Hawks, Owls, and Wildlife. Harrisburg, Pennsylvania, Stackpole Co. 443 pp.

Dunstan, T. C., and B. E. Harrell. 1973. Spatio-temporal relationships between breeding red-tailed hawks and great horned owls in South Dakota. Raptor Research 7(2):49-54.

Fitch, H. S., F. Swenson, and D. F. Tillotson. 1946. Behavior and food habits of the red-tailed hawk. Condor 48:205-237.

Gates, J. M. 1972. Red-tailed hawk populations and ecology in east-central Wisconsin. Wilson Bull. 84:421-433.

Green, J. C., and R. B. Janssen. 1975. Minnesota Birds — Where, When, and How Many. Minneapolis, University of Minnesota Press. 217 pp.

Hagar, D. C. 1957. Nesting populations of red-tailed hawks and horned owls in central New York State. Wilson Bull. 69:263-272.

Henny, C. J., and H. M. Wight. 1970. Red-tailed and Cooper's hawks: their population ecology and environmental pollution. Symposium: Population Ecology of Migratory Birds, Patuxent Wildlife Research Center.

Johnson, S. J. 1973. Post-fledging activity of the red-tailed hawk. Raptor Research 7(2):43-48.

Le Duc, P. 1970. The nesting ecology of some hawks and owls in southeastern Minnesota. The Loon 42(2): 48-62.

Luttich, S. N., D. H. Rusch, E. C. Medlow, and L. B. Keith. 1970. Ecology of red-tailed hawk predation in Alberta. Ecology 51(2):190-203.

Luttich, S. N., L. B. Keith, and J. D. Stephenson. 1917. Population dynamics of the red-tailed hawk (**Buteo jamaicensis**) at Rochester, Alberta. Auk 88:75-87.

Orians, G., and F. Kuhlman. 1956. Red-tailed hawk and horned owl populations in Wisconsin. Condor 58:371-385.

Seidensticker, J. C. and H. V. Reynolds. 1971. The nesting, reproductive performance, and chlorinated hydrocarbon residues in the red-tailed hawk and great horned owl in south-central Montana. Wilson Bull. 83:408-418.

Wiley, J. W. 1975. The nesting and reproductive success of red-tailed hawks and red-shouldered hawks in Orange County, California, 1973. Condor 77:133-139.

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EDITOR HAS NEW ADDRESS

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ADDITIONAL RICE COUNTY BIRD RECORDS

David E. Willard

In 1976 Rustad's "Birds of Rice County" was published in "The Loon." Since that time many additional observations for the county have been made and old records have been received. County bird records help us to expand our knowledge of the distribution of Minnesota birds; to have information like that given below for other Minnesota counties would be most helpful.

The following are observations that supplement those of Orwin Rustad in his "Birds of Rice County" (**The Loon** 48:136-149 and 49:9-25). These observations are based on four years of bird study in northern Rice Co., 1964-1968. Additional observations made by Carol Pearson Ralph (CPR) in spring of 1969 are also presented. Unless otherwise noted, records are from the Carleton College Arboretum in Northfield. I have retained Rustad's terminology as defined in Part 1 of his article and present information only on those species for which my records supplement his or those of Pettingill which he cites.

Additional Species

Baird's Sandpiper: One in flooded grass, May 23, 1965. **Forster's Tern:** irregular spring transient; earliest date: April 28, 1965; latest date: May 13, 1967. **Olive-sided Flycatcher:** one record, May 23, 1969 (CPR). **Alder Flycatcher:** probably a summer resident; records May 29, 1966 and early summer, 1967. **Louisiana Waterthrush:** one singing along a stream, May 13, 1968.

Species with Few Rustad Records

Goshawk: one record, April 11, 1965. **Sharp-shinned Hawk:** regular transient. **Cooper's Hawk:** three records: May 8 and 31, 1967; Oct. 22, 1965. **Red-shouldered Hawk:** two records: May 15, 1966; October 1, 1965. **Broad-winged Hawk:** regular transient; latest spring date: May 17, 1968; latest fall date: Sept. 25, 1965. **Swainson's Hawk:** irregular spring transient; 8 records; earliest April 16, 1966; latest May 21, 1966. **Osprey:** irregular transient; earliest spring date: April 10, 1965; latest spring date: May 2, 1965. **Peregrine Falcon:** two records: April 10, 1965; Oct. 1, 1966 (Union Lake). **Merlin:** two records: April 18, 1965; Oct. 10, 1964. **Ruffed Grouse:** one record: April 15, 1967 (Nerstrand Woods). **Virginia Rail:** one record: May 10, 1966. **Semipalmated Plover:** one record: May 9, 1965. **Greater Yellowlegs:** regular transient; earliest spring date: April 1, 1967 (Union Lake); latest spring date: May 9, 1965. **Pectoral Sandpiper:** five records of 1-2 individuals, April 25-May 2, 1965. **Least Sandpiper:** one record: May 15, 1966. **Whip-poor-will:** one record: May 1, 1969 (CPR). **Western Kingbird:** one record: May 20, 1967. **Yellow-bellied Flycatcher:** one record: May 22, 1966. **Tufted Titmouse:** regular permanent resident. **Winter Wren:** irregular transient; earliest spring date: April 7, 1968; latest spring date: May 7, 1966. **Blue-gray Gnatcatcher:** one record: May 17, 1967. **Bohemian Waxwing:** two records: flock of 6 Feb. 5, 1967; flock of 25, Feb. 25, 1967. **Philadelphia Vireo:** regular transient; earliest spring date: May 8, 1966; latest spring date: May 30, 1968; latest fall date: Sept. 22, 1965. **Golden-winged Warbler:** regular transient; earliest spring date: May 8, 1968; latest spring date: May 22, 1968. **Blue-winged Warbler:** regular summer resident; earliest spring date: May 17, 1969 (CPR); present fairly commonly in June and July, 1967 and 1968 at Nerstrand Woods. **Northern Parula:**

irregular transient with 13 May records; latest spring date: May 21, 1966. **Cape May Warbler:** irregular transient with 7 May records; earliest spring date: May 9, 1965; latest spring date: May 24, 1968. **Black-throated Green Warbler:** regular transient with 20 May records; latest spring date: May 28, 1968. **Cerulean Warbler:** Probably regular summer resident; earliest spring date: May 10, 1969 (CPR); regularly observed June and July, 1967 and 1968, Nerstrand Woods. **Bay-breasted Warbler:** irregular transient; latest spring date: May 29, 1968; latest fall date: Sept. 25, 1966. **Pine Warbler:** one record: May 2, 1966. **Connecticut Warbler:** one record: May 22, 1966. **Orchard Oriole:** pair present May 15-31, 1968. **Pine Grosbeak:** flock of six, Nov. 23, and 29, 1965. **Hoary Redpoll:** one record: Nov. 28, 1965. **White winged Crossbill:** flock of 9, Nov. 18, 1965. **Lapland Longspur:** probably regular transient; spring records from Feb. 2, 1966 through April 2, 1976.

Revisions of Status and Dates

Rough-legged Hawk: latest spring date: April 4, 1967. **Sora:** earliest date: April 25, 1967. **Solitary Sandpiper:** regular transient; latest spring date: May 19, 1968. **Lesser Yellowlegs:** latest spring date: May 7, 1966. **Ruby-throated Hummingbird:** earliest spring date: May 12, 1968. **Yellow-bellied Sapsucker:** earliest spring date: April 7, 1968 and 1969 (CPR); latest fall date: Oct. 15, 1964. **Least Flycatcher:** earliest spring date: May 4, 1966. **Brown Creeper:** earliest fall date: Sept. 25, 1966; latest spring date: May 14, 1966. **Short-billed Marsh Wren:** earliest spring date: May 7, 1966. **Hermit Thrush:** earliest spring date: April 5, 1968. **Swainson's Thrush:** latest spring date: May 29, 1966 and 1968; latest fall date: Sept. 25, 1965. **Gray-cheeked Thrush:** earliest spring date: April 30, 1966; latest spring date: May 25, 1968. **Veery:** earliest spring date: May 4, 1969 (CPR). **Golden-crowned Kinglet:** earliest fall date: Sept. 26, 1965; latest spring date: May 4, 1966 and 1968. **Ruby-crowned Kinglet:** latest spring date: May 21, 1966 and 1968. **Northern Shrike:** earliest fall date: Nov. 23, 1965. **Loggerhead Shrike:** latest fall date: Oct. 24, 1966. **Yellow-throated Vireo:** irregular transient; earliest spring date: May 7, 1966; latest fall date: Sept. 26, 1965. **Solitary Vireo:** regular transient; earliest spring date: April 30, 1966; latest spring date: May 25, 1968. **Red-eyed Vireo:** latest fall date: Oct. 3, 1965. **Warbling Vireo:** earliest spring date: May 4, 1969 (CPR); latest fall date: Sept. 26, 1965. **Black-and-white Warbler:** regular transient; latest fall date: Oct. 5, 1965. **Tennessee Warbler:** earliest spring date: May 6, 1969 (CPR); latest spring date: May 31, 1968; latest fall date: Sept. 25, 1966. **Orange-crowned Warbler:** regular transient; earliest spring date: April 28, 1968; latest spring date: May 21, 1968; latest fall date: Oct. 1, 1966. **Nashville Warbler:** regular transient; latest spring date: May 28, 1968; latest fall date: Oct. 10, 1965. **Magnolia Warbler:** regular transient; latest spring date: May 29, 1966. **Yellow-rumped Warbler:** latest fall date: Oct. 31, 1965. **Blackburnian Warbler:** regular transient; earliest spring date: May 5, 1966; latest spring date: May 30, 1968. **Chestnut-sided Warbler:** regular transient; earliest spring date: May 7, 1966 and 1968; latest spring date: May 31, 1968. **Blackpoll Warbler:** regular transient; latest spring date: May 31, 1968. **Palm Warbler:** regular transient; earliest spring date: April 26, 1966; latest spring date: May 20, 1967; latest fall date: Oct. 1, 1966. **Ovenbird:** latest fall date: Sept. 25, 1966. **Northern Waterthrush:** regular transient; earliest spring date: April 10, 1968; latest spring date: May 25, 1968. **Mourning Warbler:** regular transient; latest spring date: June 6, 1968. **Common Yellowthroat:** latest fall date: Sept. 25, 1966. **Wilson's Warbler:** regular transient; latest spring date: May 30, 1968. **Canada Warbler:** regular transient; latest spring date: May 29, 1968. **American**

Redstart: earliest spring date: May 4, 1969 (CPR). **Rusty Blackbird:** latest spring date: April 20, 1968. **Scarlet Tanager:** latest fall date: Oct. 1, 1967. **Rose-breasted Grosbeak:** latest fall date: Oct. 1, 1967. **Purple Finch:** latest spring date: May 19, 1966. **Common Redpoll:** earliest fall date: Oct. 30, 1965; latest spring date: April 2, 1966. **Pine Siskin:** earliest spring date: March 29, 1968; latest spring date: May 25, 1966; earliest fall date: Nov. 8, 1965. **Slate-colored Junco:** earliest fall date: Sept. 25, 1966; latest spring date: May 17, 1967. **Clay-colored Sparrow:** regular summer resident. **Harris' Sparrow:** regular transient; earliest spring date: May 2, 1968; latest spring date: May 25, 1968; latest fall date: Nov. 8, 1965. **White-crowned Sparrow:** earliest spring date: May 2, 1965. **White-throated Sparrow:** latest spring date: May 24, 1968; latest fall date: Nov. 8, 1965. **Fox Sparrow:** latest fall date: Nov. 8, 1965. **Lincoln's Sparrow:** latest spring date: May 28, 1968; latest fall date: Oct. 30, 1965. **Swamp Sparrow:** earliest spring date: April 11, 1965 and 1966. **Snow Bunting:** latest spring date: Feb. 11, 1967.

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AGE STRUCTURE CHANGES IN SONGBIRD POPULATIONS IN NORTHEASTERN MINNESOTA

Thomas Hargy[1] and Peter Doran[2]

Bird population studies have been conducted at the copper-nickel exploration site near Babbitt, St. Louis County for a number of years. Studies in the past two years show an increase in the number of juveniles banded in 1977 over 1976. However, breeding pairs decreased from 1976 to 1977 in all habitats censused.

An avian population study developed in 1974 continues as one component of environmental monitoring at the MINNAMAX copper-nickel exploration project near Babbitt, Minnesota. With several years' data now accumulated, it is appropriate to analyze some of the population trend data and to hypothesize as to the causes of these trends.

The juvenile-to-adult ratios observed in the 1976 and 1977 banding seasons are of interest when considered along with the concurrent breeding bird censuses. The data from these programs are given in Table 1 and discussed below. In all habitats except Lowland Conifer, number of juveniles banded increased in 1977 over 1976, number of adults banded decreased between the years, and the resulting juvenile-to-adult ratios increased. Also, breeding pairs decreased from 1976 to 1977 in all habitats censused.

Mist-net banding sites that were established in 1976 were maintained in 1977. Banding periods were similar each year (06:00-12:00, May-September). Bird ages were determined by skulling and coloration, as described by Wood (1969). The same transect census techniques, locations, and personnel were used each year. Thus, sampling-introduced variables were minimized.

Numbers of breeding pairs censused and adults banded both decreased from 1976 to 1977, suggesting that correlation exists between the breeding bird counts and banding data on the MINNIMAX property. It seems reasonable that the density of breed-

TABLE 1. COMPARISON OF JUVENILE-TO-ADULT BANDING RATIOS AND BREEDING BIRD CENSUS RESULTS, 1976-1977 THE MINNAMAX PROJECT

Habitat*	Juveniles Banded per 100 Net Hours		Adults Banded per 100 Net Hours		Juvenile-to-Adult Ratio		Breeding Pairs Per 100 Acres	
	1976	1977	1976	1977	1976	1977	1976	1977
ATE	17.3	23.0	40.6	23.0	.43	1.00	Not censured	
UBA	3.6	13.0	31.7	15.0	.11	.87	371	234
MJP	4.6	24.8	19.6	18.9	.24	1.31	317	248
YJP	10.3	14.4	26.2	20.7	.39	.70	319	236
LC	0.0	0.0	22.5	8.0	—	—	265	118
AVERAGE, All Habitats	7.2	15.0	28.1	17.1	.26	.88	318	209

*ATE - Alder Track East; UBA - Upland Birch Aspen; MJP - Mature Jack Pine; YJP - Young Jack Pine; LC - Lowland Conifer. Habitats characterized previously (Doran and Todd, 1976, and Doran, et. al., 1977)

ing pairs has a bearing on the number of adults available to be netted. However, this hypothesis might be weakened if a significant floating population of non-singing adult males and non-breeding adult females existed; these birds, having no territory to defend, are more mobile and thus more likely to be caught. These high capture rates would figure into the banding results, but not in the breeding bird counts. Comparisons of future breeding bird and banding data will be necessary to better evaluate this hypothesis.

The cause(s) of the decreases between 1976 and 1977 in adult birds banded and breeding pairs censused is likewise subject to hypothesis. Low productivity in 1976, poor winter habitat conditions, or a combination of these might have resulted in less birds being available to return in 1977. It is also possible that the habitats themselves underwent changes through the year, and lost acceptability to songbirds. Natural plant community succession is a possible cause of change; however, it is unlikely that succession could progress far enough in one year to greatly affect songbird acceptance. A comparison of bird species composition from breeding bird and banding results of the two years (Doran, et al., 1977., Hargy, unpublished data) indicates that the birds present were representative of the same ecological niches both years.

The possibility that habitat quality change occurred due to exploration activities must also be considered. Sources of impact to these remote habitats would be the noise levels associated with various operations. However, most activities on the MINNAMAX Project (drilling rigs, shaft sinking operations, etc.) had been present in 1976 as well as 1977. Also, ambient noise levels in this area have historically been elevated due to taconite activities in the immediate vicinity.

Also open to speculation is whether the increased juvenile-to-adult ratios between the years reflect increased production per breeding adult. Austin (1977) suggested that immature-adult ratios in Verdin populations may indicate successful production. If this is the case at MINNAMAX, then increased productivity in 1977 may have been a response to an under-populated habitat. The 1977 breeding pairs, reacting to their relative freedom from competition, may have been stimulated to produce more young. The extreme difference between summer rainfalls in 1976 and 1977 may have caused differences in food availability, another factor which possibly affected fledging success. Precipitation at

MINNAMAX during May through September, 1976, was 8.2 inches, and the entire northeastern Minnesota area experienced severe drought conditions. Precipitation during May through September, 1977, however, totalled 24.2 inches as the area returned to more normal precipitation conditions. If insect populations, most of which have life stages dependent on the availability of water, and seed and berry production responded to the dry and normal summers. bird populations at MINNAMAX may have responded to a lack of food in 1976 with low reproduction and fledging success, and to an abundance of food in 1977 with higher reproduction and fledging success.

Future years' results will be examined with interest to see if these age-structure trends become more defined, and if other trends become apparent with the accumulation of data.

LITERATURE CITED

Austin, G. T., 1977. Production and Survival of the Verdin. The Wilson Bull., 89(4):572-582.

Doran, P. D., and J. W. Todd, 1976. Breeding Birds on a Copper-Nickel Exploration Site. The Loon, 48(1): 29-33.

Doran, P. D., J. W. Todd, and T. M. Hargy, 1977. MINNAMAX — Avian Update for 1976. The Loon, 49(2): 70-77.

Wood, M., 1969. A Bird-Bander's Guide to Determination of Age and Sex of Selected Species. College of Agriculture, The Pennsylvania State University, University Park. Pennsylvania.

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THE M.O.U. "300 CLUB"

Since last publishing the totals for the "300 Club" in the Spring issue we have added three new members, Betty and Doug Campbell and Ruth Andberg. Ruth really worked hard over the summer to get her list over 300. Plus this 11 of our old members increased their totals, Dick Ruhme and Kim Eckert lead with four new species each. Here are the totals as of September 1, 1978.

Ray Glassel	341	Don Bolduc	321
Bob Janssen	340	Karol Gresser	319
Harding Huber	338	Jo Blanich	318
Bill Pieper	336	Bill Litkey	317
Kim Eckert	334	Jerry Gresser	312
Ron Huber	334	Gary Otnes	311
Paul Egeland	332	Evelyn Stanley	310
Jan Green	328	Wally Jiracek	307
Liz Campbell	327	Henry Kyllingstad	304
Terry Savaloja	327	Doug Campbell	302
Dick Ruhme	326	Ruth Andberg	301

Betty Campbell 300

Bob Janssen, Editor

THE FALL SEASON (Aug. 1 to Nov. 30, 1977)

Paul Egeland

A record, 297, species were recorded by Minnesota observers from August to November 1977. Colder and wetter weather during the period may have affected the numbers of species and individuals recorded. The most exciting species was Minnesota's first Vermilion Flycatcher seen in Otter Tail County on November 6 and 7, a most unusual record.

Each fall season we seem to improve on past records. The total number of species reported (297) was another record, seven above 1976. The number of observers submitting report forms fell in number to 53 but many more people sent in miscellaneous notes.

We always comment on the weather; first, because it affects our enjoyment when getting out in the field, and second, it gives us food for thought and speculation on why birds are doing what they are. A blanket statement can be made about the weather statewide, it was colder and wetter than normal. August in paricular was cold, averaging 4.5 to 6.5 degrees below normal. This may have accounted for so many early migrants. Precipitation for August was just a little above average in most locations but Minneapolis was 6.2 inches above normal. In September the temperature rebounded and averaged about one degree above normal except in the NE where it was a little below normal. Precipitation was above normal in all areas. October and November were both below normal by several degrees. Precipitation continued above normal, in fact, except for the SE which was only 1.6 inches above normal for the four month fall season, all eight other regions were from 5 to 7 inches above normal for the four month period. It sure was a contrast from one year earlier.

There were 11 reports of casual or accidental birds. Duluth, the usual leader, was overshadowed by the Mille Lacs Lake area. Mille Lacs had a Red-throated Loon, Barrow's Goldeneye, several California Gulls, a Little Gull, a Red Phalarope, and a Purple Sandpiper at near by Big Sandy Lake. Even more amazing was the fact, except for the late October date for the Red-throated Loon, all were seen in November. Duluth did have a Barrow's Goldeneye, a Mountain Bluebird at Stoney Point, several Thayer's Gulls, and two Harlequin Ducks.

There is no doubt that the most unusual bird was the adult male Vermillion Flycatcher on November 6 and 7 near Elizabeth, Otter Tail County. The Big Stone NWR area also was good, with reports of a Snowy Egret, Ferruginous Hawk, and several large falcon sp. The 250 Smith's Longspurs at Rothsay, Wilkin County was unprecedented.

The format of this report has been changed a little bit. You will note many birds not included in this report. I have only listed those birds where an unusual early or late date was recorded this fall or the bird is not seen often and all reports are listed. The criterion was being outside the unitalicized late or early dates in Green and Janssen's book on Minnesota birds. What this means is that most common permanent residents were not listed unless seen outside their normal range or a common migrant was not listed if reported by an average number of observers within the birds normal migration time. I

listed unusual peaks of these birds and made some comments based on comments of observers submitting reports.

At the beginning of this article I mentioned receiving a lot of miscellaneous notes. This was an understatement. I had a pile almost half a foot high which ranged from neat one page lists, to post cards, to scraps of paper. We want this information but would appreciate it being submitted on the seasonal report form if possible, if not that, in a more neat and orderly fashion.

I would like to thank Dick Ruhme and Kim Eckert for the help in compiling this report.

RED-THROATED LOON
10-25 Mille Lacs Lake, Crow Wing Co. (RJ, KE).

Red-necked Grebe
11-7 Duluth (JG).

White Pelican
Late south 11-14 Dakota (RJ), peak 9-16 Freeborn (4000) (DG), interesting sidelight on 9-5 on Todd Lake, McLeod Co. 100 were killed in a hail store (fide C. Henderson).

Double-crested Cormorant
Late north 10-26 Marshall (SV), 11-16 Clay (E. Welter); late south 11-25 Big Stone.

Great Blue Heron
Late north 11-2 Duluth (GN), 11-8 Todd (KL); late south 11-20 Pipestone (AD).

Green Heron
Late north 9-2 Marshall (SV), 10-14 Duluth (GN); late south 10-30 Wright (BS).

Great Egret
Late north 10-1 Marshall (SV).

SNOWY EGRET
8-10 Big Stone (CMB).

Least Bittern
Late north 8-4 to 8-17 Duluth (GN), 8-10 Otter Tail (GO).

American Bittern
Late north 10-22 Marshall (SV).

Whistling Swan
Early north 9-29 Marshall (SV); early south 10-6 Anoka (JH); late north 11-16 Marshall (SV), 11-20 Becker (TA, DGW); peak Wabasha 2000.

Canada Goose
Peak 10-24 Lac Qui Parle (63,000) (AFE).

White-fronted Goose
All reports 10-4 Otter Tail (GO), 10-20 Marshall ANWR (fide SV).

Snow Goose
Early south 9-4 Traverse (FKS); late south 11-27 Washington (DS).

Mallard
Peak 9-21 Marshall (47,000) ANWR (fide SV).

Gadwall
Peak 9-21 Marshall (39,000) ANWR (fide SV).

Pintail
Peak 10-6 Becker (9,580) (TA); late north 11-5 Marshall (SV), 11-6 Becker (TA).

Blue-winged Teal
Late north 11-2 Duluth (GN); peak 8-31 Marshall (20,000) ANWR (fide SV).

American Wigeon
Late north 11-5 (SV), 11-12 Otter Tail (DS); peak 9-21 Marshall (15,000) ANWR (fide SV).

Northern Shoveler
Late north 11-1 Marshall (SV).

Wood Duck
Late north 11-3 Becker (TA).

Redhead
Late north 11-13 Becker (TA).

Ring-necked Duck
Late north Duluth 11-23 (KE), 11-30 Becker (TA); peak 10-13 Becker (44,860) (TA).

Canvasback
Late north 11-19 Mille Lacs (RJ, BB, OJ).

Greater Scaup
Late north 11-13 Otter Tail (DS), 11-16 Mille Lacs (DGW); peak 11-1 Rice (700) (WL).

Lesser Scaup
Late north 11-28 Duluth (KE).

BARROW'S GOLDENEYE
10-15 Duluth 1 imm. male (KE, PE); 11-20 Mille Lacs 1 female (J. Blanich et al).

Bufflehead
Early north 10-6 Becker (TA).

Oldsquaw
10-23 Cook (DGW).

Harlequin Duck
10-4 Minnesota River, Redwood Co. 1 imm. female shot by L. Huiras; 11-28 Duluth (2) (KE).

White-winged Scoter
Early north 8-28 Cook (KE, PE); also reported from Marshall and Anoka Counties.

Surf Scoter
Early north 9-17 Duluth (2) (DGW, BE); also reported from Lake Mille Lacs, Cook and Douglas Counties.

Black Scoter
Reported from Lake Mille Lacs and Cook Counties, peak 10-26 Cook (55) (KE, JG, RJ).

Hooded Merganser
Late north 11-16 Crow Wing (DGW).

Turkey Vulture
Late north 10-18 Duluth (HR); season total HR (472).

Sharp-shinned Hawk
Late north 11-12 Aitkin (RJ), 11-21 Itasca (MS); peak 9-26 Duluth (1402) (HR); season total HR (15,373).

Red-shouldered Hawk
Reports north and out of range 8-13 Duluth (KE), 10-15 Otter Tail (BL), 10-21 Otter Tail (fide GO).

Broad-winged Hawk
Late south 10-15 Olmsted (JF), 10-29 Olmsted (fide VH); peak 9-10 Duluth (7535) (HR).

Swainson's Hawk
Late south 9-27 Anoka (KL), 10-1 Freeborn (DG); many more reports than usual with reports from 14 different counties.

Rough-legged Hawk
Early north 10-3 Duluth (HR); early south 9-11 Renville (CMB).

Ferruginous Hawk
10-16 Big Stone NWR (CMB).

Golden Eagle
Reported from seven counties plus 11 seen at Hawk Ridge.

Bald Eagle
Reported by 34 observers.

Marsh Hawk
Late north 11-16 St. Louis (KE), 11-19 Mille Lacs (OJ, BE); 11-21 Duluth (HR).

Osprey
Late south 11-5 Anoka (KL), 12-1 Wabasha (J. Skrypeck).

PRAIRIE FALCON
8-14 Aitkin (RJ), 9-20 Brownton, McLeod Co. (D. Lindeman), 11-7 Wilkin Rothsay WMA (KE, JG).

Large Falcon sp.
8-18 Chippewa (KE, PE); 11-13 Big Stone (CMB).

Peregrine Falcon
8-13 Duluth (JG), 8-17 Lake of the Woods (BE), plus five sightings at Hawk Ridge.

Merlin
Reported from Anoka, St. Louis, Lake and Otter Tail Counties.

American Kestrel
Late north 11-12 Lake (JG).

Spruce Grouse
Reported three times, Itasca, Cook, and St. Louis Counties.

Greater Prairie Chicken
Reported by 4 observers with peak 11-25 Wilkin (110) (RJ).

Bobwhite
8-10 Newburg township Fillmore county (10) (T. Tucker).

Gray Partridge
Many reports, this bird is at one of its highest peaks ever.

Turkey
10-6 Huston (EMF).

Sandhill Crane
Peak at Borup, Norman Co. (5000), reports from the eastern half of state were 9-17 Freeborn (DG), until 9-23 Anoka (KL, BE); and 10-27 Wabasha (fide DWM).

Common Gallinule
Reported from 8-5 to 10-2 Washington (BL, DGW); until 8-20 Anoka (KL), and 8-7 to 9-14 Hennepin (LJF, BE).

American Coot
Peak 9-23 Becker (56,600) (TA).

Semipalmated Plover
Early north 7-17 Grant (BB), 7-20 Marshall (SV), 7-21 Otter Tail (GO); early south 6-26 Lyon (DGW), 6-26 Hennepin (RJ).

Piping Plover
Only report 8-6 Duluth (3) (KE).

Killdeer
Late north 11-5 Otter Tail (DS).

American Golden Plover
Early south 6-26 Lyon (DGW). 7-17 Lac Qui Parle (DGW, BE).

Black-bellied Plover
Early north 7-20 Duluth (RJ); early south 6-26 Lyon (DGW).

Ruddy Turnstone
Early south 7-23 Hennepin (RJ); late north 10-23 Cook (D. Carrol), 10-25 Duluth (KE, RJ).

American Woodcock
Late south 11-19 Olmsted (JF).

Whimbrel
Only report 8-29 to 8-31 Cook (G. Scott).

Solitary Sandpiper
Early north 7-2 Grant (GO); early south 6-30 Anoka (KL).

Greater Yellowlegs
Early north 7-4 Marshall (SV); early south 6-26 Lac Qui Parle (CMB), 6-27 Lyon (VL).

Lesser Yellowlegs
Early south 6-21 Anoka (KL), 6-26 Lyon, Yellow Medicine (DGW).

Willet
All reports 6-27 Lyon (VL), 7-16 Traverse (DGW), 7-21 Otter Tail (GO), 8-16 Big Stone (RJ).

Red Knot
All reports 8-27 Duluth (5) (KE), 8-28 Cook (KE, PE), 8-16 Big Stone (RJ).

PURPLE SANDPIPER
11-14 to 11-17 Big Sandy Lake, Aitkin Co (Steve Blanich et al).

Pectoral Sandpiper
Early north 7-6 Marshall (SV); early south 6-26 Lyon and Yellow Medicine (DGW), 7-2 Grant (RJ, GO); late north 10-25 Polk (KL).

White-rumped Sandpiper
Only reports 8-24 Duluth (GN), 9-7 Marshall (SV).

Baird's Sandpiper
Early 7-9 Anoka (KL), 7-16 Grant (GO), 7-17 Lac Qui Parle (BE); late north 10-12 Clay (KE); late south 10-25 Olmsted (T. Lindquist), 10-27 to 11-2 Wright (ES).

Least Sandpiper
Early north 6-26 St. Louis (RJ); early south 6-23 Lac Qui Parle (CMB).

Semipalmated Sandpiper
Early north 7-20 Marshall (SV); early south 7-6 Hennepin (VL).

Western Sandpiper
All reports 7-17 Lac Qui Parle (BE), 8-6 St. Louis (KE), 8-14 Cook (KE), 8-26 Otter Tail (GO), 8-27 Duluth (KE, RJ), 9-17 St. Louis (BE).

Sanderling
Early north 7-16 Grant (GO), 7-17 Otter Tail (GO), Traverse (DGW).

Long-billed Dowitcher
Early north 7-9 Marshall (DGW), 7-10 Otter Tail (GO); peak 9-23 Crow Wing (40) (WL).

Short-billed Dowitcher
Early south 7-2 Anoka (KL); early north 7-9 Stevens (RJ), 7-17 Otter Tail (GO), 7-29 Duluth (RJ).

Stilt Sandpiper
Early north 7-2 Grant (RJ), 7-9 Marshall (DGW), 7-10 Clay (DGW), 7-13 Duluth (GN); early south Lyon (DGW); late north 10-12 Clay (KE).

Buff-breasted Sandpiper
Early Duluth 7-29 (RJ), late Duluth 9-25 (LJF), only other reports away from Duluth 8-16 to 8-31 Anoka (1) (KL), 8-16 Traverse (RJ).

Marbled Godwit
All reports 8-4 Marshall (SV), 8-13 Otter Tail (GW), 8-16 Big Stone (17) (RJ), 8-18 Swift (KE).

RED PHALAROPE
11-12 to 11-29 Mille Lacs Lake (BL, RJ and others).

Northern Phalarope
Early north 7-16 Grant (GO).

Parasitic Jaeger
9-17 and 9-18 Duluth 1 adult seen by many observers, 1 imm. seen by PE and D. Ruhme, 9-25 Duluth 1 adult (LJF).

Jaeger sp.
8-27 Duluth (KE, PE).

Glaucous Gull
11-23 Cook (D. Engstrom), 11-29 Cook (2 imm.) (KE).

Thayer's Gull
10-28 to 11-13 Duluth (up to 3) (KE, JG); 11-14 Black Dog Lake, Dakota Co. (RJ), 11-19 Castle Danger dump, Lake Co. 1 2nd year bird (KE, JG).

CALIFORNIA GULL:
11-7 Mille Lacs Lake 2 imm. (KE, JG); 11-15 Mille Lacs 1 2nd year bird (RJ, PE).

Ring-billed Gull
11-7 and 11-8 Black Dog Lake, one albino seen by DB, D. Ruhme.

Franklin's Gull
Late north 11-7 Todd and 11-8 Wilkin (KE), 11-17 (Douglas N. Jackson).

Bonaparte's Gull
Peak 9-26 Beltrami 1450 (WL).

LITTLE GULL
11-8 Mille Lacs Lake 1 adult (KE, JG).

Forster's Tern
Late south 10-9 Meeker (4) (RJ).

Common Tern
Late north 10-22 Mille Lacs Lake (BL); late south 10-21 Dakota (KE).

Caspian Tern
Late north 9-24 Otter Tail (GO), 9-26 Beltrami (WL), 9-27 Mille Lacs Lake (OJ).

Yellow-billed Cuckoo
Late north 10-4 St. Louis. (JG).

Screech Owl
Reported from seven counties.

Great Horned Owl
From reports numbers of this owl seem to be down.

Snowy Owl
Minor invasion year, no unusual reports.

Hawk Owl
11-19 St. Louis (2) (D. Evans et al).

Barred Owl
Reported from eight counties.

Great Gray Owl
See article in Summer Loon.

Long-eared Owl
Reported from Le Sueur, St. Louis, Otter Tail, Rice.

Short-eared Owl
Reported from seven counties.

Saw-whet Owl
Reported from Kanabec, Olmsted, St. Louis and Washington Counties.

Whip-poor-will
More fall reports than normal, in August from Lake of the Woods (BE), Marshall (SV), Anoka (DGW), and 9-6 Houston (EMF).

Common Nighthawk
Late north 9-17 St. Louis (JG); late south 10-12 Mower (RRK).

Chimney Swift
Late north 9-20 Otter Tail (GO); late south Hennepin 10-10 (SG), 10-13 (2) (ES).

Common Flicker
Late North 11-5 Itasca (fide DB).

Red-bellied Woodpecker
9-14 one Thief River Falls, Pennington Co. (J. Joppru).

Black-backed 3-toed Woodpecker
All reports 8-14 Lake of the Woods (DJ), 8-14 Cook (KE, PE), 9-29 St. Louis (DA), 10-6 St. Louis (JG), 10-13 to 10-22 Lake Vermillion, St. Louis (DWM), 11-6 Hubbard (DM).

Eastern Kingbird
Late north 9-16 Pine (DM); late south 9-25 Hennepin (RJ), 10-1 Lac Qui Parle (CMB), 10-15 Fillmore (GBE).

Western Kingbird
All reports north 8-10 Hubbard (FL), 8-15 Clay (LCF); late south 9-11 Blue Earth (LAF).

Great Crested Flycatcher
Late north 10-6 St. Louis (DM), 10-22 Cook (DGW); late south 9-25 Hennepin (OJ).

Eastern Phoebe
Late north 10-2 Itasca (DB).

Yellow-bellied Flycatcher
Early south 7-29 Washington (DMB).

Acadian Flycatcher
Only report 8-6 Houston (BE).

Least Flycatcher
Late north 10-2 Morrison (PM).

Eastern Wood Pewee
Late north 9-28 St. Louis (JG).

WESTERN WOOD PEWEE
One bird still at nesting location 8-1 Roseau (BB).

Olive-sided Flycatcher
Early south 8-6 Rock, Brown (OJ), 8-7 Anoka (OJ); late north 9-18 Lake (DGW).

VERMILION FLYCATCHER
One adult male seen 11-6 and 11-7 on Rustad farm near Elizabeth, Otter Tail County, first state record.

Horned Lark
Late north 11-25 Clay (LCF), Douglas (WL), 11-29 Lake (KE), Douglas (WL).

Tree Swallow
Late north Wilkin (GW); peak 8-14 Marshall (5000) (SV).

Bank Swallow
Late south Wabasha (RL).

Rough-winged Swallow
Late north 8-4 Otter Tail (GW), 8-7 Cook (JG), 8-14 St. Louis (DGW).

Cliff Swallow
Late south 10-9 Freeborn (DG); peak 7-29 Marshall (5000) (SV).

Purple Martin
Late south 10-15 Washington (DS).

Gray Jay
Reports from five northern counties.

Black-billed Magpie
Several reports from St. Louis, Otter Tail, and Wilkin counties.

Common Raven
Reported from Beltrami, Carlton, St. Louis, Lake and Cook counties.

Boreal Chickadee
Fewer reports than usual, only reported from Itasca, St. Louis, Lake, and Cook counties.

Tufted Titmouse
Only reports 10-15 Hennepin (DA),

11-12 Anoka (KL), 11-12 Wabasha (DGW), and throughout period Houston (EMF).

House Wren
Late south 10-18 Hennepin (KE).

Winter Wren
Early south 8-20 Cottonwood (RG), 8-24 Hennepin (VL).

Mockingbird
Only report 10-16 St. Louis (JG).

Gray Catbird
Unusual number of record late dates, 10-1 Fillmore (GBE), 10-2 Lac Qui Parle (CMB), Cottonwood (LAF), Wright (RJ), 10-9 Hennepin (BE), 10-22 Ramsey (LJF), and 11-20 Hennepin (ES).

Varied Thrush
11-27 into December St. Louis (G Olson).

Hermit Thrush
Late south 11-24 Ramsey (LH), 11-30 Olmsted (M. Snyder).

Swainson's Thrush
10-18 Hennepin (KE). late south

Gray-cheeked Thrush
Late south 10-10 Hennepin (PF).

Veery
Late north 9-25 Cook (DA).

MOUNTAIN BLUEBIRD
10-22 Anoka (KL), 11-21 Stoney Point, St. Louis Co. (KE).

Blue-Gray Gnatcatcher
Late south 9-7 Houston (EMF), 9-10 Rice (RJ).

Golden-crowned Kinglet
A number of observers indicated the numbers of this bird are down substantially. Late date north 11-22 St. Louis (KE).

Ruby-crowned Kinglet
Late north 11-6 Otter Tail (DS), 11-10 Otter Tail (GW); late south 11-25 Wabasha (DWM).

Water Pipit
late north 11-19 Lake (2) (RJ, KE).

Bohemian Waxwing
Early north 10-26 Hubbard (HF), 10-27 Cook (JG, KE, RJ), 10-28 Marshall (SV).

Loggerhead Shrike
Late north 10-30 Pine (DA).

Bell's Vireo
All reports 8-5 Winona (VL), 8-28 Wright (ES), 8-28 Houston (FL).

Yellow-throated Vireo
Late north 9-10 Otter Tail (GO).

Solitary Vireo
Late north 10-6 Crow Wing (E. Campbell).

Red-eyed Vireo
Late north 10-10 St. Louis, 10-15 Lake, 10-16 Cook (all by JG).

Black-and-white Warbler
Early south 8-5 Winona (VL), 8-9 Hennepin (VL).

Prothonotary Warbler
Only report from an unusual location 8-24 Morrison (PM).

Tennessee Warbler
Late south 10-29 Houston (EMF), 11-2 Hennepin (ES).

Orange-crowned Warbler
Early north 7-28 Clay (LCF), 8-14 Duluth (DGW); early south 8-13 Hennepin (FN).

Northern Parula
Early south 8-5 Winona (VL); late north 9-20 St. Louis (JG), 10-8 Otter Tail (fide GO).

Magnolia Warbler
Late south 10-10 Washington (DMB).

Cape May Warbler
Late north 10-2 Otter Tail (GO), 10-14 St. Louis (JG).

Black-throated Blue Warbler
All reports listed which were more than usual, 8-13 Hennepin (FN), 8-18

Otter Tail (OJ), 8-27 St. Louis (DGW), 8-28 Hennepin (RJ), 9-15 Olmsted (JF), 9-18 Lake (DGW), and 9-23 St. Louis (ES).

Yellow-rumped Warbler
Early south 8-23 Hennepin (DB); late north 11-30 into January Duluth (KE).

Black-throated Green Warbler
Late north 9-29 St. Louis (AJ).

Cerulean Warbler
Late north 10-10 Morrison (PW), this is both a very late date and unusual location.

Blackburnian Warbler
Late north 9-19 Duluth (SG), 9-20 Duluth (JG).

Chestnut-sided Warbler
Late south 10-31 Hennepin (LH).

Bay-breasted Warbler
Early south 8-21 Hennepin (SG); late north 10-6 St. Louis (JG).

Blackpoll Warbler
Early north 8-14 Duluth (DGW); early south 8-21 Anoka (KL); late north 9-28 Marshall (SV), 9-29 St. Louis (JG).

Pine Warbler
Late north 10-10 Hubbard (HF).

Palm Warbler
Late north 10-23 Aitkin (ES).

Northern Waterthrush
Early south 8-2 Hennepin (DB); late north 10-1 Itasca (DB).

Connecticut Warbler
Late south 9-25 Cottonwood (LF), 10-27 Washington (DMB).

Morning Warbler
Late south 10-8 Washington (DGW).

Wilson's Warbler
An unusual number of early migration dates, early north 8-2 Clay (LCF); early south 8-12 Mower (R. Jessen), 8-13 Houston (EMF), 8-14 Cottonwood (LF), 8-16 Hennepin (DB).

Canada Warbler
Early south 8-11 Houston (EMF), 8-14 Hennepin (SG), late north 9-18 Duluth (BB).

Bobolink
Very few reports, late north 9-17 Wilkin (GW).

Western Meadowlark
Late north 11-11 (Douglas N. Jackson).

Orchard Oriole
Late south 8-16 Big Stone, Traverse (RJ).

Rusty Blackbird
Early south Anoka (KL); late north 11-19 Carlton (DGW).

Brewer's Blackbird
Late north 11-13 Clay (LCF).

Cardinal
Only unusual report was a bird seen in Duluth from September through November (fide JG).

Rose-breasted Grosbeak
Late north 10-30 Clay (LCF); late south 11-12 Ramsey (LJF).

Blue Grosbeak
8-1 to 8-14 Murray (2) (AD), 8-6 Rock (RJ, OJ).

Indigo Bunting
Late south 11-4 Hennepin (fide FN).

Evening Grosbeak
Early south 10-15 Washington (WL).

Pine Grosbeak
Early north 9-30 Carlton (DA), 10-25 Duluth (JG), major invasion year with reports by end of period from 13 counties.

Hoary Redpoll
All reports 11-23 St. Louis (3) (KE), 11-26 Clay (3) (LCF).

Common Redpoll
Early south 10-18 Lac Qui Parle (CMB), Hennepin (KE).

Pine Siskin
Peak 10-10 St. Louis (1500) (JG).

Rufous-sided Towhee
10-2 Murray (2 Spotted) (AD).

Lark Bunting
Only report 8-6 Pipestone (OJ, RJ).

LeConte's Sparrow
Late north 10-15 Wilkin (4) (RJ, GW).

Sharp-tailed Sparrow
9-14 Hennepin (3) (BE), 9-17 Wilkin (1) (GW, GO, all reports).

Lark Sparrow
Only report 8-16 Traverse (RJ).

Dark-eyed Junco
Early south 9-7 Olmsted (E. Webster).

Tree Sparrow
Early south 9-25 Cottonwood (RG).

Chipping Sparrow
Late north 10-18 St. Louis (JG).

Field Sparrow
Two reports north 8-12 Rice Lake NWR (OJ), 10-6 Otter Tail (GO); late south 11-1 Houston (EMF).

Harris' Sparrow
Late north 11-30 Cass (HH), late south 11-30 Murray (AD).

White-crowned Sparrow
Early south 8-24 Freeborn (DG), late north 10-27 Cook (JG, RJ).

White-throated Sparrow
Early south 8-24 Freeborn (DG), 9-7 Washington (DGW), late south 12-1 Wabasha (RL).

Fox Sparrow
Early north 9-2 Otter Tail (GO).

Swamp Sparrow
Late north 11-5 Otter Tail (DS).

Song Sparrow
Late north 11-5 Otter Tail (DS), 11-22 St. Louis (GN).

Lapland Longspur
Early south 9-24 Anoka (KL); late north 11-21 St. Louis (KE), 11-29 Cook (KE).

Smith's Longspur
10-15 Wilkin (**250**) (GW, GO, RJ); 10-23 Wilkin (30) (GO).

Chestnut-collared Longspur
Only report 8-15 Clay (DJ).

Snow Bunting
Early north 9-24 Lake of the Woods (M. Johnson); early south 10-16 Washington (JD), 10-22 Freeborn (DG), 10-23 Hennepin (OJ).

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THE 1977 MINNESOTA CHRISTMAS BIRD COUNTS

Kim Eckert

101 *species were recorded on 33 counts. St. Paul NE lead with 50 species and Duluth was second at 48. Highlights included a first winter Western Grebe, 10 owl species, good numbers of Pine Grosbeaks and 1000's of Common Redpolls.*

Partly because of financial considerations, the format of this report will be different from those of past years. Gone is the table (for which the printer must charge extra) which traditionally listed each count's totals for every individual species. Readers interested in all that data will still be able to find it in **American Birds.** Instead, what follows this introduction is a brief summary of the highlights of each count.

This year results of 33 counts were received, all but three of which (Cedar Lake, Faribault and Voyageurs National Park) were also submitted to **American Birds.** There were also three other counts sent in only to that publication and not to **The Loon** (Afton, Cedar Creek Bog and Itasca State Park). Missing altogether is the long-established St. Paul count, whose absence conveniently eliminated long-standing overlaps with three other Twin Cities counts. A composite total of 101 species was recorded, exactly the same total as last year (though the Spruce Grouse and Yellow-bellied Sapsucker recorded at Itasca and nowhere else would bring the total to 103). St. Paul N.E. led all counts with 50 species, while Duluth, with an amazing display of rarities, was a close second with 48. The weather situation was somewhat reversed from last year when the opening Saturday of the count period was warm and pleasant. This year counts taken on that first day were dampened by steady rains which resulted in several disappointing results. At least the weather was somewhat more cooperative after that, except for a cold Warren count on the 26th (high of -10°) and a foot of snow falling on Owatonna on the 31st.

Leading this year's list of rarities: a first state winter record Western Grebe at Big Stone N.W.R., Whistling Swan and Gadwall up at Fergus Falls, an elusive Harlequin Duck at Duluth, both Herring and Ring-billed Gulls at Big Stone, a most cooperative Hawk Owl and a less cooperative Long-eared Owl at Duluth (Long-eareds were seen on no less than five counts!), Great Gray Owls at Grand Marais and Sax-Zim which were part of a massive owl invasion (counting a Boreal during the

Duluth count week and a Saw-whet during the Mountain Lake - Windom count week, no less than ten owl species were recorded!), a Hermit Thrush at a Duluth feeder, an Eastern Bluebird at Hastings - Etter, a well-described Loggerhead Shrike at Excelsior, a Yellow-rumped Warbler also at a Duluth feeder, good numbers of Pine Grosbeaks (661 at Duluth, also seen on several s. Minnesota counts) and Common Redpolls (especially a record-breaking 4615 at St. Paul N.E.!), a Harris' Sparrow way up at a feeder in Walker, White-crowned Sparrows and a peak of 2500 Snow Buntings at Big Stone, and finally the casual Townsend's Solitaire found at Duluth (and also photographed at Itasca State Park). As a final note, there were fortunately few documentation problems this year. Only one species had to be deleted because of insufficient documentation; however, some counts had species deleted either because they unnaturally lingered because of injury or because they were only recently stocked and not truly established in the wild (Trumpeter Swans in the Twin Cities area are not "countable" yet, Bobwhites north of Goodhue County or west of Mower County are probably not wild birds, and Turkeys are acceptable only in Houston County and in the Whitewater W.M.A.).

Albert Lea

(Jan. 2, 25 species, 2640 individuals, compiler Rose Foss) — Most noteworthy: Long-eared Owl, 1139 Snow Buntings.

Austin

(Dec. 18, 35 species, 2468 individuals, compiler Terry Dorsey) — Most noteworthy: Marsh Hawk, American Coot, Herring Gull.

Big Stone N.W.R., Minn. portion

(Dec. 17, 39 species, 4586 individuals, compiler Brad Ehlers) — Most noteworthy: Western Grebe (eventually overwintered; first Minn. winter record), Bald Eagle, Herring and Ring-billed Gulls, Brown-headed Cowbird, Cardinal, White-crowned Sparrow, 2500 Snow Buntings.

Bloomington

(Jan. 2, 43 species, 7882 individuals, compiler John Eliason) — Most noteworthy: Bufflehead, American Coot, Herring Gull, Bohemian Waxwing, Brown-headed Cowbird, 11 Pine Grosbeaks, 1587 Common Redpools.

Cedar Lake, Scott County

(Dec. 17, 21 species, 544 individuals, compiler Robert Leis) — No unusual species noted.

Cottonwood

(Dec. 17, 26 species, 2166 individuals, compiler Paul Egeland) — Most noteworthy: Snowy Owl, Pine Grosbeak during count week.

Crookston

(Dec. 18, 23 species, 932 individuals, compiler Thomas Feird) — Most noteworthy: Sharp-tailed Grouse, 46 Greater Prairie Chickens, Black-billed Magpie, Bohemian Waxwing, Tree Sparrow.

Crosby

(Dec. 17, 22 species, 841 individuals, compiler Josephine Blanich) — Most noteworthy: Boreal Chickadee, American Robin.

Duluth

(Dec. 31, 48 species, 12,144 individuals, compiler Gerald Niemi) — Most noteworthy: Bufflehead, Harlequin Duck, Sharp-shinned Hawk, Glaucous Gull, 6801 Rock Doves (an exterminator has since killed most of them, plus a few raptors on the side), Hawk Owl, Long-eared Owl, Great Gray and Boreal Owls during count week, Varied Thrush, Hermit Thrush, Townsend's Solitaire (a total of 4 thrush species with robin), 852 Bohemian Waxwings, Yellow-rumped Warbler (at feeder until Feb. 1), 661 Pine Grosbeaks, White-throated Sparrow.

Excelsior

(Dec. 17, 39 species, 4369 individuals, compiler John Telfer) — Most

noteworthy: Snow Goose, Wood Duck, Loggerhead Shrike, 33 Pine Grosbeaks.

Fargo-Moorhead, Minn. portion
(Dec. 17, 26 species, 910 individuals, compiler Ron Nellermoe) — Most noteworthy: Bohemian Waxwing, 15 Red Crossbills (only count to list this species).

Faribault
(Dec. 17, 27 species, 1003 individuals, compiler Orwin Rustad) — No unusual species noted.

Fergus Falls
(Dec. 17, 40 species, 3264 individuals, compiler Paul Anderson) — Most noteworthy: Whistling Swan (possibly injured), Gadwall, Lesser Scaup, Bald Eagle, American Coot, Belted Kingfisher, Red-bellied Woodpecker, Rusty Blackbird.

Grand Forks-East Grand Forks, Minn. portion
(Dec. 18, 12 species, 1150 individuals, compiler Frank Kelley) — Most noteworthy: American Kestrel.

Grand Marais
(Dec. 26, 29 species, 1519 individuals, compiler Justine Kerfoot) — Most noteworthy: Canada Goose, Great Gray Owl, American Robin, Cedar and Bohemian Waxwings, Common Grackle, White-throated Sparrow.

Hastings-Etter
(Dec. 18, 45 species, 1885 individuals, compiler Dick Ruhme) — Most noteworthy: Goshawk, Ring-billed Gull, Eastern Bluebird, 4 Pine Grosbeaks; also note the lower and more realistic species total in comparison with another compiler's counts in recent years here.

Hibbing
(Dec. 30, 23 species, 650 individuals, compiler Harriet Micensky) — Most noteworthy: Brown Creeper, Dark-eyed Junco.

La Crosse-La Crescent, Minn. portion
(Dec. 17, 38 species, 6244 individuals, compiler Frederick Lesher) — Most noteworthy: Turkey (one of the truly wild Houston Co. population), Herring Gull, 4598 Red-winged Blackbirds, 5 Pine Grosbeaks.

Marshall
(Dec. 18, 38 species, 2426 individuals, compiler Henry Kyllingstad) — Most noteworthy: 5 Marsh Hawks, 4 Short-eared Owls, Red-headed Woodpecker (second count in a row), Hoary Redpoll, 4 Harris' Sparrows.

Minneapolis
(Dec. 17, 35 species, 3899 individuals, compiler Oscar Johnson) — Most noteworthy: Long-eared Owl, Brown-headed Cowbird, 15 Pine Grosbeaks, Hoary Redpoll.

Mountain Lake-Windom
(Jan. 2, 31 species, 6987 individuals, compiler Ross Wagner) — Most noteworthy: Long-eared and Short-eared Owls, Saw-whet Owl during count week, 2507 Horned Larks, 17 Pine Grosbeaks, 4 Harris' Sparrows.

Northwoods
(Jan. 1, 16 species, 376 individuals, compiler Michael Link) — No unusual species noted.

Owatonna
(Dec. 31, 37 species, 2965 individuals, compiler Darryl Hill) — Most noteworthy: Brown Thrasher, 5 Pine Grosbeaks.

Rochester
(Dec. 17, 45 species, 27,397 individuals, compiler Vince Herring) — Most noteworthy: 22,000 Canada Geese, White-fronted Goose during count week, Bufflehead, 4 Pine Grosbeaks.

St. Paul N.E.
(Jan. 2, 50 species, 13,737 individuals, compiler Mrs. Joseph Fitzpatrick) — Most noteworthy: Wood Duck, Common Snipe, Long-eared Owl, Tufted Titmouse (only count to list this species), Brown-headed Cowbird, 134 Pine Grosbeaks, Hoary Redpoll, 4615 Com-

mon Redpolls (new North American CBC record).

Sax-Zim

(Dec. 22, 25 species, 799 individuals, compiler Kim Eckert) — Most noteworthy: Sharp-tailed Grouse, 2 Great Gray Owls, Black-billed Magpie; also note the following lower and more realistic individual totals in comparison with another compiler's counts here in recent years: no three-toed woodpeckers (avg. of 4 last 3 years), 14 Gray Jays (71 in 1975), 16 Blue Jays (171 in 1975), no Boreal Chickadees (52 in 1975), 2 White-breasted Nuthatch (46 in 1975), 36 Pine Grosbeaks and 29 White-winged Crossbills (over 300 of each in 1975, a poorer finch winter).

Sherburne N.W.R.

(Dec. 17, 21 species, 732 individuals, compiler Sharon Volker) — Most noteworthy: Snow Goose (blue form).

Voyageurs National Park

(Dec. 29, 7 species, 30 individuals, compiler Mark Johnson) — No unusual species noted, though the 4 observers were out for 11 hours and tallied a 300% increase over last year.

Wabasha

(Dec. 28, 43 species, 9303 indivduals, compiler Donald Mahle) — Most noteworthy: Pied-billed Grebe, Golden Eagle, Turkey (part of the truly wild Whitewater W.M.A. population).

Warren

(Dec. 26, 18 species, 516 individuals, compiler Gladwin Lynne) — Most noteworthy: 119 Gray Partridge, Black-billed Magpie, Common Grackle, Dark-eyed Junco.

Wild River, Chisago County

(Dec. 17, 36 species, 2380 individuals, compiler Tom Anderson) — No unusual species noted.

Willmar

(Dec. 17, 23 species, 549 individuals, compiler Ben Thoma) — Most noteworthy: Sharp-shinned Hawk, Bohemian Waxwing.

Winona, Minn. portion

date?, 29 species, 1397 individuals, compiler Donald Mahle) — Most noteworthy: Gadwall, Common Snipe, Brewer's Blackbird.

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THE WINTER SEASON (Dec. 1, 1977 - Feb. 28, 1978)

Kim Eckert

It was another cold winter in Minnesota but 62 observers recorded 129 species. A first winter record Western Grebe spent the period at Ortonville. Waterfowl were down in numbers. Spectacular was the invasion of Great Gray and Boreal Owls, the biggest birding event to be recorded in Minnesota. Finally there was an excellent invasion of finches, Pine Grosbeaks were seen in numbers and were recorded in many southern areas of the state.

This winter was in many respects similar to the previous one. Coverage was about the same with 62 contributors and 33 Christmas Bird Counts (CBCs) supplying data on 129 species, one more than last winter. Also similar was the weather, but that was one similarity we could have done very well without. No one wanted to believe those long-range forecasters who predicted another cold winter, but accurate they were and we had to suffer through the second miserable one in in a row. There was a brief thaw in mid-December, and while January was especially frigid it wasn't quite as bad as last year. Perhaps the worst part of it all is that it was a lot snowier than last year, except in n.e. Minn., with the western part of the state especially hard hit. Also discouraging was that February remained cold with little in the way of thawing — at least February 1977 had turned out warmer than usual.

But there seemed to be a lot more birds around this winter than last, and in two situations the results were quite spectacular. About the only group to make a disappointing showing were the waterfowl, an expected result of some severe cold snaps which began as early as November. A most unexpected exception in this group was that Western Grebe which somehow survived the entire winter at Ortonville; several Harlequin Ducks around Duluth also brightened the waterfowl picture. Among the hawks, four Gyrfalcons (one of which was poisoned) and two Merlins were most noteworthy, and among gallinaceous birds a survey of Gray Partridge in Wilkin County was striking evidence of that species increase in the state. The Thayer's/Iceland Gull problem was still there this winter with excellent looks (and even photos) of two birds by experienced observers unable to prove anything for sure; also discouraging for listers was that yet another Ivory Gull showed up but didn't hang around. The big Rock Dove peaks on the Duluth CBC may be a thing of the past, but this "blessing" is obviously nothing to cheer about. Clearly the thing to cheer about was that spectacular invasion of Great Gray and Boreal Owls, probably the biggest birding event ever to hit Minnesota with some 200 out-of-state birders from 21 states also invading the Duluth area. These birders also made note of the healthy numbers of Hawk Owls, but in the excitement those above average numbers of Barred, Long-eared and Short-eared Owls were easy to overlook. No less than six thrush species was extraordinary (a normal winter might register two), but even more startling and inexplicable was that hopelessly lost Water Pipit in January at Duluth. Also in Duluth was a Yellow-rumped Warbler which managed to survive through January (at the same feeder with that Hermit Thrush). The second major event of the winter was the finch invasion, led by Pine Grosbeaks, both redpolls and White-winged Crossbills: Pine Grosbeaks even penetrated as far as the southwestern part of the state,

the size of some redpoll flocks was simply staggering, with Hoaries even crossing the Minnesota-Iowa line for the first recorded time. I guess you could say, then, that the weather wasn't that much better than last year but the birding certainly was.

Common Loon
Late migrant 12-4 Duluth (DS); another more difficult to explain seen for one day only **1-15** Sartell, Stearns Co. (NH).

Horned Grebe
1-21 Knife River, Lake Co. (m.ob.); only report.

WESTERN GREBE
One remarkably survived the harsh winter and overwintered at Ortonville, Big Stone Co. (m.ob.); there had been no previous record later than mid-November!

Pied-billed Grebe
Five reports: 12-18 Ramsey (DGW) and Wabasha (DWM); until 1-1 Kandiyohi (DoA); 1-1 (MJ) and 2-12 (DGW) Black Dog L., Dakota Co.

Great Blue Heron
Two late stragglers 1-4 Orwell W.M.A., Otter Tail Co. (P. Millard) and 1-5 to 1-8 Black Dog L., Dakota Co. (MJ, BB).

Whistling Swan
A possibly injured bird at Fergus Falls, Otter Tail Co. until 12-28 (MO, GO); late migrants until 12-26 Wabasha and early migrants **2-20** Wabasha (DWM).

Canada Goose
Overwintered in Otter Tail, Big Stone, Stearns, Anoka, Hennepin, Washington, Olmsted and Winona; late migrants also seen on the Grand Marais, Wild River (Chisago Co.), Sherburne and Owatonna CBCs and until 12-18 Le Sueur and 1-2 Lac Qui Parle.

White-fronted Goose
One until **12-20** at Rochester, Olmsted Co. (JF, VH).

Snow Goose
Late migrants on the Sherburne and Excelsior CBCs and 12-2 Olmsted (VH).

Mallard
Overwintered in 24 counties north to Hubbard, Lake and Cook; December migrants also seen in Polk, Clay, Becker, Kandiyohi, Lyon and Cottonwood and February migrants seen in Pope.

Black Duck
Reported from 12 counties north to Duluth and Cook.

Gadwall
Four reports: Winona CBC; until **1-29** Orwell W.M.A., Otter Tail Co. (m.ob.); 1-14 (RJ) and 2-25 (OJ, DGW) Shakopee, Scott Co.

Pintail
Four reports: 12-16 and **2-8** Cottonwood (LF); 12-17 Goodhue (KE); 1-17 Winona (FL).

Northern Shoveler
Late migrant 12-1 L. Calhoun, Minneapolis (DB).

Wood Duck
December reports from Otter Tail, Hennepin, Ramsey and Mower; also seen until 1-17 Shakopee, Scott Co. (MJ) and 2-13 Mower (RRK).

Ring-necked Duck
Late migrants 12-2 Sherburne (EH) and Olmsted (VH), 12-4 Hennepin (KE) and **12-15** Becker (TNWR).

Lesser Scaup
Late migrants 12-4 Stearns (NH), 12-5 Duluth (KE) and until 12-28 Otter Tail (MO).

Common Goldeneye
Reported from 16 counties north to Otter Tail and Koochiching.

Bufflehead
Overwintered at Black Dog L. (m.ob.) and Rochester, Olmsted Co. (JF, VH); late migrant 12-2 Sherburne (EH); two also seen until 2-4 at Duluth (KE, JG).

HARLEQUIN DUCK

A maximum of three females or imm. at downtown Duluth from 12-6 to 1-2 (KE); an imm. male at French R., St. Louis Co. from 1-21 to 1-29 (m.ob.).

Oldsquaw

Reported only from Cook; seems to be decreasing in recent years on L. Superior.

Hooded Merganser

Three reports: 12-5 Duluth (KE); 1-14 Scott (RJ); three overwintered at Rochester (VH).

Common Merganser

Overwintered in Lake, St. Louis, Koochiching, Big Stone, Stearns, Dakota, Wabasha, Olmsted and Houston; December migrants also seen in Cook, Otter Tail and Hennepin and February migrants in Ramsey and Mower.

Red-breasted Merganser

Two L. Superior reports: until 1-21 St. Louis (m.ob.) and **2-6** Knife River, Lake Co. (J. Eaton).

Goshawk

Reported from Cook, Lake, St. Louis, Anoka, Ramsey, Hennepin, Dakota and Goodhue.

Sharp-shinned Hawk

Reported from 11 counties north to Duluth (12-31 to 2-11, KE) and Cook (2-18, SM).

Cooper's Hawk

Reported from Stearns, Chisago, Dakota, Olmsted, Le Sueur, Goodhue, Winona and **Hubbard** (2-25, HF).

Red-tailed Hawk

Overwintered in 29 counties north to Duluth and Lake; fall migrants seen as late as early Jan. in St. Louis, Carlton, Pine, Morrison and Otter Tail; late Feb. migrants also seen in Koochiching and Stearns.

Red-shouldered Hawk

Reported from Chisago, Goodhue, Wabasha and Winona.

Rough-legged Hawk

Reported from 36 counties north to Lake, St. Louis (peak of 39 in the Sax-Zim area on 12-7, KE), Itasca, Beltrami and Lake of the Woods.

Golden Eagle

Again overwintered at Whitewater W.M.A., Winona Co.; also seen 1-4 Houston (EMF).

Bald Eagle

A total of 21 adults, 7 immatures and 12 unknown age reported from 20 counties north and west to Cook, Lake, Koochiching, Becker, Otter Tail, Big Stone, Lac Qui Parle and Cottonwood.

Marsh Hawk

Five reports: 12-5 Kandiyohi (HH), 12-8 Mower (RRK), Marshall CBC (5 seen), 1-11 Hennepin (TD) and 1-15 Washington (JD).

GYRFALCON

No less than four reports: 12-12 Eden Prairie, Hennepin Co. (VL); 1-23 Sartell, Stearns Co. (NH); 2-6 (found dead with a partly eaten poisoned pigeon in its talons) and 2-8 Duluth (M. Carr).

MERLIN

Reported 1-2 Sherburne (SM) and 12-31 to 2-5 St. Cloud, Stearns Co. (NH); this casual winter visitant seems to be almost regular in recent winters.

American Kestrel

Reported from 30 counties north to Clay, Polk (East Grand Forks CBC) and Pine.

Spruce Grouse

Four reports: 12-15 and 2-15 near Babbitt, St. Louis Co. (TH); 12-31 Itasca St. Pk. CBC; 2-13 Voyageurs Natl. Pk., St. Louis Co. (LG).

Ruffed Grouse

Reported from 25 counties.

Greater Prairie Chicken

Reported during the Fargo-Moorhead CBC period, on the Crookston CBC (46 seen), all winter at Rothsay W.M.A., Wilkin Co. (peak of 44 on 1-21, SM), and at Tamarack N.W.R., Becker Co. (12-1 only; probably a migrant).

Sharp-tailed Grouse

Reported on the Crookston and Sax-Zim CBCs; present all winter in Koochiching (peak of 15, LG) and Agassiz N.W.R. (12, SV); also seen 2-4 Willow River, Pine Co. (DB).

Bobwhite

Still survives in Houston Co. as evidenced by 12 seen 1-6 near Houston (N. Gulden).

Ring-necked Pheasant

Reported from 36 counties including a peak of 231 on the St. Paul N.E. CBC; seems to be coming back a bit after years of low numbers.

Gray Partridge

Continues to do well with reports from 25 counties including a peak of 119 on the Warren CBC; also a survey in Wilkin Co. by S. Musielewicz turned up no less than **866** individuals in 111 covies!

Turkey

Truly wild birds again reported only from Whitewater W.M.A., Winona Co. and from Houston Co. (two locations).

American Coot

Overwintered at Fergus Falls (Otter Tail Co.), Black Dog L. and Shakopee; also seen 12-4 Wood L., Hennepin Co. (KE) and in Austin, Mower Co. on the CBC and on 2-14 (RRK).

Common Snipe

Seen on the St. Paul N.E. and Winona CBCs; also 12-18 Hennepin (RJ).

Glaucous Gull

Reported from Black Dog L. (1 imm. on 1-15, ES), Duluth (1 imm. until 1-6, KE; 1 ad. on 2-4, DaA), Castle Danger dump, Lake Co. (12-17 and from 2-10 on, maximum of four, m.ob.), and Grand Marais, Cook Co. (12-16 to 2-15, maximum of three, m.ob.).

Iceland Gull

(None for sure but see Thayer's Gull below.)

Herring Gull

Overwintered on L. Superior and at Black Dog L.; also December sightings from Big Stone, Hennepin, Wabasha, Houston and Mower.

Ring-billed Gull

Seen during the first half of Dec. in Otter Tail, Big Stone, Ramsey and Dakota.

Thayer's Gull

A typical imm. seen at Grand Marais, Cook Co. on 1-22 (JG) was not much of a problem but there were two reports of what were either imm. Icelands or very light imm. Thayer's (good photos of one of these are available but as yet still inconclusive): 1-6 Duluth (KE) and from 2-10 to 2-14 Castle Danger dump, Lake Co. (m.ob.).

IVORY GULL

An imm. was well described from a fishing boat off Duluth on 1-15 (D. Rau); this makes the third winter in a row that this very rare gull has been seen.

Rock Dove

Reported from 26 counties with a peak of 6801 on the Duluth CBC; most disturbing was the report that an exterminator was hired by some of the grain elevators in Duluth (and Superior) to poison pigeons; his methods were so effective that he not only managed to wipe out about 90% of the pigeons around the harbor, but also a Rough-legged Hawk, two Snowy Owls and even a Gyrfalcon; the good news out of all this is that he was fined by the States of Minnesota and Wisconsin and the U.S. Fish and Wildlife Service, and last report is that he has decided to give up poisoning birds for a living.

Mourning Dove

Reported from 18 counties north to Morrison (until 1-25, PM) and Duluth (7 on the CBC).

Screech Owl

Reported from Clay, Otter Tail, Stearns, Cottonwood, Scott, Mower, Houston and Winona.

Great Horned Owl

Reported from 29 counties.

Snowy Owl

A below average winter with reports from Koochiching, St. Louis (Hibbing and Duluth), Lake (Two Harbors and Silver Bay), Mille Lacs, Clay, Wilkin, Lac Qui Parle and Cottonwood.

Hawk Owl

An above average total of seven individuals: all winter near Fourtown, Beltrami Co. (SV) and in Duluth Twp. (m.ob.); two in Koochiching Co. (12-29 International Falls and 1-16 Island View, LG); 12-29 near Payne, St. Louis Co. (KE); from 2-13 one at Two Harbors, Lake Co. (KE); another sporadically present at the Silver Bay airport, Lake Co. from 2-11 on.

Barred Owl

Reported from 18 counties including Big Stone (CBC period) and a mild invasion along the North Shore of L. Superior in February.

GREAT GRAY OWL

The second largest invasion on record with sightings of 58 individuals (see **The Loon** 50:63-68).

Long-eared Owl

Perhaps the largest number ever reported in a winter; seen in Freeborn, Olmsted, Hennepin, Washington, Sherburne, Scott, Cottonwood, **Duluth** (until 2-18, m.ob.) and Stoney Pt., **St. Louis Co.** (2-11, T. Savaloja).

Short-eared Owl

Also appeared more often than usual with reports from Clay, Otter Tail, Lac Qui Parle, Chippewa (2 overwintered), Lyon (6 on the Marshall CBC), Murray, Cottonwood (7 on 1-21, RG) and **St. Louis** (from 1-31 on, Duluth Twp., M. Hoffman).

BOREAL OWL

By far the largest invasion ever in Minnesota (and perhaps anywhere) with sightings of 66 individuals (see **The Loon** 50:63-68).

Saw-whet Owl

Four reports: 12-7 Agassiz N.W.R. (SV); 12-30 Mountain Lake, **Cottonwood Co.** (LF); 1-29 International Falls, Koochiching Co. (LG); 2-19 Stoney Pt., St. Louis Co. (KE, JG).

Belted Kingfisher

Overwintered in Houston, Fillmore, Mower, Freeborn, Sibley, Le Sueur, Dakota and Winona; also reported on the Big Stone, Marshall and Faribault CBCs and until 1-7 Otter Tail (MO, GO).

Yellow-shafted Flicker
Overwintered in Otter Tail (GO, GW), Lac Qui Parle, Hennepin, Ramsey, Washington and Le Sueur; migrants as late as early Jan. in Big Stone, Swift, Kandiyohi, Scott, Olmsted and Mower; late Feb. migrants also seen in Pope, Sibley and Nicollet.

Pileated Woodpecker
Reported from 34 counties.

Red-bellied Woodpecker
Reported from 30 counties north to Otter Tail (2 all winter) and **Pennington** (until 1-2, J. Joppru).

Red-headed Woodpecker
Reported from 15 counties including Lyon (Marshall CBC) and Morrison (PM).

Yellow-bellied Sapsucker
Reported on the Itasca St. Pk. CBC.

Hairy Woodpecker
Reported from 46 counties.

Downy Woodpecker
Reported from 45 counties.

Black-backed Three-toed Woodpecker
Reported from Koochiching, St. Louis (3 reports), Lake and Cook.

Northern Three-toed Woodpecker
Continues difficult to find; reported only from Cook Co. on 2-13 (S. Loch, T. Getz).

Horned Lark
Overwintered in 11 counties; fall migrants as late as early Jan. reported from 13 other counties including a peak of 2507 on the Mt. Lake - Windom CBC; earliest "spring" migrants 2-2 Watonwan and Cottonwood and 2-10 Wabasha in the South, and 2-20 in Clay, Pennington and Morrison in the North.

Gray Jay
Reported from Koochiching, Itasca, Crow Wing, Aitkin, St. Louis, Lake and Cook.

Blue Jay
Reported from 41 counties.

Black-billed Magpie

Reported from Marshall (Warren and Agassiz N.W.R.), Polk (Crookston), Becker (Tamarac N.W.R.), Wilkin, Otter Tail, Koochiching and St. Louis (Zim and Proctor).

Common Raven

Reported from 11 counties including **Chisago** (two on 1-8, Taylor's Falls, BS).

Common Crow

Overwintered in 34 counties; Dec. migrants also in Polk, Marshall and St. Louis (Hibbing and Sax-Zim); first Feb. migrants 2-4 St. Louis, 2-10 Marshall and 2-12 Morrison.

Black-capped Chickadee

Reported from 42 counties.

Boreal Chickadee

Reported from Becker, Crow Wing, Koochiching, St. Louis (peak of 16 on the Voyageurs Natl. Pk. CBC), Lake and Cook (peak of 16 on the Grand Marais CBC).

Tufted Titmouse

Four reports: all winter in Houston Co. (EMF); four on the St. Paul N.E. CBC; until 2-20 Ramsey (EC); 2-25 Millville, Wabasha Co. (DGW).

White-breasted Nuthatch

Reported from 41 counties.

Red-breasted Nuthatch

Reported from 36 counties; more reports than usual, especially in December.

Brown Creeper

Overwintered in 14 counties north to Clearwater and St. Louis; Dec. migrants also seen in 11 other counties.

Brown Thrasher

Reported on the Owatonna CBC and all winter at a feeder in Albert Lea, Freeborn Co.

American Robin

Overwintered in 11 counties north to Duluth and Koochiching; Dec. migrants also seen in ten other counties; late Feb. migrants also seen in Cottonwood and Murray.

Varied Thrush

No less than nine reports from Duluth (3 individuals, latest 12-31), Knife River (until 1-7, J. Eaton), Grand Marais (from mid-Jan. on, J. Cathcart), Hinckley, Pine Co. (until 12-13 and again from 1-31 on, L. Maser), Otter Tail Co. (12-8, GO), Anoka Co. (1-30, OJ), and Oakdale, Ramsey Co. (until 12-20, EC).

HERMIT THRUSH

At a feeder in Duluth Twp. from 12-30 to 1-1 (KE); only the second winter report on record.

Eastern Bluebird

Three late stragglers 12-4 Hennepin (CMB), 12-18 Dakota (JD) and 1-4 Wabasha (RL).

MOUNTAIN BLUEBIRD

A female was sporadically present near Le Sueur from 1-14 on (RJ and m.ob.); only the third winter report on record.

TOWNSEND'S SOLITAIRE

Perhaps the most reports ever for this casual stray: 12-3 North Oaks, Ramsey Co. (P. Fitzpatrick); from 12-26 into mid-Feb. near Grand Marais (m.ob.); two reports on 12-31 from the Itasca St. Pk. (photographed) and Duluth (J. Hanowski) CBCs; also 2-19 Duluth at the same 12-31 location (J. Pichner).

Golden-crowned Kinglet

Continues scarce with only five December reports from Clay, Duluth, Hennepin, Dakota and Wabasha.

WATER PIPIT

A most remarkable record 1-19 Duluth (EC); easily the first winter record since there had never been any record after November.

Bohemian Waxwing

A good winter with reports from 16 counties south to Washington, Dakota, Le Sueur, Kandiyohi, Chippewa and Lac Qui Parle; peak of 852 on the Duluth CBC.

Cedar Waxwing
Dec. migrants reported from 12 counties; Jan. reports only in Washington and Duluth; Feb. migrants in Otter Tail and Morrison.

Northern Shrike
Another good winter with reports from 37 counties throughout the state.

LOGGERHEAD SHRIKE
One reported with good details 12-17 Eden Prairie, Hennepin Co. (VL, MW); don't assume all winter shrikes are Northerns, but take a careful look before calling one a Loggerhead.

Starling
Reported from 26 counties.

YELLOW-RUMPED WARBLER
A late migrant 12-3 Houston (EMF); another attempted to overwinter at a Duluth Twp. feeder but was not seen after 2-1 (KE).

House Sparrow
Reported from 25 counties.

Eastern Medowlark
Two carefully studied 12-23 in Houston and Fillmore (RJ).

Western Meadowlark
12-5 Kandiyohi (HH) and 2-18 Le Sueur (singing, RJ).

Meadowlark, sp.
Reported from Stearns, Hennepin, Dakota, Olmsted, Fillmore and Mower.

Red-winged Blackbird
Reported into Jan. in Otter Tail, Clay, Lac Qui Parle, Cottonwood, Scott and Anoka; Dec. migrants also reported in ten other counties (peak of 4598 on the La Crescent CBC); migrants seen in Carver and Sibley.

Rusty Blackbird
Dec. reports in Big Stone, Lyon, Washington, Steele, Houston and Freeborn; seen until mid-Jan. in Otter Tail, Swift, Le Sueur and Sibley; Feb. migrants 2-18 and 19 Sibley (RJ, DGW).

Brewer's Blackbird
Late migrants 12-4 Hennepin (CMB) and 6 on the Winona CBC.

Common Grackle
Reported from 25 counties north to Marshall, Crow Wing, Duluth and Cook.

Brown-headed Cowbird
Dec. migrants seen in Big Stone,

Hennepin, Washington, Dakota, Wabasha and Fillmore; early migrants 2-18 Sibley (RJ).

Cardinal
Reported from 28 counties north to Big Stone, Stearns and Duluth (CBC period.)

ROSE-BREASTED GROSBEAK
A very late migrant 12-2 Wabasha (RL).

Evening Grosbeak
Reported from 37 counties throughout the state; more reports than usual though actual numbers seemed almost normal.

Purple Finch
Reported from 29 counties north to Marshall, St. Louis and Cook.

Pine Grosbeak
Perhaps the biggest winter ever with reports from no less than **39** counties south to Houston, Fillmore, Mower, Steele, Cottonwood and Lac Qui Parle; peaks of 661 on the Duluth CBC in the North and 134 on the St. Paul N.E. CBC in the South.

Hoary Redpoll
Reported from **24** counties south to Fillmore, Mower, Freeborn and Lyon; perhaps the most reports ever (a natural result of the large Common Redpoll invasion) and perhaps the first time there was no need for skepticism over reports in s. Minn.

Common Redpoll
Also perhaps the biggest invasion ever with reports from **49** counties throughout the state, making this the most widely reported species of the winter; not only was this species widespread, but there were also some amazing concentrations as evidenced by **4615** on the St. Paul N.E. CBC (the largest CBC total on record from anywhere, not just Minn.) and the 4000 plus banded in a single yard from mid-Jan. on in Roseville, Ramsey Co. (D. Meyer).

Pine Siskin
Reported from 30 counties; only about an average winter in spite of the big flocks seen in Nov. (which apparently moved on to the south and east before winter).

American Goldfinch
Overwintered in 15 counties north to Stearns and Chisago; Dec. migrants reported in seven other counties; isolated Jan. reports also in Lac Qui Parle and Duluth and an early migrant 2-27 Morrison (PM).

Red Crossbill
Continues scarce with reports only from Koochiching, Duluth, Clay, Pine, Ramsey, Washington and Le Sueur.

White-winged Crossbill
Another invasion species with reports from **27** counties south to Winona, Olmsted, Mower, Cottonwood and Swift; most common earlier in the winter with few North reports after January.

Rufous-sided Towhee
An individual of the western "spotted" race was at a St. Paul feeder all winter (B. Mettler).

Dark-eyed Junco
Reported from 37 counties north to Marshall, Polk, St. Louis, Lake and Cook.

Tree Sparrow
Reported from 29 counties north to Polk (Crookston CBC) and Duluth Twp. (at a feeder into Jan.).

Harris' Sparrow
Reported on the Marshall and Mt. Lake-Windom CBCs and during the Cottonwood CBC period; reported into Jan. in Lac Qui Parle (AFE) and Swift (HH) and overwintered at a Rochester feeder (J. Moses).

White-crowned Sparrow
Two late migrants on the Big Stone CBC.

White-throated Sparrow
Overwintered only in Duluth Twp. at a feeder (M. Hoffman) and in Thief River Falls, **Pennington Co.** (fide SV); also reported as late as early Jan. in Carlton, Hennepin, Ramsey, Washington, Cook, Wabasha and Olmsted.

Fox Sparrow
Late migrant until 12-9 Houston (EMF); another wintered until **2-7** at a North St. Paul feeder (fide EC).

Song Sparrow
Overwintered in Duluth Twp. at a feeder (JG), Scott, Olmsted and Winona; Dec. migrants also seen in Cottonwood, Goodhue, Houston and Fillmore.

Lapland Longspur
Overwintered in Lac Qui Parle, Olmsted and Le Sueur; migrants as late as early Jan. also seen in **Polk, Cook,** Grant, Lyon, Cottonwood, Freeborn and Mower.

Snow Bunting
One of the biggest winters ever with reports from 40 counties throughout the state; peaks included **2500** on the Big Stone CBC, 1139 on the Albert Lea CBC, 100 in Grant Co. on 1-6 (GO), and 1025 in Lac Qui Parle Co. on 2-12 (CMB).

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CORRECTIONS — SUMMER 1977 SEASONAL REPORT

Solitary Sandpiper and Tufted Titmouse in Fillmore Co. and Purple Finch in Olmsted Co. were observed by JF, not JD.

Connecticut Warblers were only seen in Aitkin Co., with no nesting evidence being found.

Delete Snow Goose on 6-11 in Duluth, but add Bonaparte's Gull on 6-11 in Duluth (B. Hojnacki).

Delete Common Loon in Wabasha Co. 7-15 to 7-24.

9735 North Shore Dr., Duluth, Minn. 55804

FIRST ADULT LAUGHING GULL FOR MINNESOTA — On May 20, 1978 Dick Ruhme, Bob Janssen and I were birding around the Duluth harbor and decided to check the mud flats off the mouth of Miller Creek for shorebirds since we had seen some large birds resting there when we drove by on the freeway. The large birds turned out to be mostly pigeons but one Hudsonian Godwit was on the mud island closest to us. When we started looking for other birds we simultaneously concentrated on a black-headed type gull that was resting with a few Ring-billed Gulls about 150 yards off shore, standing in shallow water. We were immediately suspicious that we had something different because the gull was so large and the mantle was so dark — appearing larger and darker than a Franklin's Gull. When I put the spotting scope on the bird, I could see that the folded primary tips were all black, separated from the dark gray mantle by a thin white line which would be the white trailing edge of the folded secondaries. We all watched it for a few minutes until it flew. At that time we could clearly see the dark outer primaries, both above and below, without any white tip or any white separating them from the inner primaries. We were all then sure we were looking at an adult Laughing Gull. I kept it in view in the scope as it circled high toward the Superior side of the harbor and then watched it glide down toward the Port Terminal. We immediately went over there and Dick finally spotted it circling with a group of Ring-billed Gulls near the American Hoist building. When we got to that side of the Terminal the gull had landed and we could watch it in perfect light at about 200 feet. At that time through the spotting scope we got a very good look at the head and bill. The notes I took of the bird that day follow: Adult black-headed type gull in full breeding plumage — white underparts, dark gray mantle, completely black hood. Size — slightly smaller than Ring-billed Gulls nearby. Folded wing tips — black with no white primary tips and thin white edge of folded secondaries separating all black tip from very dark slate-gray mantle. Hood — black with sharp line at base of hind neck from black to white. White upper and lower eye-ring. Legs dark but not jet black. Bill — slight down-turn at tip, all dark red in color blending into a blackish-red (darker) tip. In flight the dark outer primaries were without any white and blended into the dark mantle. Only white on wing was narrow trailing edge of secondaries and

inner primaries. Later that afternoon another birding party, composed of Kim Eckert, Paul Egeland, and Henry Kyllingstad, independently found and identified the same bird at the Port Terminal. Kim Eckert later saw the Laughing Gull at the Port Terminal on May 23rd and on Minnesota Point on May 25th. **Janet C. Green, 9773 North Shore Dr., Duluth, MN 55804.**

ANOTHER LAUGHING GULL AT DULUTH — Between May 20 and May 25, an adult Laughing Gull in full breeding plumage was seen at Duluth by several observers including myself, representing only the second Minnesota record. It is therefore noteworthy that another Laughing Gull was seen by Paul Egeland and me on June 1, 1978 at the airport at Park Point in Duluth. The bird was an adult with an incomplete black hood, indicating it was changing from winter into summer plumage. It was standing unobserved with Bonaparte's, Ring-billed and one Franklin's Gull before the gulls took flight and circled for several minutes above us. The following description is taken from notes written just after the gull was seen. Size between Franklin's and Ring-billed Gulls. Back and wings dark gray blending into blackish wing tips; trailing edge of wings white. Tail, neck and underparts all white. Under surface of wings white with black tips. Head with incomplete blackish hood (forehead and chin white); broken white eye ring. Bill and legs appeared blackish. **Kim Eckert, 9735 North Shore Dr., Duluth, MN 55804.**

BEWICK'S WREN AT WINONA — For about 15 days from approximately May 15 to 30, 1978 my neighbor and I saw and heard a Bewick's Wren. We both heard this "different" bird sometime before we actually saw it for the first time, so chances are that it was in the neighborhood for more than 15 days. First saw it — We were lucky that it chose two catalpa trees as its favorite perches — they are the last to get leaves, and were quite bare at the time so we got good observations. I really can't say for sure how many times we saw it; at first it would come quite a few times a day — very early morning till just before dark. Then it got to singing in the neighbors mulberry tree and it was more difficult to see and took some searching even though they are slower to leaf out also. Toward the end of its stay it chose the far end of an ash tree limb to sing from, and I got a very good look at it with full sunlight from that position the last time I saw it and the light breast was "for sure" again. At one time the breast seemed darker and I wondered if there could be two birds, but I'm convinced it was just the quality of the light at the time. It wasn't until after the 30th, that I didn't hear it anymore. I would have to guess at the exact amount of sightings; 12, 15, maybe even 18 because it came so often that first week or so, and sometimes after the leaves came out. I could see only parts of it, but it sang constantly, and as I recognized the song, it was easy to identify even then. It had about three songs, two of which we didn't hear often; the one Bill Drazkowski heard that was somewhat similar to a Song Sparrow and another one. I didn't think the bird sounded like a House Wren at all — it was very loud and exactly as described by Mabel Densmore (1924 sighting — Red Wing — in Birds of Minn. on page 96). I didn't expect it to be a wren at first because it was always in high places rather than in low, brushy spots or vines — perhaps it was there too when it wasn't in our immediate vicinity — we noticed the sideways twitching of the tail too, but I saw it hold it in an "uppish" manner only once — it threw its head back and held the tail

down while singing (and it was always singing when we saw it). Description of bird: Very light breast, brown back and tail (couldn't see barring) white line through eye area and very indistinct white edging on tail (this was hard for me to see — it didn't always show up perhaps because I seldom got to see a back view). Sometimes switched tail in sideways direction — tail was longer than I expected — bill was rather long and slightly curved. I was fortunate to have a recording of bird songs ("Songs of Eastern Birds' by Donald J. Borror) with Bewick's Wren on it which made the identification even more positive. **Mrs. Will Snyder, 502 E. 2nd St., Winona, Mn. 55987.**

KENTUCKY WARBLER AT ROBERTS SANCTUARY — On May 18, 1978 at about 7:30 A.M., I saw what I am confident was a Kentucky Warbler at Thomas Roberts Sanctuary near Lake Harriet in Minneapolis. The sighting occurred in an area of low bushes and ferns beneath a canopy of tall trees adjoining the parking lot outside the East entrance to the sanctuary. At first sight — a few fleeting glimpses — the bird resembled a slightly oversize version of a Common Yellowthroat in color and general configuration. I caught sight of the olive-green back and yellow breast and belly several times, but did not see the head markings clearly. The bird's actions were furtive and markedly different from that of a yellowthroat, however. It did not chip or sing and kept low to the ground, apparently walking or running through low growth, flushing when approached, flying into a dense bush and waiting quietly, and then darting into another bush. Finally, it flew up onto a low tree limb and perched in the open for about five to six seconds. There, I was able to see the whole bird clearly including the yellow spectacles and dark head and sideburn markings. Lighting conditions were good, and I viewed the bird at a distance of about 20 feet through 7 x 42 binoculars. After checking Robbin's field guide a few moments later, I concluded that the bird was a female or possibly a young male in first breeding plumage. The facial markings, while clear and definite, were not as dark, nor the sideburns quite as extensive as those on the mature male Kentucky Warbler illustrated. Other people who saw the bird included Terry Savaloja, who first identified it, and Don Bolduc, who helped me stalk and flush it. A short time later, a Kentucky Warbler was also seen inside the sanctuary by Bob Janssen and Betty Murphy, among others. From their description, and comments on a second sighting by Terry, differences in the extent and darkness of head markings seemed to indicate that there were two birds of this species present. On the succeeding morning, I again saw a Kentucky Warbler, this time inside the fenced area, and shortly afterward it was also seen and heard by Kim Eckert. **Dick Ruhme, 9655 Upton Road, Bloomington, MN 55431.**

KENTUCKY WARBLER AT ITASCA PARK — On June 4, 1978, what appeared to be a male adult Kentucky Warbler was observed by three members of the Lourdes High School conservation club and myself. We were ¼ mile north of the extreme NE corner of Itasca State Park. An unfamiliar call was heard coming from a dense thicket of 10-15 foot alders and poplars. The thicket was about 50 yards in diameter and was surrounded by mature poplars. A composite description by the four observers is: yellow eye "ring" which was much wider than the eye ring of an Ovenbird or Canada Warbler, a black blotch below the eye, yellow throat, yellow breast, black on sides of neck, no necklace, "green-brown-yellow" back. The bird appeared to be slightly larger than the Chestnut-sided Warblers

which were the only other birds observed in the immediate area. Observations were made from distances of 8-20 feet, most with the naked eye but the eye ring with 8.5 x 44 binoculars from 10 feet. The bird was not skittish, allowing us to get within a few feet several times (although the brush was too thick to observe it at his distance). Attempts were made for nearly an hour to flush it into several little clearings but it managed to elude us and stay in the thickets. At no time did the bird get more than two feet above the ground preferring to escape at ground level rather than flush upward. The call was loud and clear, repeated about four times per minute, reminiscent of a thrush, had a slight echo-like quality, and sounded as if the bird were moving while singing. The call was three high notes followed by about three lower notes and then a faint upward slur. The call on the Peterson record album does not match what we heard, but comes closer than any other species. The comparison to the record was made in the field while the bird was singing. All the warbler calls were played back to the bird and he did not respond to any except the Kentucky which he seemed to answer by a slight increase in calling rate. Once I realized that it might be a Kentucky by comparing the eye ring character with the field guide (Golden) and the song with the record no further comparisons with the guide were made until after notes of the group's observations were made. Observations were made about 11:00 A.M., the sky was clear, bright sun, light breeze, about 70° F. The belly did not appear to be as bright as the male shown in the Golden guide. The longest observation was only about two seconds, hence the sketchy description. **Ann McKenzie, 923 E. Homestead, Rochester, MN 55901.**

WESTERN TANAGER IN DULUTH — On May 12, 1978 Molly Kohlbry reported seeing a male Western Tanager at her mother's residence at 8321 North Shore Drive. After receiving this report, I immediately drove to the house and had no difficulty locating the bird. Since it was an adult male in breeding plumage, identification was no problem: size slightly smaller than the Evening Grosbeaks present at the time; chin, face and top of head red; rump and underparts yellow; wings, back and tail black; two whitish or yellowish wing-bars; bill pale and "tanager-shaped." Until the bird left the area on May 14, it was seen by several other observers as it continued to visit this yard at irregular intervals. The bird occasionally came to feeders for suet or sunflower seeds, but spent most of its time in birch and aspen trees where it appeared to be "flycatching" or picking at buds on the trees. On the 12th Molly and I heard the tanager give a soft thrush-like note a few times, and the next day it gave its hoarse "pit-er-tuck" call note a few times (a harsher and louder call than the similar Summer Tanager call). According to **Minnesota Birds** by Green and Janssen, the few Western Tanagers which have occurred in the state usually turn up during spring migration, and this bird was no exception. **Kim Eckert, 9735 North Shore Dr., Duluth, MN 55804.**

WHITE-FACED IBIS AT SHIELDS LAKE — On Friday, May 5, 1978 at 11:00 A.M. my wife Jean and I were birding at a marsh at the northwest corner of General Shields Lake in Rice County. It was partly cloudy, 60°F, and 15-20 mph NE wind. As we drove across a small bridge Jean spotted a White-faced Ibis feeding in shallow water at the edge of the marsh. It had a dark red-brown body with dark green iridescent wings and a dark green patch on the crown. It had dark legs and a dark decurved bill. There was a somewhat indistinct buffy line extending under the chin and

around the eye to the top of the upper mandible. We were able to approach within about 100 feet and observed it through binoculars and a 20X-60X telescope. Then it flew up and circled and again landed at the edge of the marsh. As it flew it made several low quacks similar to a Mallard. On Saturday May 6, I again returned about 11:00 A.M. to try to get some photographs. It was right where we found it the previous day. The boy living at the farmhouse directly opposite said the bird had been there since Monday, May 1. At that time I met Orwin Rustad from Faribault who also agreed it was indeed a White-faced Ibis. There was plenty of activity around the nearby heron colony and in the marsh with rails calling and three American Bittern "pumping." It was also a good day for the fishermen as the crappies and sunfish were "really hitting" and the carp were spawning according to the local people. On Friday we had observed a heron with a carp so large it was having difficulty flying. **Richard Sanford, 626 Desnoyer Ave., St. Paul, MN 55104.**

AN IBIS IN COOK COUNTY — While driving between Grand Marais and the Cascade River on Saturday, May 20, 1978, at approximately 7:30 P.M., my passenger (Dave Zentner) spotted an unusual bird in the ditch. We turned around and circled back and eventually pulled up on the shoulder of the road approximately 15 to 20 feet away from the bird. Another car had also noticed this bird and had stopped immediately in front of our position. The bird was eating in two inches of water which lay in the ditch along the north side of the road. It appeared to be feeding actively, dipping its bill in a picking and sweeping motion in the water in front of it. Its motions were relatively sprightly and it did not appear to be the least bit disturbed by our presence. The bird itself was approximately crow sized and stood on moderately long legs, the bill was long and distinctly curved downwards towards the tip. The color of the bird was a uniform dark, having a rust or mahogany shade with a slightly shiny cast. Down towards the wings and seemingly a little bit in the region of the head there was a somewhat greenish cast. There were no other distinctive marks. When the driver of the other car stepped out and approached the bird after a few minutes, it arose on slow flopping wing beats almost vertically, flew leisurely back down the highway for about 100 feet, and dropped back into the ditch where it resumed feeding. This was a bird that neither of us was familiar with but in looking through my field guide it appeared to fit perfectly with the description and picture of a Glossy Ibis. I did not notice any white in the region of the bill although I'm not willing to state with any certainty that this could not be a White-faced Ibis. **Mark Kilen, 5400 London Rd., Duluth, MN 55804.**

GRAY-CROWNED ROSY FINCH IN ST. LOUIS COUNTY — On March 11, 1978, my husband, Joel, and I happened to be standing near the sliding glass doors in our dining area when a large flock of Common Redpolls came to the feeder hanging in the Maple just outside. One bird which landed on a limb just next to the doors, caught our attention. The bird was approximately 3 or 4 yards away from us. It was larger than a redpoll and I thought immediately, that it looked like a finch, based on its size and the heavy bill. I also knew it wasn't a Purple Finch, nor any other bird I'd seen before. Joel went for the Western bird books. Fortunately my binoculars were on the table right next to me. Even without them, I could clearly see his gray head and rich brown back. He cooperated by sitting there for two to three minutes. He had a rosy-red rump and flanks. The

back and upper breast were a deep rich brown. His head was gray down through the malar region, with the black on the forehead similar to the redpoll's. My husband quickly found him among the finchs in the Peterson field guide and when we checked the Audubon Society Field Guide, we both agreed that our bird looked exactly like the colored photograph of the Gray-crowned Rosy Finch. Before I could get the camera, he flew. I watched carefully for several days but the bird didn't return. **Audrey L. Evers, 502 Partridge Rd., Hoyt Lakes, MN 55750.**

AN EARLY SPOTTED SANDPIPER — On the morning of March 22, 1978, Betty Jung and I were birding in the Prairie Island area south of Hastings. It was a bright, sunny day and the light conditions were excellent. We had just turned east off Goodhue County Road No. 18 and were driving very slowly on the road that goes to the Lock and Dam No. 3 on the Mississippi. There are two lakes along this road, Nelson to the north and Larson to the south. Killdeers were very evident that morning, there being about six flying about and calling. The ice had not gone completely out of Larson Lake and there was an area of open water between the shore and the ice of about only four feet. A steep embankment goes from the edge of the road down to the water's edge and at the bottom of this bank were two Killdeers and another smaller bird. I would judge that the birds were about 10 feet away from me. I could immediately see that the smaller bird was a Spotted Sandpiper, as it was teetering along the water's edge. It was in plain sight, and I could see it very plainly without binoculars. I asked Betty to stop the car (we were crawling along about 5 MPH), and as soon as the car stopped the three birds flew. It was even more evident that the smaller bird was a Spotted Sandpiper by its typical flight pattern; the rapid wing beat and wings held in a "down beat" position. As it left the shore it gave its "pee weet" call. which I distinctly heard twice. I did manage to observe it for a few seconds with my binoculars as it flew off to the southeast corner of the lake. After I returned home, I listened to a recording of a Spotted Sandpiper's call to refresh my memory and this confirmed that the bird I saw was a Spotted Sandpiper. **Joanne Dempsey, 1017 W. 14th St., Hastings, MN 55033.**

Editor's Note — The previous early date for the Spotted Sandpiper was an individual seen on April 9, 1977 in Duluth.

CERULEAN WARBLER IN OTTER TAIL COUNTY — Lake and marsh studded Maplewood State Park, in northwest Otter Tail County has long been known by certain birders to be a source of the unexpected. On May 20, 1978, approximately a dozen members of the West Central Bird Club were on an early morning field trip to the Park for the purpose of observing migrating warblers. The air temperature was hovering at about 45 degrees F. with a brisk wind blowing from the northwest at 15 to 20 mph. The sky condition was partly sunny. At 9:30 A.M. the group stopped along a tree canopied stretch of park gravel road to discuss further routes and also have lunch and warm up a bit. The group, having finished, was preparing to move on when Gerry Winkelman detected a bird's song that was quite different from those we had been hearing all morning. The song was moderate in intensity and consisted of a series of short buzzlike notes. As we moved toward the sound, we finally zeroed in on a bird that was moving along a small limb on a large spreading bur oak about thirty-five feet above the road. Rarely does one get a

warbler that was as accommodating as he was. He stayed on that same limb, moving only in short hops, for approximately six to eight minutes allowing us more than enough time to observe his grayish-blue back and top of head while showing a distinct white throat being crossed by a narrow dark neck band. Two prominent white wingbars were easily seen as well as dark streaks on the lateral edges of the white breast. The sight of all this quickly prompted Gary Otnes to announce that we were looking at a Cerulean Warbler. And, strange as it may seem, only a half hour before we had been jesting about our chances of seeing what we just saw — the beautiful Cerulean. **Daryl Jorud, R#1, Box 180, Battle Lake, MN 56515.**

LATE SPRING PALM WARBLER IN ST. PAUL — On June 9, 1978, while spending her lunch-hour on the banks of the Mississippi River beneath the Wabasha Bridge in downtown St. Paul, Cathy Lundeen saw an unfamiliar bird at very close range. She speculated that the bird may not have been healthy because it allowed her to approach so closely. She commented on the tail-pumping behavior of the bird, as if it were deliberately attempting to show the light spots on the undersurface of he tail. Cathy is an ac-

complished artist, so she drew a sketch of the bird, in color, from memory. When she showed me the sketch, I was convinced that she had seen a late-lingering Palm Warbler (her sketch is shown for the reader's opinion). Green and Janssen show June 4 as the previous late date for southern Minnesota. **Ronald L. Huber, 2896 Simpson St., St. Paul, MN 55113.**

ARCTIC TERNS AT PORT TERMINAL — In the tern colony at the Port Terminal, Duluth, a group of about 75 Common Terns were loafing on the sandy dredge spoil about 75 feet from the roadway. I identified two Arctic Terns in that group on May 28, 1978. Kim Eckert had seen one Arctic Tern there earlier in the day. Observing conditions were excellent because of the closeness of the birds in spite of the drizzly and foggy weather. Migrating birds had been grounded in the Duluth area by fog

and a stationary front since the 26th. The most noticeable field mark separating the resting Arctic Terns from the Common Terns was the lack of contrast in color between the gray breast and sideneck and the gray folded wing. The whole side of the bird — from breast to back — was the same light gray. Common Terns, in comparison, showed a contrast between the gray of the wing and the white breast. After picking out the Arctic Tern by the gray breast, it was easy to see the other identifying marks. The short legs and waddling gait were distingishing as well as the white face line below the black cap, contrasting with the gray sideneck, breast and belly, and the completely blood-red bill. The bill was checked with a telescope for any traces of black and none was seen. Both Arctic Terns looked exactly the same. One tern flew off after about five minutes and headed toward Hearding Island. I watched the other tern for about 10 minutes longer. The group of terns included some Common Terns in complete breeding plumage and some with quite dark bills. Two birds were in winter plumage with a white forehead and black bill and darkish legs. The next day Bob Janssen and Liz Campbell saw two Arctic Terns in the same area of the Port Terminal early in the morning. Bill Litkey saw one about mid-morning, Ray Glassel saw one about mid-afternoon and Jerry Niemi saw one in the morning of that same day — May 29th. **Janet C. Green, 9773 North Shore Dr., Duluth, MN 55804.**

ADDITIONAL ARCTIC TERN OBSERVATIONS — On May 20, 1978 Paul Egeland, Henry Kyllingstad and I observed an Arctic Tern at Duluth in flight several times at close range (details of this observation are being submitted by Paul). Though several observers were in Duluth during the following week looking for this species, there were no sightings until May 28 when I spotted one standing on the sand at the Port Terminal with about 35 Common Terns. The day was overcast with fog, and the tern was watched for about 15 minutes with a 15X spotting scope at a range of about 100 feet. The following description is taken from field notes written while the bird was in view before any field guides were consulted. Same size as Common Terns. End of tail reached tips of folded wings. Bill all red with no trace of a black tip. Legs about half as long as Common Tern. Grayer neck, throat and underparts than Common Tern giving an effect of a narrow white cheek line below the black cap; gray underparts appeared as dark as back and wings. I called Janet Green after watching the tern, and later that day she saw two Arctics standing together at the same place. On May 29 Bob Janssen and Ray Glassel drove up and also found two Arctic Terns here, though from their description it appears one of the terns was a different individual than either of the birds Janet saw, making a total of at least three Arctic Terns. Then on June 1, Paul Egeland and I watched an Arctic Tern fly by at close range at Duluth's Park Point. Its all red bill, grayish underparts, white cheek line and undulating flight were all carefully noted. These represent the first Arctic Tern observations in Minnesota since the species was first added to the state list in 1973, though it seems likely that Arctic Terns may pass through Duluth annually in migration and are overlooked among all the Common Terns present. Care is certainly necessary when trying to separate adults of this species from Common Terns, and the diagnostic field marks can be subtle and tricky: 1) bill color — the all red bill can be relied on only at close range and after careful scrutiny since Common Terns, especially during breeding season, have a black bill tip that is very restricted and difficult to see; 2) leg length — Arctics have legs only about half as long

as Common Terns, but direct comparison is necessary to see this and the birds must be watched long enough to be sure they are standing up straight (if possible wait until they walk around — Arctics can only "waddle" on their shorter legs while the Commons can walk more gracefully); 3) wing position — the Arctic's wings are positioned closer to its head than in a Common Tern; while this difference is slight and is noticeable only with experience and direct comparison with Commons when dealing with flying birds, with sitting terns the differnce shows up better as the Common's wing tips extend slightly beyond the tail and the Arctic's tail and wing tips are even; 4) gray underparts — a very good mark under favorable light conditions, but not to be relied on if the light is tricky, especially when the tern is in flight; the Arctic seems uniformly gray below and above setting off a narrow white line below the black cap, while the Common has white cheeks, throat and underparts which contrast more with its gray back and wings (Robbins' field guide illustrates this very well); 5) flight — the Arctic often has a labored, undulating flight similar to a Black Tern or a Short-eared Owl (because of its wing position?); an Arctic may not always fly this way (the bird on May 20 was) and a Common might fly this way for a short distance, but if you see a tern flying this way for some distance, check it out for an Arctic; 6) call — while both species have a similar rasping note typical of most terns, the Arctic also has a distinctive Killdeer-like "ki-dee" call (this call was never heard from any of the terns this year, but in 1973 I heard one of the Arctics present give this call); 7) under wing — some books mention the translucent "windows" and narrower black margin near the under wing tips of the Arctic, but I have never seen these marks and do not feel qualified to comment on them. **Kim Eckert, 9735 North Shore Dr., Duluth, MN 55804.**

ICELAND GULL RECORD IN EARLY MAY — The gull was first seen resting with other gulls (Herring and Ring-billed) on the closest sand bar off the northwest side of Hearding Island, Minnesota Point, Duluth on May 5, 1978. Although the bird was about 1000 feet away, I could see with the binoculars that it was a white-winged type of gull. Identification was made after watching it through a spotting scope as it rested, walked around and finally flew and circled back to the bar with the other gulls. The small size, both resting and on the wing, and the lack of a heavy pink bill with a sharply defined black tip eliminated the Glaucous Gull. The gray-white plumage and the completely white primaries precluded a Thayer's Gull. The notes I took at the time of observation are as follows: Silver-gray and white plumage (2nd-3rd year type white-winged gull); primaries and rectrices all white; size — smaller than largest Herring Gulls (males) but not as small as smallest Herring Gulls (females); did not appear heavy in flight as a small Glaucous Gull would; bill appeared lighter at base and darker toward tip, could not clearly see dividing line at that distance but would have been able to see sharply divided bill of immature Glaucous Gull. I mentioned that I had seen an Iceland Gull to Jerry Niemi who told me he had seen the same bird earlier in the week but did not know whether it was a Thayer's or Iceland Gull. A Thayer's Gull of that age would have a gray mantle and would not show all white primaries. Jerry wrote down his observation and it is included below. Notes by Gerald J. Niemi: May 2, 1978 — Observation at about 10:30 a.m. for approximately five minutes with 7x35 Bushnell binoculars and 20X spotting scope (hand held); good light from above, little glare from water. Location: Hearding Island area — Duluth-Superior Harbor, MN — viewed indi-

vidual from small channel area between Hearding Island and mainland; sighted first in company with Ring-billed, Herring, and Bonaparte's Gulls for good size comparison — 200-300 yards — which were sitting off the western edge of Hearding Island.; individual flew across in front of us for a distance of about 300 yards and landed on a buoy about 100-200 yards away. Characteristics: 1) Size between that of Ring-billed Gull and Herring Gull, definitely not larger than Herring Gull of which would indicate Glaucous Gull; 2) Plumage entirely silvery-white, no black wing tips, no hint of brown or gray on wings nor any other part of body; 3) Some dark on bill — could not pinpoint the extent, but did not seem to cover the entire bill; 4) As the individual landed on the buoy, noticed a pinkish tint to legs. Conclusion: I have seen Herring, Ring-billed, and Glaucous Gulls extensively. I am convinced it was not one of these species. This leaves the Iceland or Thayer's Gull as the only possible species. **Janet Green, 9773 North Shore Dr., Duluth, MN 55804.**

BARROW'S GOLDENEYE, OTTERTAIL COUNTY — On April 14, 1978, while traveling to the city of Wendell, I met and talked with Gordon Neilson, area Conservation Officer. Mr. Neilson stated that earlier he had located a pair of Barrow's Goldeneyes to the southeast of the Orwell Reservoir, Ottertail County. Following his directions, I was able to find and identify one female Barrow's Goldeneye. Identification was made by comparing the yellow bill color with that of female Common Goldeneyes also frequenting the pond. This bill color was confirmed by utilizing Robbins, **Birds of North America,** the description stating that the female Barrow's, in spring and early summer possesses a yellow bill. This particular observation was made at 10:00 a.m. At 12:30 p.m. on the same date I returned to the pond with my wife Marion. At that time the female Barrow's could not be found. However, one male Barrow's Goldeneye was observed, using 10x35 and 10x50 binoculars. The previous observation was also made using 10x35 binoculars. The male Barrow's sported the white crescent on the side of the face, and a darker back than a Common Goldeneye. Also, the characteristic head shape was evident, as was the purplish head color. At approximately 12:40 p.m. on the same date, while returning from the aforementioned pond, my wife and I chanced to locate another female Barrow's, this one about two miles from the pond, paddling about in the Ottertail River about a block below the Orwell Dam, Ottertail County. Again, identification was made by observing the yellow bill and comparing it with the dark bill of attendent Common Goldeneyes. All birds were within 200-300 feet at times of observation. The sky was clear, wind light, visibility excellent. **Gary L. Otnes, Route 1, Box 181, Fergus Falls, MN 56537.**

YELLOW-BREASTED CHAT IN MARSHALL COUNTY — On May 13, 1978, at the Old Mill State Park in Marshall County, I saw two birds that I identified as Yellow-breasted Chats. They were in a small copse of trees, mostly wild plum and small oaks. The description — the back, head, and tail a uniform olive brown, no wing bars, a yellow throat and breast, white belly and under tail coverts. While in a small oak one of them found a large caterpillar that he proceeded to hammer into submission. It took him a couple of minutes or so to put the caterpillar into a condition so that he could swallow it. During this time he stood on the horizontal limb and I had a good look at him. I was only fifteen feet or so from the bird during this time, as close as I could get and still keep the binoculars in focus. Very distinct white spectacles and eye line, a black spot in front

of the eye. Large size for a warbler, at least as large as a House Sparrow, but slimmer in build. According to Dr. Roberts **Birds of Minnesota** there have been a number of reports of chats in southern Minnesota and as far north as Fargo, ND, and in southern Saskatchewan as well casually. I've never seen one up here before. There were many other warblers in the woods that day and the day before — Yellow-rumps, Black-and-white, Ovenbirds galore, Palm, Yellow, Northern Waterthrushes, Black-throated Green. **Bennie Bengtson, Kennedy, MN 56733.**

Editor's Note: This is the first known record of the chat in northwestern Minnesota. The closest previous record was an individual seen in the fall in Clay County.

TWIN CITIES METROPOLITAN AREA WINTERING WATERFOWL SURVEY, 1978 — During the third week of January for the past four years, a survey of the waterfowl wintering in the Minneapolis-St. Paul area has been conducted (**The Loon** 49(3): 121-138). Table 1 presents the results of the 1978 survey. The methods used and the 39 sites visited were identical

Table 1. Species Compositon of Wintering Waterfowl in the Twin Cities Metropolitan Area, Third Week of January, 1974 - 1978

	Number and Percent of Total				
Species	1974	1975	1976	1977	1978
Mallard	13,890(94.7)	17,862(95.6)	17,874(97.1)	21,095(95.2)	16,012(95.9)
Canada Goose	556(3.8)	698(3.7)	133(0.7)	256(1.2)	347(2.1)
Common Goldeneye	156(1.1)	53(0.3)	136(0.7)	486(2.2)	302(1.8)
Black Duck	44(0.3)	16(0.1)	147(0.8)	294(1.3)	13(0.1)
Common Merganser	0(0.0)	20(0.1)	90(0.5)	9(tr.)	10(tr.)
Gadwall	4(tr.)	6(tr.)	14(0.1)	8(tr.)	1(tr.)
Wood Duck	4(tr,)	3(tr.)	4(tr.)	3(tr.)	0(0.0)
Pintail	0(0.0)	6(tr.)	2(tr.)	0(0.0)	0(0.0)
Redhead	1(tr.)	3(tr.)	2(tr.)	1(tr.)	0(0.0)
Lesser Scaup	1(tr.)	2(tr.)	0(0.0)	0(0.0)	0(0.0)
Ring-necked Duck	0(0.0)	1(tr.)	1(tr.)	0(0.0)	0(0.0)
Canvasback	1(tr.)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
American Wigeon	2(tr.)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
Whistling Swan	0(0.0)	1(tr.)	0(0.0)	1(tr.)	0(0.0)
Snow Goose	0(0.0)	1(tr.)	0(0.0)	0(0.0)	1(tr.)
American Coot[2]	4(tr.)	3(tr.)	4(tr.)	1(tr.)	2(tr.)
Totals	14,633(100.0)	18,675(100.0)	18,407(100.0)	22,154(100.0)	16,688(100.0)

[1]Excluding captive birds
[2]Not a waterfowl species but included in the survey

to those of 1977. The most striking aspect of the 1978 results was the low species diversity. Of 16 species observed during the past five years, only eight (50%) were seen in 1978, compared to 12 (75%), 14 (88%), 11 (69%) and 10 (63%) in 1974-77, respectively. However, without data for a longer period, comments on the decline must be considered speculatory. Late fall and early winter temperatures were significantly colder then the preceding three years. Early freeze up may have forced all but the hardy, cold-adapted species further south. An alternative supposition is that the earlier cold periods resulted in high mortality of less hardy birds. We suspect that most individuals of species normally wintering in more southerly waters are either injured or weakened by disease, parasites or lead poisoning. It is possible that the earlier freeze up eliminated many of these birds.

The total number of waterfowl encountered in 1978 was 25 percent lower than in 1977, but was not much different from the 1975 or 1976 results. **James A. Cooper and Robert Green, Department of Entomology, Fisheries and Wildlife, University of Minnesota, St. Paul, MN 55108.**

PRAIRIE CHICKEN INVENTORY, 1978

Summary by County of 1974-78 Minnesota Prairie Chicken Inventory Data

County	Number of Birds Observed (Number of Booming Grounds)				
	1974	1975	1976	1977	1978
Becker	66 (5)	50 (5)	47 (4)	54 (5)	26 (4)
Cass	—	—	—	13 (1)	9 (1)
Chippewa	—	—	—	—	8 (1)
Clay	263 (24)	277 (25)	248 (24)	197 (14)	261 (21)
Lac Qui Parle	—	—	—	—	1 (1)
Mahnomen	49 (6)	39 (5)	61 (4)	107 (8)	71 (4)
Norman	134 (11)	123 (10)	145 (10)	136 (11)	130 (9)
Ottertail	12 (2)	1 (1)	6 (1)	8 (2)	8 (2)
Polk	94 (14)	93 (11)	103 (13)	141 (13)	140 (16)
Red Lake	11 (2)	9 (2)	5 (1)	3 (1)	7 (1)
Wadena	—	—	—	—	** (14)
Wilkin	196 (18)	189 (17)	230 (19)	216 (12)	180 (14)
Total	825 (82)	781 (76)	825 (77)	875 (67)	841 (74)

** Wadena County figures were not used in totals as counts were not made on most grounds.

AVERAGE NUMBER OF PRAIRIE CHICKENS PER BOOMING GROUND

1974 - 11.46 1975 - 10.55 1976 - 10.71 1977 - 13.06 1978 - 11.36

COMMENTS — Prairie Chickens on 74 booming grounds were counted in the spring of 1978 — the fifth annual Prairie Chicken census. A total of 841 Prairie Chickens were counted, mostly cocks. This compares with the five year average of 829.4 chickens on 75.2 grounds. The average number of Prairie Chickens observed per booming ground was 11.4, about the same as the five year average. Manpower problems prevented total counts in many counties. There were personnel shifts, physical ailments and a general shortage of time. In addition, a very wet spring hindered access to some grounds. Prairie Chickens were located in three new counties. In a reintroduction attempt, the Department of Natural Resources released Prairie Chickens on the Lac Qui Parle Wildlife Management Area last fall. These showed up in the Lac Qui Parle and Chippewa Counties this spring — generally near the release site. Ed Weiland, DNR Wildlife Manager at Park Rapids, came up with the best news of the spring. He located 10 grounds in Wadena County (center of state). In Ed's words, "I'm encouraged about the Prairie Chicken population in Wadena County. I'm sure there must be at least 30 grounds." Winter weather seemed to have little effect on Prairie Chicken numbers. Deep snow came early in November and stayed all winter. Unharvested corn fields were abundant throughout the Prairie Chicken range and were available for feeding. **Terry Wolfe, Wildlife Manager, 706 Pine St., Crookston, MN 56716.**

BOOK REVIEWS

The Audubon Society Field Guide to North American Birds: Eastern Region by John Bull and John Farrand, Jr.; **Western Region** by Miklos D. F. Udvardy; Alfred A. Knopf, Inc., New York, 1977; 776 pages, 584 color photos in Eastern guide; 855 pages, 627 photos in Western guide; $7.95 each.

Birdwatchers have long been considered more than a little bit weird, not entirely normal, second-class citizens even. In recent years, however, many of us have changed into "birders" and have become somewhat more socially acceptable. And now to make us even more respectable, we even have a pair of field guides that have made the **New York Times** list of best-selling books! How "Establishment" can we get? But there is a catch . . . a very serious catch that's enough to sink our reputations back to the Dark Ages of the "birdwatcher" era: these books are pretty bad.

Let me hasten to add that there are some good things about these guides, however. They are the first field guides to appear since 1973, and thus the only ones to incorporate those "new" A.O.U. species names. There are a lot of nice looking photographs (among the poor ones) that make the eight dollar price tags seem like a bargain. The individual species accounts in the text are accurate enough, with verbal range and voice descriptions a la Peterson rather than Robbins (whose range maps and Sonograms I never have been able to read). And there are interesting (though possibly inappropriate) paragraphs at the end of each species account that contribute various bits of information about habits, food, population trends, origin of names, etc.

But the problems with these guides are overwhelming, and center around their attempt on four counts to be "revolutionary" and "unique," to use their own words. First they claim "compact practical format." While they are fatter than a Peterson or a Robbins, they are about an inch narrower which might make them easier to fit in some pockets (one will barely fit in the back pocket of my jeans as long as I don't mind walking funny and don't try to bend over or sit down). But if reduced size was so important, why do they want to claim "more than twice as much text as any previous standard field guide" (which is untrue anyway — Peterson's species accounts are just as lengthy, and usually more extensive in describing field marks; Robbins' text, while somewhat shorter, still contains field marks descriptions which are just as long)? If saving space was so important, why does each page of the text have a left margin a full ⅓ the width of the page, and why is so much space devoted to those miscellaneous comments paragraphs mentioned above? And how compact and practical will these guides be after all the pages fall out, as is the case in many of the books I know about (half the pages in my own Eastern guide are already coming out after only five months of strictly casual indoor use)?

Second, the photo sections are not organized in standard "checklist order," loons through sparrows, as we are all used to. Their method? "Songbirds are grouped by color, the rest by shape. No need to thumb through hundreds of pictures as one must when birds are arranged by family and species." While it is true that an absolute novice might find this system just as easy (but never easier) to use as the standard method of organization by families, once that novice becomes even slightly experienced, the difficulties become apparent. Just try to find a species in these books without the index if you're experienced

with Peterson or Robbins! Their pictures are grouped under such categories as "Upright-perching Water Birds," Chicken-like Marsh Birds" or "Upland Ground Birds," so that you'll know exactly where to turn when you see something in the field. Right? Well, that's fine as long as you're able to stomach their opinion that a pelican is "Duck-like" (while alcids aren't), that a flicker feeding on the lawn is a "Tree-clinging" bird, that tiny storm-petrels are "Gull-like," that a nighthawk and a Turkey somehow belong together, that the pelagic Fulmar belongs on a page full of gulls. And that's fine if you're experienced enough to know what a warbler is but don't mind paging through a 70-page section to find pictures of them all. Now do you believe their "no need to thumb through" claim? You see, it seems that once you get to their "Perching Birds" (if you can even make it that far), you'll find them grouped by color (not by family, God forbid!). Now that might work as long as you agree that every bird is only one color, that the Black-throated Green, Chestnut-sided and Yellow-rumped Warblers are all yellow, that a male Painted Bunting and a Rufous Hummingbird (!) are green, that a male Smith's Longspur is brown rather than orange, that the almost pure white McKay's Bunting is really black! And isn't it logical that the Western Kingbird and the female tanagers are green in the East but yellow in the Western guide, that the Yellow-headed Blackbird is black East and yellow West, the male Western Tanager is yellow East and red West, the Blue-gray Gnatcatcher is blue in the East and gray in the West, that a Snow Bunting is brown in the Eastern guide and black in the Western, and that the birds on p. 310 in the Eastern guide are not really gray but black? Now isn't all that easier than trying to remember those nasty old families?

Their third innovation? Any guesses as to how the species accounts in the text are arranged? Why, by habitat, of course! Now all you have to do is check the habitat a bird's in, turn to that section in the guide and you've got it made, right? Hardly. The obvious truth is many species no more fit into neat habitat categories than they do into color categories. Their system results in arbitrary classifications and rampant confusion. Should you see a shorebird in the East, you'll need to sift through five habitat sections before you find them all. The same holds true for herons! Remember their "no need to thumb through" promise? Well, with their photographs grouped one way and their text arranged another way, their "compact practical format" (remember that one?) gets difficult if not impossible to handle when the first Eastern owl photo is 490 pages away from the last owl species account, when the last Western warbler in the text comes 500 pages after the first warbler photo, when the photos and text covering the Western hawks are spread over 580 pages, and when the Western shorebirds are pictured first on p. 140 and last discussed way back on p. 763! But even if you don't mind the huge page spreads caused by the text's habitat arrangement, there are plenty of other problems with their system. If you seen an Eared Grebe on a western Minnesota marsh, you'll find it under "Seashore" in the Eastern guide (so the Eared Grebe is typically seen on the Atlantic coast, eh?). And did you know you usually see Palm Warblers in grasslands, and that Purple Martins, ptarmigan and yellowlegs abound together in coniferous forests?! And remember that the highly pelagic Xantus' and Craveri's Murrelets are simply seen along the Seashore (don't waste your money on an expensive pelagic boat trip for them or the storm-petrels — according to the Western guide you'll see only Least Storm petrels off Monterey or Westport; all the others are restricted to "Sea Cliffs"). Also don't look for Canyon and Rock Wrens in canyons and

rocks in Texas, but in "Thickets and Second Growth." Their system is so messed up that they couldn't even find a decent example of it in the introduction to the Eastern guide. In explaining how to use the book, that hypothetical nuthatch you just saw had to be a White-breasted because it was in a deciduous tree, while we all know that Red-breasteds stick to conifers (even though I often see them in deciduous trees). Anyway, don't tell the Eastern authors that the Western guide classifies the White-breasted as a coniferous bird!

Innovation Number Four: "exclusive use of color photographs for identification," thus dismissing the skills of an artist such as Peterson or Singer as an inferior way to portray birds' field marks. The Eastern guide somehow claims: "Every artist's rendering of a bird is his interpretation, whereas a good photograph captures the natural color and stance of birds as you will usually see them. In most instances it also shows birds in their habitat or natural setting, making identification that much easier. Finally there is the beauty itself of pictures made by outstanding photographers: this guide is meant to be a delight to look at as well as use." What a distorted view, especially in the context of these hopelessly inadequate guides! Sure there used to be some poor field guides with inaccurate paintings, but with very few exceptions the paintings in Peterson and Robbins are completely adequate and accurate. A good painting is a composite of many typical individuals of a species and is far more likely to simulate what you see in the field than a photograph which shows only one particular individual in one particular position, often with less than natural lighting conditions. and usually without the ability to portray relative sizes and all field marks. There are many, many species with key field marks that even a good photo (of which there are a precious few in these guides anyway) cannot fully capture. And there are many, many misleading photos here, and even a few misidentified ones (not counting several which may be correctly labeled but which a beginner is likely to incorrectly identify). To claim that this makes "identification that much easier," that "habitat or natural setting" is visible in most of the photos (hardly any are), and that the "beauty" of most of the photos is a "delight" is absolutely incredible. How anyone could imagine that the Eastern photos of the immature Herring Gull, Leach's Storm-petrel, female White-winged Scoter and Eastern Kingbird, or the Western photos of **all** the storm-petrels and shearwaters, Gadwall, Hoary Redpoll, Western Flycatcher, and Clay-colored Sparrow, or photos in both guides of Snowy Plover, Yellow Rail, almost **all** fall and female warblers, and Chimney Swift (there's not a beginner in the world who could identify this species from those ridiculous photos!) are beautiful aids to identification is far beyond the grasp of my imagination. And how can the guides claim they "spared neither time nor cost" in getting those and many other marginal photos, in not getting a Cassin's Kingbird photo (one of the more common Western roadside birds), in getting only six female-fall-immature Eastern warbler photos and only seven Eastern flight photos of hawks, in getting **no** Eastern flight photos of ducks or shorebirds? And what justification can there possibly be for misidentified photos of an immature Iceland Gull (really a Glaucous), Ruffed Grouse (try female Spruce Grouse), Black-headed Oriole (apparently some African oriole!), Poor-will (how about a nighthawk?), Spotted Owl (possibly a Burrowing Owl the photographer stuck in a tree!), Solitary Vireo (in the Western guide; it's anything but a Solitary), female Wilson's Warbler and Swainson's Thrush (they appear more like a yellowthroat and Veery in the Western guide), and possibly winter Franklin's-Laughing Gulls? Now how much of a "delight" does all that sound?

This review, while certainly long enough already, could easily say so much more. Like about a recommendation in the Eastern guide that you not buy 7X50 binoculars because they might let in too much light. Or about the Western guide advising you to carry your binoculars in a bag when birding and claiming a binocular's field of view is related to the size of the objective lens. Or how about the family names finally being listed in apendices in the back of the books — in alphabetical, not phylogenetic, order (is a novice likely to say, "Gee, that looks like it might be a Phalacrocoracidae; I think I'll look it up under P in this appendix"?). But let me end all this with the observation that something is missing from the covers of these books that is normally found on almost all covers: the authors' names (also missing is the name of Susan Rayfield who is given the blame, I mean the credit, for developing the "Visual Key"). Yet, in light of this review, can we really blame them for trying to remain anonymous?

Kim Eckert

A Guide to the Birds of Venezuela by Rodolphe Meyer de Schauensee and William H. Phelps, Jr., illustrated by Guy Tudor, H. Wayne Trimm, John Gwynne, Kathleen D. Phelps and Michel Kleinbaum. Princeton University Press, Princeton, N.J., 1978. 424 pp., 53 color and black-and-white plates, line drawings. Cloth $50.00, paper $19.95.

South America lures many birdwatchers with its abundant and varied bird life, but such exotics as toucanets, coquettes, and tyrannulets probably remain very exotic to many visitors because there are so few well-illustrated guides to neotropical birds. Indeed, for the lack of good aids, field identification is often turned into an exasperating guessing game. However, the birder may fare better in Venezuela, where 44% of South America's bird species have been recorded, since it now has the best illustrated guide to neotropical birds that I have seen.

Written by ornithologists Baron Rodolphe Meyer de Schauensee and William H. Phelps, Jr., the new guide describes each of the 1296 species known to inhabit Venezuela and its adjacent islands. Scientific and English names follow those used in de Schnauensee's now standard list, "The Species of Birds of South America." Each species account includes brief notes on habitat, habits, vocalizations, and range both within Venezuela and elsewhere. A brief geographical description of the country is presented in the introduction, and a short bibliography and indices to English, Spanish, and scientific names follow the text. Nearly all of the species treated are illustrated in color or black-and-white plates or in line drawings in the text.

In general, the text is a more valuable aid to the cabinet ornithologist than to the birdwatcher. De Schauensee's descriptions, as in his earlier guides to Colombian birds and to South American birds in general, are not well designed for field use, primarily because of the inclusion of too many minor details that cannot usually be detected in free-flying birds. Range notes are mostly brief, and extralimital ranges are sometimes inaccurate.

Perhaps the major shortcoming of the guide is the weakness of many descriptions of habitats, habits, or voices. A glaring example of this is provided by the pygmy owls: The Ferruginous Pygmy-Owl (**Glaucidium brasilianum**) is a very common diurnally active owl throughout Middle America and northern South America, and it readily responds to even my poor imitations of its monotonously repeated low whistles. However, in the new Venezuelan guide, the text states simply: "Habits similar to Andean Pygmy-Owl." Turning to that species (**G. jardinii**), a much rarer one, the reader finds no details at all on voice or habits. Cer-

tainly the habits of many neotropical birds are poorly known, but one might expect a little more from Phelps, whose "vast knowledge is based on 35 years field experience and on 20 major ornithological expeditions led by him to unexplored regions of his native land."

I was astounded to learn that Venezuela is roughly the size of Texas and Utah combined and that Caracas is less than five hours from New York by air. But other types of information would have been more welcome, because once I get to Caracas, I might have a hard time finding the birds. Indeed, no aid is given on how to reach the numerous habitats, e.g., the Andean paramos, vast savannahs, coastal swamps, and periodically flooded rain forests, that are described briefly in the introduction. And I would like to avoid those rain forests when they are inundated, but the book provides no information on rainfall patterns or seasonal climatic changes in Venezuela. The inadequate maps on the endpapers give few place names, and geographical features other than major rivers are poorly defined or absent. I found no mention in the text of any local parks or reserves, although the biological station at Rancho Grande in Henri Pittier National Park is well known, and the bibliography lists a checklist by Wetmore to the birds of Venezuela National Park. Such omissions are most obvious when comparing this book with Princeton University's earlier release, "A Guide to the Birds of Panama," by Robert Ridgely. In that excellent work, Ridgely not only aids one in identifying Panamanian birds, but provides details on how, when, and where to find them as well. Perhaps it would be better then to call the present work an illustrated checklist to Venezuelan birds rather than a guide.

But, I would quickly add, it is a beautifully illustrated check-list, and the 40 color and 13 black-and-white plates are well worth the price of the book alone. The 37 plates prepared by Guy Tudor are excellent — they are well printed and Tudor captures the color and personality of each bird. The five plates by John Gwynne are also very good. Nine plates by Wayne Trimm and two by Kathleen D. Phelps will serve adequately for field identification purposes, but they generally fail to capture the personality of the birds, and they are not drawn to scale. For example, Phelps' cotingas are all drawn about the same size, but the actual birds vary in length from 8 to 18 inches. The Plush-capped Finch (**Catamblyrhynchus diadema**) is a much stockier, fluffier, and stubbier-billed bird than the one Trimm portrays, and his Rose-breasted Thrush-tanager (**Rhodinocicla rosea**) is just another tanager on a twig, scarcely conveying an accurate impression of this thrasher-like ground skulker. These are perhaps minor criticisms, but they are ones that cannot be leveled against the work of Tudor and Gwynne. And this is an important matter when illustrating confusing groups, such as the numerous flycatchers. Migrants are often included in the plates where they might be concused with resident species, e.g., northern warblers in winter plumage, the Northern Oriole, etc. Tudor's notes that accompany the plates are extremely helpful, as he notes key field marks and often makes comparisons between confusing species.

Despite the limitations that this book may have as a guide, I woud certainly recommend it to persons interested in neotropical birds. The serious student of tropical ornithology will find it useful, and the birder fortunate enough to journey to the American tropics will find the illustrations an invaluable aid to field identification.

Dana Gardner

PURPOSE OF THE MOU

The Minnesota Ornithologists Union is an organization of both professionals and amateurs interested in birds. We foster the study of birds, we aim to create and increase public interest in birds and promote the preservation of birdlife and its natural habitat.

We carry out these aims through the publishing of a magazine, **The Loon;** sponsoring and encouraging the preservation of natural areas; conducting field trips; and holding seminars where research reports, unusual observations and conservation discussions are presented. We are supported by dues from individual members and affiliated clubs and by special gifts. The MOU officers wish to point out to those interested in bird conservation that any or all phases of the MOU program could be expanded significantly with gifts, memorials or bequests willed to the organization.

SUGGESTIONS TO AUTHORS

The editors of **The Loon** invite you to submit articles, shorter "Notes of Interest" and black/white photos. Photos should be preferably 5x7 in size. Manuscripts should be typewritten, double-spaced and on one side of the sheet with generous margins. Notes of interest should be generally less than two typewritten pages double-spaced. If reprints are desired the author should so specify indicating number required. A price quotation on reprints will be sent upon receipt of information.

Club information and announcements of general interest should be sent to the Newsletter editor. See inside front cover. Bird-sighting reports for "The Season" should be sent promptly at the end of February, May, July and November to Robert Janssen. See inside front cover.

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The LOON

WINTER 1978

VOLUME 50 : NUMBER 4

50 YEARS OF MINNESOTA ORNITHOLOGY

The LOON Minnesota's magazine of birds and nature, is published four times each year by the **Minnesota Ornithologists' Union,** the statewide bird club. Permanent address: J. F. Bell Museum of Natural History, University of Minnesota, Minneapolis 55455. Anyone interested in birds and nature may join. Any organization with similar aims may affiliate. All MOU members receive our two quarterly publicatians: **The Loon** and the **MOU Newsletter.**

MEMBERSHIPS AND SUBSCRIPTIONS: Paul Egeland, 12 East 67th Street, Minneapolis, Minnesota 55423. To join the MOU and receive both MOU publications, send $6.00 for a regular yearly subscription. Or other classes of membership that you may choose are: Family $7.50 yearly; Contributing $10 yearly; Sustaining $25 yearly; Life $100. Canadian and Foreign Subscriptions. $10 yearly. Also available: back issues of **The Loon** ($1.50 each ppd.) and MOU checklists of Minnesota birds (minimum lots of 20 for $1.50 postage paid). Gifts, bequests, and contributions to the MOU Endowment Fund should also be sent to the treasurer.

EDITOR OF THE LOON: Robert B. Janssen, 10521 S. Cedar Lake Rd., Minnetonka, MN 55343 (phone 612-546-4220), The editor invites articles, short notes, and black/white illustrations about birds and nature. See back cover for details.

"The Season" section of **The Loon** publishes reports of bird sightings throughout Minnesoto. We particularly invite reports from parts of the state that have been neglested or covered lightly in past reports. To become a contributor ta "The Season," request the report forms from the **EDITOR OF "THE SEASON," Mrs. Janet Green, 9773 North Shore Drive, Duluth, Minnesota 55804. (phone 218-525-5654).**

EDITOR OF THE MOU NEWSLETTER: Mrs. Marlyn Mauritz, 6810 Tecumseh Lane, Excelsior, Minn. 55331. Publishes announcements and reports about activities of the MOU and its affiliated clubs. (Club officers should keep both MOU editors informed.)

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MORE EDDIE T. ORIOLE LETTERS

One criterion for quality in writing is immortality: that is, the best pieces are those than can stand the test of time and be read and appreciated as much in the future as they are today. And it is with this rationalization that I will postpone the printing of three letters received way last June on the grounds that their comments will still be timely in some future issue. Instead, what appear below are four letters received since last August that seem appropriate now rather than later.

First, a response to Bette Jung's letter in the last issue from Mark Ryan of Ames, Iowa, who proclaims himself "a displaced Minnesota birder and academic":

"I was concerned by a letter in the Fall 1978 issue of **The Loon,** criticizing the publishing of 'academic' papers in **The Loon.** The stated purpose of the M.O.U. and **The Loon** (see back of each issue) is to foster the study of birds, create and increase public interest in birds and promote the preservation of birdlife and its natural habitat. The elimination of either 'academic' or "birding' papers would seriously impair the fulfillment of our stated purposes. Journals such as **The Loon** provide a critically important outlet for scientific studies of interest mainly at the regional, state or local level. Such journals often provide the only source of important information on bird populations and distributions at these levels. This information can be extremly useful in efforts to 'preserve the birdlife and natural habitat."

"**The Loon** is, in my opinion, one of the best state bird journals, primarily because of the fine blend of 'academic' and 'birding' material. I urge the continued publication of 'academic' papers. This is not to say that any and all 'academic' (or 'birding') papers received by the editor be published. Each should be examined on its own merits as it relates to the purposes of the M.O.U."

So, the vote so far stands 1 - 1 on academic papers, with over 1000 members abstaining. What do the rest of you think?

Next, a hopefully provacative letter from Don Beimborn of Afton:

"I never noticed the increase in MOU dues because my wife pays them. However, if the extra money is needed to pay for a color cover, I think the money spent is too much (however much it is). A simple two color cover once in a while would suit me fine. After all, unless the purpose is to increase sales on a newsstand, the full color cover serves little purpose.

"I have long been a member of WSO (Wisconsin Society for Ornithology) and of MOU since 1965. Both organizations have published journals which have had their ups and downs as to quality. Both are probably among the best state bird journals in the country. At present, bad features of the **Passenger Pigeon** include an incredible delay in field notes (seasonal records) and a lack of proof reading. **The Loon** suffers from Bert Lystor and now E. T. Oriole. Both of these features were amusing at first, but have become a bit tiresome. I think they should retire, to return for an anuual column only.

"The balance between scientific and popular articles related to birds seems about right to me. I refer to **The Loon.** Please do not become more environmentally oriented in **The Loon.** There are valid environmental concerns, but the forum for environmental discus-

sion is not limited. The space available for bird records is limited. **The Loon** should consider its major effort to be the publication of information and data concerning the wildlife of the state. A few years ago there were articles in **The Loon** related to mammals. I hope editorial policy is such that the notes on non-birds will still be published.

"Of all the parts of **The Loon,** my wife and I refer to the seasonal reports most frequently. These are of the most value to us and will probably be of lasting value to scholars of the future. However, I object to the highly formal and brief treatment in the seasonal reports in **The Loon.** I have enclosed a page or two from the **Passenger Pigeon.** I was involved in a controversy some years ago when the **Passenger Pigeon** attempted to cut back on the space allocated to seasonal reports by cutting out the names, giving only dates and counties. The effect would have been to make the seasonal reports pretty dull reading. Fortunately, my side won. I wish **The Loon** seasonal reports would say more. A narrative approach might be easier for the compilers to write. It would be much more pleasant to read.

"In short, make **The Loon** seasonal reports more like those of the **Passenger Pigeon.** Include names, include some of those notes of interest. I realize some of this is included, a bit more would help."

Well, Paul and Terry and you other seasonal report compilers, are you inclined to defend yourselves from the above criticism, especially in light of recent decisions to condense the spring and fall reports? And what about Bert Lystor and yours truly, Eddie T. Oriole — do the readers agree with Don's criticism above or do they go along with this letter from Eleanor Bortz and Minnie Swedenborg of Minneapolis?

"Dear Eddie,

I read **The Loon** to Mrs. E. D. Swedenborg and we decided to forward our comments to you. 1. We greatly enjoy Bert Lystor's articles and hope there will be more in the future. 2. The notes of interest, are indeed, interesting. We especially like the notes of Charlie Horn's observations. He describes his entire experience, not just the bird. After reading of something he has seen right downtown Minneapolis, I'm challenged to be more observant myself. He really knows how to make the reader feel they've had a shared birding adventure.

"The serious articles are interesting and educational. but please continue to include a little humor. In this day and age, we need it."

Finally a brief not from Earl Finden of Richfield:

"Please change my membership to the supporting level if possible. Am really pleased with **The Loon** magazine. It contains the most relevant information I have seen."

Not only are readers' compliments appreciated, but thanks are also due to all of you who contribute over and above the $6 membership/subscription rate. Now that renewal time is here for 1979, why not consider a Contributing or Sustaining Membership? Or, if you plan on being around for awhile yet, how about a Life Membership that eventually lets you come out ahead in the long run? With your financial help and your letters of opinion **The Loon** will never go under but stay securely afloat — indeed it may even take off for greater heights!

TWO BROODS FROM ONE LAKE ITASCA ROBIN'S NEST

David F. and Jean M. Parmelee

It is not unusual for robins to raise two or even three broods in a season but to use the same nest for two broods is uncommon. A common species such as the robin raises some interesting biological questions.

So many spectacular birds show up at Itasca State Park, situated at the juncture of three major ecosystems, that one hardly takes note of a very abundant park bird, the American Robin. The fact that one pair had a nest under the eaves of our cabin porch on the campus of the University of Minnesota Forestry and Biological Station certainly did not excite us. When we first saw the nest on 10 June 1978, it must have held tiny young, though we had no real reason to disturb the birds for what seemed at the time to be an unnecessary nest check.

We had been abroad since mid-May and missed seeing the nest building, egg laying, and incubating. Had the nest not been so conspicuous from our screened-in porch, and the parent birds not so pugnacious whenever we stepped outside, we probably wouldn't have taken note of the interesting events that followed the fledging of the first brood.

The brood probably fledged sometime on 23 June at a time when we were away. There were three large young in the nest on the 22nd, and none on the 24th.

On subsequent days in the vicinity of our cabin, we observed both parents attending the brood. It was during this period that we also observed the pair copulating, but even then we did not suspect the unusual. It was not until the female once again was sitting on the very nest that the brood had recently abandoned that we became really interested. On 30 June she had three eggs which proved to be the clutch. Egg-laying likely had started during 27-28 June.

The fact that these robins were double brooded did not impress us. We were surprised, however, that they used the same nest for the second clutch.

On 1 July the one parent attending three fledglings came close to the cabin while the other parent incubated steadily. On several occasions we saw a brief reunion, the most notable one being the time the incubating bird left the nest and flew down to the brood and mate. But the incubating parent, thought to be the female, remained with the brood only a moment and, to our knowledge, never attended the fledglings once incubation of the second clutch was underway.

On 11 July, at 07:30 hours, there was an unhatched egg, a wet, newly hatched chick, and another in the process of hatching. By noon the second chick, though still in a half shell, was essentially hatched. The third chick did not hatch until the following day, sometime between 07:30 and 09:30 hours.

A few moments before the last nest check (at 09:30 we had seen the other parent robin with two very large young of the first brood. Whether the third young was in the vicinity, we cannot say for sure. But the two young flew off and were not seen again. At that point we believe that the parent-offspring bond dissolved, for the attending parent flew to the vicinity of the nest, where he remained.

For some reason the brooding par-

ent was unduly disturbed by our 09:30 nest check. She remained away for a half hour, during which time the male sang repeatedly near the nest. Finally, she returned to the nest and from that time on both parents fed the second brood.

The nestlings grew rapidly with both parents bringing them worms and caterpillars of various kinds. By 23 July the feathered heads of all three were high above the nest. At times the feeding parent would press down on the heads of the larger siblings and direct the food toward the third. The food chirps of all three were loud. These calls often attracted to the site other birds, especially Yellow-bellied Sapsuckers and Eastern Phoebes. The adult chased them and small rodents while hauling food to and fecal sacs from the nest all day and into the late evening hours.

Fledging of all three chicks took place on 25 July. One young had stood on the horizontal wooden beam that supported the nest and had jumped in and out of the crowded nest several times before flying off unseen between 07:15 and 07:30 hours. The second chick had also stood on the porch beam before it finally left unseen sometime between 10:30 and 11:00 hours.

The last chick we saw leave the nest at precisely 12:30 hours. It went 20 feet before landing 10 feet above the ground in a white spruce. Its second flight was strong and steady and carried it well over 150 feet. At this time it rightly could be considered fledged. Later the same day we saw the parent robins hauling food to trees 200 or more feet from our cabin.

Once the bond with the nest was broken, we essentially lost track of our family of robins. Had we banded the adults and young we would have been certain whether the birds seen in the vicinity of our cabin on days following were our birds. And, no doubt, we would have gained considerable more information on their behavior.

In addition to the fact that two broods were produced in one nest, this much we can say. Allowing for a 12 to 13 day incubation period (see Brackbill, Schantz, in Bent's Life Histories of North American Thrushes, Kinglets and their Allies, U.S. Nat. Mus. Bull. 196, 1941:21-23), the first egg of the second clutch was likely laid no earlier than 27 June, since the first two eggs hatched on 11 July, and the last on 12 July. And since there were three eggs on 30 June, the first egg probably was not laid after the 28th. It is important to note that incubation of the clutch likely started with the laying of the 2nd egg (see Schantz, in Bent, **ibid.**) Such timing would appear to result in the obvious asynchronous hatching of our siblings.

The time interval between departure from the nest by the first brood and laying of the first egg of the second clutch appears to be remarkably short — at most five, and possibly only four days. According to Preble (in Bent, **ibid.**) six days elapsed between brood departure and egg laying in another case of robin double broodedness.

Our recorded fledging period (hatching to strong flight) was 14 days for two chicks, and not much more than 15 days for one. These figures average less than those given by Schantz for three different broods, respectively 14, 15 and 16 days.

A check of the literature on double broodedness in robins reveals the fact that two and even three broods a season are not unusual; that the use of one nest for successive broods apparently is uncommon but certainly not unheard of. There are some outstanding examples cited in Bent (**ibid.**): Halliday claimed at least two broods a year had been raised in the same nest during six successive seasons, and Brown reported on a pair of robins that during one season raised three broods in one nest!

Townsend (also in Bent, **ibid.**) had a single-brooded nest that had been occupied for six successive years; at the

end of the sixth year the structure had actually attained a height of eight inches following annual additions of fresh material. With this information, we hastened to measure our Itasca nest with the hope that the birds will be back again next season. It measused 2.8 inches.

Why some species are double brooded one year and not others, and why some "super" pairs are double brooded and others of the same species close by are not, are interesting biological questions, indeed.

How many robins in the Itasca area were double brooded this year, we have no idea. An abundant rainfall certainly made worms readily available to the birds. Whatever the reason, in future summers we intend to keep a close watch on our robin population.

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SITE SELECTION FOR WOOD DUCK NEST BOXES

Douglas C. Keran

Placement of Wood Duck nest boxes is very important if they are to be properly utilized. An extensive study done in Crow Wing County gives seven recommendations on how to place and maintain nest boxes.

INTRODUCTION

In March 1970, an investigation was begun to determine if cavity height influenced female Wood Ducks in selecting a nesting site. This work was conducted on the Crow Wing Natural History Area, a wildlife research center, located 20 miles southeast of Brainerd, Minnesota, in Crow Wing County. The area is characterized by hills and outwash plain, the result of glacial activity more than 16,000 years ago. About 28 percent is wetland, ranging from marsh to spruce-fir bog. The remainder is covered with second-growth stands of mixed hardwoods.

This initial project to evaluate height for placement of nesting boxes expanded into examining several other factors which might affect Wood Duck selection of a nesting box or site.

In 1973, an additional study was begun to evaluate one hole versus three hole nesting boxes by Wood Ducks. This study examined the possibility that more holes or cavity openings might act as a "super stimuli" to female ducks. At this same time the work was expanded to look at the use of Wood Duck nest boxes by all forms of wildlife.

This paper will present information and ideas about height influence, distance from water, species of nesting support tree, direction hole faces, one versus three holes per box, time of nest checks for production information, and cleaning versus not cleaning the boxes prior to the nesting season.

Field work was conducted each year by students from the Natural Resources Technology course at the

Brainerd Vocational Technical Institute without whose involvement this project could not have been done.

METHODS AND MATERIALS

In 1970, 60 nesting boxes were constructed of ¾ inch exterior plywood. All boxes had six inches of wood shavings placed in the bottom. Boxes were placed on the study area in late March around wet areas, (Types 3, 4, or 5) where Wood Ducks had been observed the previous summer and fall. Three boxes were put up in each tree at heights of 10, 20, and 30 feet above water. All limbs that would obstruct the box being seen by a duck on the water were removed. Box tops were attached with hook and eyes for easy opening when checking them. Each year boxes were checked in early March to determine use at that time, condition of box (tops on, box cleaned out, etc.), and to see what used the box the previous nesting season. Checks were also made in early May and late May for yearly production and marking of any adults and/or young.

During 1972 all wetlands in the area were checked for available foods (plant and animal life) that young ducks could utilize.

In 1973, 30 additional boxes were constructed. Fifteen were three-holers which had one hole in the normal position in front and one in each side at the same level. The other 15 boxes had just the one normal positioned hole. These were placed on wetland areas differing from the 1970 study, alternating one-hole and three-hole boxes, with an equal number of each per wetland. Only one box per tree was used.

Beginning with the March 1974 check, boxes were no longer cleaned out, in order to evaluate the use of the uncleaned boxes by ducks. Initially box placement and checks were done by climbing trees with tree climbing irons. This method was kept constant even though it might have led to a slight increase in nest predation one year.

RESULTS

The average arrival date for Wood Ducks on the Crow Wing Natural History Area was April 4, with a range between March 22 and April 15 for the nine years of this study. Nesting began in mid-April and hatching took place between late May and mid-June.

Between 1970 and 1973, boxes were cleaned out during the March checks and new wood chips were put in boxes needing them. From 1974 through March 1978, boxes with any sticks, leaves, grass, etc., were left to see if this material had any affect on nesting. It was found that with clean boxes there was 23 percent utilization of available sites and with non-cleaned sites 30 percent use.

In examining box utilization by using March checks to determine the previous years use, it was found that 24 percent previous use was detected by March checks (13 of 54 boxes used). It was somewhat easier to detect previous season use by yearly box cleaning but this depended more on the individual doing the checking than on the sign left.

Looking at one hole versus three hole boxes, it is apparent that ducks avoid the three holers (only 2 boxes used for a six year period). At first squirrels appeared to have a preference for three holers, but overall only a slightly higher percentage (59 percent) of these were used by squirrels than normal one hole boxes. The average height of all boxes on the study area was 21 feet (ranging from 10 to 32 feet above water). The average height used by ducks was 25.5 feet and the average for squirrels was 23.6 feet. During the nine years of the study, only two boxes (5 percent) at the 10 foot level were utilized by ducks and squirrels used this lower height three times. Duck use was 33 percent for the 20 foot level, and 62 percent for the 30 foot height, indicating preference for the higher boxes. For squirrels a similar preference is indicated examining the heights for

used boxes, eight percent were at the 10 foot level, 32 percent at the 20 foot point, and 60 percent at the 30 foot height.

Examining setback from the edge of the water, the average distance for this study was 25.8 feet (ranging from one to nintey-nine feet). Average distance for duck used sites was 38 feet, also ranging from one to ninety-nine feet. Squirrel used sites averaged 25.6 feet.

Looking at the tree species for nest box support, six species of trees were used. Table 1 shows the relationship between expected use and actual use for ducks and squirrels. There appears to be no preference for boxes in any particular tree species by either ducks or squirrels.

TABLE 1
Expected and Actual Used Tree Species for Nest Box Support at Crow Wing Natural History Area 1970-1978.

Tree Species	Percent Expected	Percent Used
WOOD DUCKS		
Aspen	18	14
Oak	32	22
Elm	17	23
Birch	16	27
Pine	13	8
Ash	4	6
SQUIRRELS		
Aspen	21	34
Oak	32	40
Elm	14	4
Birch	19	26
Pine	12	12
Ash	3	3

Boxes were put up facing the four cardinal directions and also the four intercardinal points. Table 2 indicates expected versus actually used boxes based on direction facing. No direction selectivity by either ducks or squirrels appears to exist.

Table 3 indicates box longevity based on tree species used for support. These percentages are based on the actual length of time boxes were usable on the various species as compared to the length of the study.

TABLE 2
Expected and Actual Used Nest Box Directions for Nesting Boxes at Crow Wing Natural History Area 1970-1978.

Direction Facing	Percent Expected	Percent Used
WOOD DUCKS		
North	13	18
East	27	15
South	27	31
West	15	25
Northwest	7	5
Northeast	5	0
Southwest	1	3
Southeast	6	3
SQUIRRELS		
North	12	12
East	23	22
South	20	18
West	31	33
Northwest	7	6
Northeast	1	2
Southwest	1	1
Southeast	5	4

DISCUSSION

As mentioned by Henson and Keran (1977), to consider the use of Wood Duck nesting boxes only by ducks is to overlook the total value of artificial cavities for wildlife. Ideally natural cavities would be preferred by many people so that the animals were in as natural a state as possible, but with the changes taking place in our forests during the last 30 years, there has become a shortage of old trees and cavities. The study on the Crow Wing Area started out examining one aspect of site selection, but expanded into looking at several aspects. From the data available, it appears that cleaning boxes prior to nesting has little or no effect on increasing use by ducks. The one advantage is for those who want to know past seasons use by checking in winter. Yearly cleaned boxes make detection of past seasons use easier. The possibility exists that an excessive buildup of sticks and leaves in a box might be a deter-

rent to ducks. This question is the basis for a new study beginning in 1979 near Brainerd, Minnesota.

The 1973 study examining three holed boxes, shows a definite aversion to this design by ducks. Only twice in the six year study did Wood Ducks use a three holer. This was the same box used consecutive years by what was assumed (we were unable to trap and band the female) to be the same female.

Squirrels which used three holers went in and out of the boxes by means of the side holes, which is the way squirrel nest boxes are designed with a side hole.

Height of box did appear to play a major role in box selection. Twenty feet or higher seems to be necessary for ducks (as well as squirrels) when boxes are place in trees away from the waters edge.

Recommendations for Nest Box Placement

Based on finding of this study at the Crow Wing Natural History Area, the following recommendations are given to be considered when placing Wood Duck boxes in forested areas.

1. Box facing water. Setback between 30 and 100 feet is ideal.

2. Box height at least 20 feet. Ideally between 25 and 30 feet above water.

3. For wooden boxes that will be checked yearly, a hinged top (hinge at side) with hook and eye on opposite side is ideal.

4. Avoid putting boxes on aspen or other short lived trees. See Table 3 for longevity records. Aspen, besides being a short-lived species, are felled quite frequently if there are beaver in the area.

TABLE 3
Box Longevity Based on Support Tree Species for Crow Wing Natural History Area Wood Duck Nest Boxes 1970-1978.

Species	Percent Box Longevity
Ash	100
Pine	94
Oak	90
Birch	78
Elm	75
Aspen	54

5. If possible, ladders should be used for checking boxes during the breeding season so as to prevent leaving a human scent trail. If boxes are checked during breeding season and ladders are impractical, predator deterrent methods should be used. (See Hammerstrom, 1970).

6. Boxes can be cleaned yearly if time and manpower permits, but as of now, this does not appear to be necessary for duck production.

7. Consider boxes successful if used by any wildlife species.

Literature Cited

Hammerstrom, F. 1970. "Think With a Good Nose Near a Nest." Raptor Res. News 4:79-80.

Henson, P. J. and Keran, D. C., 1977. "Wood Duck Nest Box Utilization in Minnesota." Loon 49:1 25-28.

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THE SPRING SEASON (March 1 to May 31, 1978)

Terry L. Savaloja

A total of 304 species were recorded by 102 observers. The Duluth area, as usual leads in numbers of rare species. The most interesting was the state's first adult Laughing Gull. We would appreciate your comments on the new format being used for the Seasonal Reports.

March started very cold but warmed up by the end of the month, with flooding starting in the Red River Valley. A major blizzard on the 2nd ushered in April and snow continued off and on throughout the rest of the month. Temperatures reached the 80's by the last week of April. Warm weather on May 10th and 11th brought the first good wave of birds. A cold front on the 20th created a lot of fog and rain in Duluth from the 25th through the end of the month, which apparently grounded good numbers of migrants.

A total of 304 species was recorded by 102 observers.

The format of this report has been changed as was the Fall report, this is an effort to cut down on the size of and time needed to compile these reports. We would be interested in getting some feedback on these changes. I have listed only those birds which were reported on record early or late dates, were outside their normal range or are of special interest.

In the rare bird department Duluth and the NE as usual came in with the best showing. Besides an Ibis which unfortunately was identified only as an Ibis sp? the NE had a Gyrfalcon, Iceland Gull, several Thayer's Gulls, a Little Gull, the state's first adult Laughing Gull, several Arctic Terns, a few Great Gray and Boreal Owls remaining from the winter invasion, an unheard of number of calling Boreal Owls, a Townsend's Solitaire, a Western Tanager and a Gray-crowned Rosy Finch at Hoyt Lakes. In the SE there was a Little Blue Heron, White-faced Ibis, Bewick's Wren and Kentucky Warblers. The SW had several Snowy Egrets, a Cinnamon Teal, a Ferruginous Hawk, and both a Western and Summer Tanager. The NW made a very good showing with a Snowy Egret, several Barrow's Goldeneyes, a Prairie Falcon and no less than three California Gulls and two Yellow-breasted Chats.

Eared Grebe

4-25 Hennepin DB, outside normal range.

Western Grebe

Early north 4-22, 4-26 Otter Tail GO, SM; outside normal range 5-3 Anoka KL.

White Pelican

Early north 4-7 Grant DW; 4-13, 4-15 Otter Tail SM, GO.

Double-crested Cormorant

Early north 4-7, 4-8 Otter Tail SM, GO, GW and DW.

Great Blue Heron

Early north 3-26 Otter Tail GO; 3-30 Hubbard HF; 3-31 Marshall SV.

Green Heron

Still expanding north and west.

Little Blue Heron

4-15 Wabasha (1) Alice Searles, Helen Tucker.

Cattle Egret
Reported from 4-25 to 5-29 from Big Stone, Lac Qui Parle, Cottonwood, Freeborn, Pope and Marshall.

Great Egret
Early north 4-7, 4-8 Otter Tail SM, GO, GW and DW.

SNOWY EGRET
5-22, 23 Otter Tail (1) GO, L. Woolson; 5-29 Lac Qui Parle (2) CMB.

Black-crowned Night Heron
Early north 4-9 Otter Tail SM.

Yellow-crowned Night Heron
Reports out of SE; 5-17 Anoka KL; 5-19 Ramsey BC; 5-22 Morrison PM.

Least Bittern
Early north 5-15 Otter Tail GO and Marshall SV.

WHITE-FACED IBIS
5-5, 6 Rice (1) OR, RBJ.

IBIS SP.
5-20 **Cook** M. Kilen, D. Zentner.

Whistling Swan
Early south 3-5 Olmsted BE, wintering?

White-fronted Goose
4-1 Lac Qui Parle (38) CMB and Brown (5) RBJ; 4-29 to 5-20 Hennepin OJ captive?

Gadwall
Early north 3-18 Otter Tail SM, peak 5-15 Marshall (3220) SV.

Pintail
Peak 4-21 Marshall (610) SV.

Green-winged Teal
Early north 4-8 Otter Tail GO; peak 4-26 Marshall (720) SV.

Blue-winged Teal
Peak 5-3 Marshall (7930) SV.

CINNAMON TEAL
4-29 Watonwan D. Olson, N. Fladen.

American Wigeon
Early south 3-5 Winona BE; early north 3-26 Otter Tail SM; peak 4-26 Marshall (866) SV.

Northern Shoveler
Peak 5-3 Marshall (930) SV.

Wood Duck
Early north 3-26, 3-30 Otter Tail SM, GO; 4-1 Morrison PM and Crow Wing DK; peak 4-12 Tamarac NWR, Becker (2500).

Redhead
Early north 4-8 Otter Tail GO, SM and GW; peak 5-12 Marshall (1320) SV.

Ring-necked Duck
Peak 4-26 Marshall (2770) SV.

Canvasback
Early south 3-7 Olmsted JSD, VH; peak 4-26 Marshall (1190) SV.

Lesser Scaup
Peak 4-26 Marshall (12,064) SV.

Common Goldeneye
Peak 4-21 Marshall (1290) SV.

BARROW'S GOLDENEYE
4-14 Otter Tail (2) GO.

Bufflehead
Peak 4-26 Marshall (1680) SV.

Oldsquaw
4-25 **Hennepin** DB; 5-7 Cook KE; 5-20 St. Louis BE, RBJ.

White-winged Scoter
4-27 to 5-28 Lake Superior.

Surf Scoter
5-13 to 5-28 St. Louis.

Black Scoter
5-13 to 5-20 St. Louis.

Ruddy Duck
Early north 3-26, 4-8 Otter Tail SM, GO; peak Marshall (960) SV.

Hooded Merganser
Early north 3-24 Crow Wing DK.

Red-breasted Merganser
Late south 5-27 Winona VH.

Turkey Vulture
Early north 4-1 Cass HF.

Red-shouldered Hawk
Still expanding west and north.

Broad-winged Hawk
Early south 3-25 LeSueur HC; 3-27 Olmsted JF; 3-30 Martin EBK; 4-1 Anoka KL.

Swainson's Hawk
Early south 3-30 Olmsted JF.

FERRUGINOUS HAWK
4-15 Big Stone (2) HK; 5-14 Clay (1) GO.

Golden Eagle
6 reports: 3-7 Houston EF; 3-11 Swift RBJ, 3-24 Wabasha OJ, 4-14 Cottonwood LF, 4-19 Becker Tamarac NWR, 5-27 Mahnomen BE.

Osprey
Early south 3-28 Wabasha RL; early north 3-28 Becker Tamarac NWR; 4-10 Crow Wing DK.

GYRFALCON
4-13 Lake (1 white phase) JCG.

PRAIRIE FALCON
5-14 Clay (1) GO.

Peregrine Falcon
4-5, 6 & 7; 5-5, 8 Marshall SV; 4-22 Hennepin ES; 5-11 Morrison NH.

Merlin
3-21 Morrison PM; possible nesting pair Cook Co. R. Thompson.

American Kestrel
Early north 3-6 Otter Tail GO; 3-7 Crow Wing DK.

Spruce Grouse
4-27 Lake TH, JS; 5-7 Cook Glenn Maxham; 5-17 Hubbard (2) GO.

Greater Prairie Chicken
Reported from Polk, Wilkin, Otter Tail, Cass (5-28 BSH); Wadena (4-15, 8 new booming grounds, DNR).

Sharp-tailed Grouse
Reported from Polk, Roseau, Marshall, Koochiching and Aitkin.

Bobwhite
Reported from Houston.

Gray Partridge
3-8, 4-1 Morrison PM, DF; good numbers elsewhere.

Turkey
Reported from Winona and Houston counties.

Sora
Early north 4-16 Otter Tail SM; 4-27 Douglas GO.

Yellow Rail
5-11 (10), 5-13 Aitkin TS, JB; 5-20 Aitkin KE.

Common Gallinule
5-21, 5-31 Washington DW, RBJ.

American Coot
Early north 3-26, 4-5, 4-6 Otter Tail SM, GO. GW; peak 5-3 Marshall (19,810) SV.

Semipalmated Plover
Early south 4-9 Olmsted JF.

American Golden Plover
Early north 4-23 Otter Tail SM; 4-29 Grant GO; peak 5-15 Dodge (2,000-3,000) VH.

Ruddy Turnstone
Early north 5-3 St. Louis KE.

American Woodcock
Early north 3-28 Marshall SV.

Whimbrel
5-19 **Stearns** (7) NH; 5-20 St. Louis (**31-100**) KE, HK, RBJ; 5-27 St. Louis SG.

Spotted Sandpiper
Early south 3-22 Goodhue JD; 4-9 Olmsted JF and Washington DR.

Greater Yellowlegs
Early north 4-7 Otter Tail SM and Wilkin DW.

Lesser Yellowlegs
Early north **3-23** St. Louis (fide KE); 3-30 Otter Tail GO; 4-6 Crow Wing DK.

Knot
5-20 to 5-27 St. Louis (2) KE, HK and SM.

Pectoral Sandpiper
Early north 4-7 Grant DW.

Least Sandpiper
Early north 4-30 Otter Tail GO.

Long-billed Dowitcher
Early north 4-29, 5-7 Otter Tail GO, SM.

Short-billed Dowitcher
Early north 5-19 Otter Tail GO.

Stilt Sandpiper
Early north 5-11 Otter Tail GO.

Semipalmated Sandpiper
Early north 4-7 Otter Tail GO details?; 4-29 Cook KE; 5-7 Otter Tail SM.

Western Sandpiper
Early north 5-23 Otter Tail GO.

Marbled Godwit
Early north 4-7 Grant DW; 4-13 Wilkin SM; 4-15 Polk, Wilkin SDL, GO.

American Avocet
Reported from Lac Qui Parle and Otter Tail.

Glaucous Gull
3-4 Lake; 4-2 St. Louis KE, RBJ; 3-12 Dakota ES.

ICELAND GULL
5-2, 5-18 St. Louis GN, JCG, KE.

THAYER'S GULL
3-4 Lake (1 ad) OJ, RBJ 3-24 St. Louis (1 ad); 5-18 St. Louis (1 imm) KE.

CALIFORNIA GULL
4-10 Clay (**3**) GO.

Ring-billed Gull
Early north 3-26 Otter Tail SM.

LAUGHING GULL
5-20 to 5-26 St. Louis (1 ad) KE, RBJ.

Bonaparte's Gull
Early south 3-31 Cottonwood RG.

LITTLE GULL
5-20 St. Louis (1 ad) KE, RBJ.

Common Tern
Early south 4-14 Dakota MW; 4-16 Hennepin ES.

ARCTIC TERN
5-20 St. Louis (1 ad) KE; 5-29 St. Louis (2 ad) RBJ.

Caspian Tern
Early south 4-22 Stearns DF; 4-24 Ramsey DR; Mower BJ.

Mourning Dove
Early north 3-21 Otter Tail SM.

Yellow-billed Cuckoo
5-27 **St. Louis** FL.

Black-billed Cuckoo
Early north 5-12, 18 Otter Tail, SM, GO.

Hawk Owl
3-4 St. Louis OJ, RBJ; 3-5 Beltrami SV; 3-12 **Redwood** HC; 3-14 St. Louis KE; 3-21 Cook, Helen Tucker; 3-25 Lake KE; 5-6 Lake VH.

Burrowing Owl
5-20 Marshall, Gladwin Lynne.

Great Gray Owl
3-5 Stevens NH; 5-28 Aitkin, Ray F. Boehmer, Ted J. Singletary. Also see LOON vol. 50, no. 2 for report on winter invasion.

Long-eared Owl
3-4 St. Louis SV; 3-25 Olmsted JF; 4-10 Crow Wing DK, Martin EBK; 4-15 Yellow Medicine HK; Polk (nest) SDL; 5-28 Cass (1 ad, 3 y) BSH.

Short-eared Owl
3-3 McLeod, Sibley BC; 3-5 Lyon HK; 3-5 Lac Qui Parle; 4-23 Chippewa (4 eggs) CMB.

Boreal Owl
4-22 to 5-7 Cook (15) KE, TS. Also see LOON vol. 50, no. 2 for report on winter invasion.

Saw-whet Owl
3-11 St. Louis BC; 3-27 to 5-10 Marshall SV; 4-1 St. Louis TH, JS; 4-8 Crow Wing (2) JB; 4-14 Crow Wing DK; 4-27 to 5-7 Cook (11) KE, TS.

Whip-poor-will
Early south 4-9 Hennepin BE.

Chimney Swift
Early south 4-8 LeSueur HC; 4-11 Hennepin RBJ.

Belted Kingfisher
Early north 3-11, 4-7 Otter Tail GO, SM; 4-2 Clay LCF.

Common Flicker
Early north 3-26 Otter Tail GO, 3-30 Clay LCF.

Yellow-bellied Sapsucker
Early south 3-19 Olmsted VH.

Black-backed 3-toed Woodpecker
3-2, 5 St. Louis (2) KE; 3-6, 12 St. Louis TH, JS; 5-6 Lake (1) VH; 5-17 Hubbard GO.

Western Kingbird
1 out of range report 5-27 St. Louis SG.

Eastern Phoebe
Early north 4-1, 4-5 Otter Tail SM, GO; 4-4 Aitkin JB.

Yellow-bellied Flycatcher
Early north 5-17 Otter Tail GO.

Acadian Flycatcher
Reported from Houston, Olmsted, Goodhue and Hennepin (5-27, ES).

Alder Flycatcher
Early north 5-9 Otter Tail GO.

Eastern Wood Pewee
Early south 4-22 Rice OR; early north 5-6 Otter Tail GO.

Tree Swallow
Early south 3-21 Winona FL.

Black-billed Magpie
Reported from Clay and Roseau Co's.

Tufted Titmouse
Reported from Fillmore, Wright, Wabasha, Houston and **Otter Tail** (5-21, 22, GO).

BEWICK'S WREN
5-15 to 5-30 Winona, Winona Co., W. Snyder et al.

Long-billed Marsh Wren
Early north 4-30, 5-15 Otter Tail SM. GO.

Mockingbird
4-14, 5-11 Hennepin (1), Ramsey (1) BC; 5-23 Washington (2) JD.

Wood Thrush
Early south **4-13** Fillmore GE.

Swainson's Thrush
Early south 4-11 Ramsey RH; 4-12 Washington DR; 4-15 Freeborn DG.

Veery
Early south 4-24 Lyon HK.

Eastern Bluebird
Early north 4-1 Otter Tail GO; 4-6 Crow Wing DK.

Townsend's Solitaire
3-11 Lake (1) BC.

Blue-gray Gnatcatcher
Early south 4-22 Olmsted JSD.

Water Pipit
Early north 5-4 Grant GO.

Sprague's Pipit
5-14 Clay (3) GO; 5-28 Clay (1) Paul Greenfield.

Loggerhead Shrike
Early south 3-8 Hennepin VL; reports north 4-8 Marshall DW, Beltrami, Koochiching RBJ.

Bell's Vireo
5-6 Watonwan (1) RG; 5-28 Wabasha (3) KE, SM.

Solitary Vireo
Early south 4-22 Martin EBK.

Black-and-white Warbler
Early north 4-27 Otter Tail GO.

Prothonotary Warbler
1 report out of usual range 5-29 Murray AD.

Golden-winged Warbler
Early north 4-22 Morrison PM.

Blue-winged Warbler
1 report out of usual range 5-17 Hubbard GO.

Nashville Warbler
Early north 4-29 Clay LCF.

Yellow Warbler
Early north 5-4 Otter Tail SM

Black-throated Blue Warbler
5-26 St. Louis (2) KE, SM, BB; 5-27 St. Louis SG, P. Greenfield, FL.

Black-throated Green Warbler
Early north 4-28 Otter Tail GO.

Cerulean Warbler
1 report out of usual range 5-20 Otter Tail GO, GW.

Bay-breasted Warbler
Early south **4-30** Hennepin BE; early north 5-12 Otter Tail SM.

Blackpoll Warbler
Early south **4-30** Ramsey BSH; early north **4-30** Clay LCF.

Pine Warbler
Early north 4-17 Morrison PM.

Palm Warbler
Early north 4-28 Marshall SV.

Louisiana Waterthrush
5-19, 30 Houston RK, KE, SM; 5-28 **Lake** (1) FL.

KENTUCKY WARBLER
5-18, 19, Hennepin (pair) TS. DB, RBJ, KE.

YELLOW-BREASTED CHAT
5-13 Marshall (2) B. Bengston.

Western Meadowlark
Early north 3-18 Wilkin GO, Marshall SV.

Yellow-headed Blackbird
Early south 3-19 Meeker BSH; also reported from St. Louis Co.

Orchard Oriole
Very few reports.

Rusty Blackbird
Early north 3-25 Wilkin SM; 3-27 Otter Tail GO.

Common Grackle
Early north 3-11 Otter Tail GO.

WESTERN TANAGER
5-12, 13, 14 St. Louis (1) Molly Kohlbry m.ob.; 5-13 Martin (1) EBK; 5-7 Mower (1), Michael Beatrice.

SUMMER TANAGER
4-27 Lyon (1) HK.

Blue Grosbeak
5-15 Murray (2); 5-27 Pipestone (1) AD.

Dickcissel
Very few reports.

Pine Grosbeak
Late south 4-16 Stearns NH.

GRAY-CROWNED ROSY FINCH
3-11 St. Louis, Hoyt Lakes, J. A. Evers.

Common Redpoll
Late south 5-15 Hennepin VL.

Red Crossbill
Reports south 3-3 LeSueur HC; 5-17 Hennepin VL.

White-winged Crossbill
Reported from St. Louis, Hubbard Aitkin, Anoka and Hennepin.

Rufous-sided Towhee
Early south 3-21 Lac Qui Parle GO; 4-9 Houston EF.

Baird's Sparrow
5-14 Clay (2) GO.

LeConte's Sparrow
4-25 Martin EBK; 5-5 Marshall SV.

Henslow's Sparrow
5-22, 29 Winona KE, FL, SM.

Sharp-tailed Sparrow
5-28 Marshall SV.

Vesper Sparrow
Early north 4-5 Otter Tail GO.

Tree Sparrow
Late south 5-16 Anoka KL.

Field Sparrow
Early north 4-11 Otter Tail GO.

Fox Sparrow
Late south 5-21 Washington DR; early north 3-31 Otter Tail GO.

Smith's Longspur
4-1 Cottonwood (7) RBJ; 4-23 Lac Qui Parle (2) KE, RBJ; 4-26 Wilkin (4) GO.

Chestnut-collared Longspur
5-14 Clay (14); 5-16 Otter Tail GO; 5-21 Clay SM, SV.

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THE "200 COUNTY" CLUB

Many people have responded to our request for county bird lists of 200 or over. The counties being reported from is now up to 22. Let's see if we can get all 87. This would be some accomplishment. Here are the totals as of January 1, 1979:

County	Observer	Total
Aitkin	Terry Savaloja	255
	Jo Blanich	237
Anoka	Ken LaFond	237
Becker	Gary Otnes	208
	Marion Otnes	207
Clay	Carol Falk	208
	Lawrence Falk	206
Crow Wing	Terry Savaloja	233
	Jo Blanich	222
Dakota	Ray Glassel	230
Goodhue	Ray Glassel	228
	Bob Janssen	224
Hennepin	Bob Janssen	266
	Ray Glassel	260
	Violet Lender	252
	Oscar Johnson	252
Lac Qui Parle	Micki Buer	231
	Chuck Buer	223
	Marion Otnes	213
	Gary Otnes	212
	Bob Janssen	204
	Ray Glassel	200
Lyon	Paul Egeland	251
Marshall	Sarah Vasse	235
Mower	Ron Kneeskern	206
Olmsted	Joan Fowler	214
	Anne Marie Plunkett	210
	Vince Herring	201
Otter Tail	Gary Otnes	266
	Marion Otnes	248
Ramsey	Liz Campbell	229
	Ray Glassel	201
Rice	Orwin Rustad	222
Rock	Kim Eckert	237
St. Louis	Jan Green	280
	Kim Eckert	263
	Bob Janssen	254
	Ray Glassel	241
Stearns	Kim Eckert	230
Wabasha	Ray Glassel	204
Washington	Liz Campbell	203
Yellow Medicine	Gary Otnes	220
	Marion Otnes	220

WHOOPING CRANE OBSERVATIONS FROM KITTSON COUNTY — A large crane was observed by Bob Farmes and myself taking off from a field between Hallock and Kennedy along Highway 75 in Kittson County on May 2, 1978. Its white color with dark outer wings, large size and crane-like flight caused us to stop and use the binoculars on it. Both of us have enough field experience to be able to eliminate it being a lone swan, Snow Goose, White Pelican or Sandhill Crane. The only logical choice was a Whooping Crane. **George Davis, Box 183, Karlstad, MN 56732.**

On May 4, 1978 near Twin Lakes, Kittson County, I observed flying over a field a white crane-like bird with distinct black wing tips and extremely long legs. I could see it very well without binoculars. Observed under excellent light conditions about noon for one to two minutes at 200 - 300 yards. Definitely crane-like from its flight. I have had quite a bit of experience observing Sandhill Cranes and geese. The size, color, black wing tips and long legs could have only been a Whooping Crane. **Marilee Koschak, Employee, Department of Natural Resources.**

Editors Note: The last documented record of a Whooping Crane in Minnesota was a single individual seen at Rice Lake NWR Aitkin County on November 7, 1951. It is exciting to think that an occasional Whooping Crane can be seen in Minnesota again from time to time.

PEREGRINE FALCON SHOT — On the afternoon of May 13, 1978, while walking the shore of Fish Lake, Cottonwood County (T. 105, R. 35, Sec. 33), I discovered the decaying body of a falcon floating in the water. Upon notifying Carrol Henderson, Nongame Wildlife Supervisor for the Minnesota Department of Natural Resources, I was instructed to pick the carcass up and deliver it to him. Examination of the bird by Drs. Patrick Redig and Gary Duke of the University of Minnesota showed it to be an adult male Peregrine Falcon. X-ray examination showed the body to contain three lead shots, the probable cause of death. According to Dr. Redig, this was the first adult Peregrine that he had examined from the State of Minnesota in the last six years. The skeleton of the bird is now with the Science Museum of Minnesota in St. Paul and is designated 5MM-78:1:59. **Bruce Gilbertson, 540 16th Street, Windom, MN 56101.**

ANOTHER MINNESOTA CALIFORNIA GULL — On July 27, 1978, in a field along a slough bordering County Road #6 just west of Clinton, Big Stone County, there was a group of 33 loafing gulls. The birds were about 300' off the road. I began to check them over with my 7x50 binoculars. There were two large Herring Gulls, one adult and one in second year plumage with the wide black tail-band. There were twenty Franklin's Gulls, five in adult plumage with black heads and fifteen in imperfect plumage with dusky caps and black tail-bands. There also were ten Ring-billed Gulls, three adults and seven immatures with black tail-bands. There was also one gull a little larger than the Ring-bills and smaller than the Herring. It appeared to have a red and black spot on the bill which rang a bell in my memory. Was it a California Gull? I set up my Tosco 20x60 zoom spotting scope to look this bird over. It had greenish legs, not pink like those of the Herring Gull but more like those of the Ring-billed, but greener. Now the black and red spots were very evident, as was the dark eye compared to the yellow eyes of the other large gulls. It was an adult California Gull, my first one in Minnesota. I had found these gulls nesting commonly at Close Lake, North Dakota, not too far west of Minnesota, and wondered why they were not found in Minnesota. I really had never looked for them before and I wonder if they are not regular, or at least casual, instead of accidental in Minnesota. **Nestor M. Hiemenz, 705 S. 18th Ave., St. Cloud, MN 56301.**

MOCKINGBIRD IN BELTRAMI COUNTY — At 10:00 a.m. on a sunny June 7, 1978 while on Hwy. 72 at mile post 43 north of Waskish, my attention was drawn to a bird standing on the pavement about 25 meters from my position. I immediately realized that it was a Mockingbird, a species that I had seen many times before in Ohio but never in Minnesota. This Mockingbird had a characteristic light throat, breast and belly, long slender bill, white wing bars, long tail and a cap that contrasted with its ligher neck and back. I called this bird to the attenion of Bonita Eliason and three others that were with me at the time to confirm the observation. The bird was observed for at least 60 seconds using 7x50 binoculars. The idenification was confirmed when the bird took flight before our eyes, exposing its white wing patches and outer rectrices and demonstrating its characteristic slow wing beat. The bird disappeared from view as it flew beyond a row of aspens bordering the highway to the west. **Michael D. Carter, Room 306, Bell Museum of Natural History, University of Minnesota, Minneapolis, MN 55455.**

YELLOW RAIL HEARD IN BELTRAMI COUNTY — The U of M's ornithological inventory of the Upper Red Lake peatlands, directed by Dr. Dwain Warner and funded by the D.N.R., has turned up a number of interesting birds including two separate reports of Yellow Rails. These were heard by different individuals while line transects were being censused through the open fen area near the milepost 50 mark on Hwy. 72 north of Waskish. I first detected the bird on June 27, 1978 at 5:40 a.m. when the weather conditions were clear, 65° F., and calm. The characteristic stone-tapping like call was heard less than ¼ mile east of Hwy. 72. Two and a half hours later I heard a call again 800 feet to the north and east of the original point. The call consisted of alternating two and three note groups like those on a bird record to which I listened after returning from the field. On June 29, 1978, a calm, clear, 70° F. morning, the call was again heard by Marie Ward while censusing the same transect lines. This partially patterned open fen area has about four inches of standing water and has a

mixture of graminoids, **Phragmites** and **Betula pumila** as dominant plant species. On July 2, a drag rope was pulled through the area in hopes of flushing the rail or locating a nest. Three Sora's were flushed in this manner and a Common Snipe nest located on that day but the Yellow Rail remained elusive. **Michael D. Carter and Marie Ward, Room 306, Bell Museum of Natural History, University of Minnesota, Minneapolis, MN 55455.**

GREEN-WINGED TEAL BROOD IN BELTRAMI COUNTY — On August 4, 1978, we were walking along the dike of a wild rice paddy ½ mile east of Waskish in Beltrami County. It was a clear sunny morning and on the near shore a hen and brood of ducklings were observed basking. The hen was teal sized and the ducklings appeared to be about three weeks of age. Upon our approach, the ducklings moved to cover while the female performed a distraction display headed in the opposite direction. We were surprised to observe, with the help of 7x35 binoculars, that the hen was a Green-winged Teal as identified by the green speculum bordered by white on the rear of the wing. Green and Janssen, in MINNESOTA BIRDS (U. of Minnesota Press, 1975), indicate that this is one of the rarest breeding ducks in Minnesota, and this appears to be the first breeding record for Beltrami County. **Roger and Bonita Eliason, Bell Museum of Natural History, University of Minnesota, Minneapolis, MN 55455.**

A JULY GRAY-CHEEKED THRUSH IN DAKOTA COUNTY — Early July 3, 1978 as I paused to view the bird activity at our feeders and bath I noticed a dark colored bird feeding on the ground in the wooded area of our back yard. I reached for my binoculars and **Field Guide** and readily identified it as a thrush eliminating all but the Gray-cheeked and Swainson's as possibilities. The bird re-entered the woods, however, before I could make positive identification. The following morning, July 4, I made special effort to watch for this "thrush." Again, at approximately 7:30 a.m. I noticed movement on the ground 10-15 feet into the trees and brush. I wached for several minutes using binoculars and a 205 mm telescopic lens as the bird made its way along the forest floor to the edge of the lawn and into clear view. Its olive-brown back, thrush shaped head and bill and throat spots were quickly recognizable. Using binoculars (though less than twenty feet away) I checked for an eye ring and cheek coloration. No eye ring! And grayish cheeks! — A Gray-cheeked Thrush! My wife who had also been watching from our living room window agreed with my identification. The bird then re-entered the woods and moved below the ferns away from us. I then checked Green and Janssen's **Minnesota Birds** to determine the migration patterns of this species. Noting that the latest dates of observed migration recorded was June 9th, I began to doubt my observation. However, I was to have one more chance for confirmation as at approximately 5:00 p.m. that afternoon I noticed movement on the ground below a large oak tree. I watched as the thrush worked its way through the woods and on to the lawn as before. Again I confirmed no eye ring and grayish cheeks. **Ralph D. Murray, 1636 Walnut Lane, Eagan, MN 55122.**

LOUISIANA WATERTHRUSH IN LAKE COUNTY — On May 28, 1978 a Louisiana Waterthrush was heard to sing its song of three sweet, clear whistles each descending in pitch, and each lower than the preceding. These three introductory "whistles" resembled the 3rd, 4th and 5th introductory songs recorded on side three, band seven of Petersen's records, "A Field Guide to Bird Songs." The song ended in the characteristic jumble

of notes. Earlier that day I had checked out and identified a singing Northern Waterthrush, and could scarcely believe I now was listening to a Louisiana in the Superior National Forest. Of course, I attempted to see the bird, and glimpsed him several times as I pursued him through the underbrush for 20 minutes to half an hour. The eyestripe was rather wide and white, the spots on the flanks were large, and the general size of the bird was larger or plumper than that of the Northern, which I have observed frequently. I was very frustrated in not being able to see the throat, but Johan Elmberg, a young and very keen naturalist and exchange student from Sweden, did see the throat and thought it was streaked. He did agree, however, that the song of the bird was that of the Louisiana Waterthrush I played on tape when we returned to the car. I trust my ears, though they are fallible, and believe this Louisiana Waterthrush was far out of its range. The location was along Lake County Road 7, where the road briefly parallels and nearly touches the drainage stream from Crooked Lake. **Fred Lesher, 509 Winona St., LaCrosse, WI 54601.**

SPRUCE GROUSE FEEDS ON MINK FROG — On 12 July 1977 I observed a male Spruce Grouse eat a small (approximately 50 mm) mink frog near a small creek 2.4 km south of Kelly Landing, Lake County, Minnesota, in the Superior National Forest. I know of no other records of this food item being eaten by Spruce Grouse. Hale and Wendt (Wilson Bull. 63:200, 1951) reported on the eating of amphibians by Ruffed Grouse in Wisconsin. **Roger D. Applegate, Forestry Instructor, University of Illinois, Urbana 61801 (Present Address: Urban Wildlife Research Center, 575 Bureau Street, Mahomet, Illinois 61853).**

SPOTTED SKUNK IN NORTHERN HUBBARD COUNTY — The only previously published record of the eastern spotted skunk (**Spilogale putorius**) in northern Minnesota is a specimen taken in Roseau County on 25 October 1933 (T 162 N, R 40 W, Sec. 6: G. Swanson 1934, J. Mamm. 15:318-319). Aside from the Roseau specimen, the northernmost records that I can find in mammal collections in Minnesota and elsewhere, and in MDNR reports, are from Hennepin, Anoka, and Washington counties. Most **Spilogale** records are from the southern three tiers of counties. In February 1978, Mr. Steve Rogers trapped a spotted skunk on his farm in Hubbard County (T 144 N, R 33 W, sec. 11). He recognized the animal and took it to a local fur buyer who also recognized it but said that there was no market for spotted skunks. Unfortunately, I did not learn of the record until summer 1978, when the specimen had been long discarded. I would like to know of any other valid records of **Spilogale** in central and northern Minnesota. **Evan B. Hazard, Department of Biology, Bemidji State University, Bemidji, MN 56601.**

A GATHERING OF SNOWY EGRETS — The Snowy Egret is considered to be a casually occurring species in Minnesota. However, during the last two summer seasons, the species has been observed commonly on the Big Stone NWR. Several nests were found in the heron rookery there during the 1977 and 1978 breeding seasons. I observed four individuals on July 9, 1977 in the rookery and saw what I believed were two nests containing young of this species. This year (1978) Micki Buer reported several nests of the Snowy Egret at the rookery. On August 26, 1978, Oscar Johnson and Don Bolduc reported seeing 15 Snowy Egrets and two immature Little Blue Herons feeding in a roadside ditch along Lac Qui Parle County Road 15 just south of Odessa. I was curious to see how long the Snowy Egrets would remain in the area so on September 9, 1978,

Renner Anderson and I took a trip to Big Stone NWR. We arrived at the refuge shortly after dawn and about 8:00 a.m. we checked the roadside ditch south of Odessa and found 14 Snowy Egrets, at least one and possibly two immature Little Blue Herons plus approximately 30-40 Great Egrets. The Snowy Egret adults, of which there were four, were rather easy to identify because of the yellow feet and black legs. However, the immature Snowies were extremely difficult to identify. We wanted to call a number of them immature Little Blue Herons because of indistinct bill coloring and what appeared to be yellow-green legs. The latter proved to be false as we observed the legs from different angles. The legs were yellow up the back only with black on the front part of the leg. After an hour of close observation we found one bird which we positively identified as an immature Little Blue Heron. This bird had solid light geenish (not yellow) legs and a black tipped beak. A short while earlier we had seen another bird fly off with solid green colored legs so we presumed there were at least two immature Little Blues in the area. This separation of these two species in the fall presents a new field identification challenge for Minnesota birders, something we could only do previously if we took a trip to Florida in the fall or winter. **Robert B. Janssen, 10521 S. Cedar Lake Road, Minnetonka, MN 55343.**

FIRST RECORD OF A HOODED MERGANSER-WOOD DUCK HYBRID IN THE WILD — A male-plumaged Hooded Merganser-Wood Duck hybrid wintered at a warm-water outlet at Little Lake Watab, St. John's University campus, Collegeville, Stearns County, Minnesota, from October, 1967 to April, 1968. The bird was in the company of approximately 60 semi-feral Mallards and six Canada Geese. It was not seen again after the lake opened up in the spring. The duck appeared in pattern and coloration to be a male Wood Duck but lacked the overall brightness of this species with most of the green plumage replaced by black. Body shape appeared elongated like a merganser and the size appeared to be noticeably smaller than that of a normal Wood Duck. The bill was distinctly merganser, long, serrated, and horn-colored. The bird had a distinct crest similar to a Hooded Merganser's crest. Unfortunately no photo was taken at the time since I was unaware of the extreme rarity of this find. The bird was also observed by Edmund A. Hibbard, professor of biology at St. John's University. The bird was capable of flight but appeared to fly weakly. This may have indicated the bird was of local origin. The surrounding area is heavily wooded with numerous lakes and ponds. Wood Ducks are numerous as breeding birds and Hooded Mergansers, while rare in summer, might be expected to breed on occasion. According to Gray (**Bird Hybrids,** 1958), no wild Hooded Merganser-Wood Duck crosses have been recorded but, in captivity, a female Hooded Merganser mated with a male Wood Duck and produced fertile eggs (Ripley, 1956). The young died in the shell just before hatching. It is surprising that no such hybrids have been reported before. Literature references to Common Goldeneye-Hooded Merganser hybrids are fairly numerous. Hooded Mergansers, Common Goldeneyes, and Wood Ducks all share similar nesting sites in hollow tree cavities. Several combined layings between the Hooded Merganser and Common Goldeneye and Hooded Merganser and Wood Duck have been documented. Range overlap between the Hooded Merganser and Wood Duck is very extensive; indeed nearly everywhere the merganser breeds (save parts of Ontario, Quebec, and the Pacific Northwest), the Wood Duck also breeds. Either the hybrids are overlooked in the wild (several observers identified the bird as a Wood Duck at first glance) or such an occurrence

is extremely rare. Ripley's (1956) report of an embryo dying before hatching may indicate that such a cross-genus breeding entails severe genetic complications. References cited: Gray. **Bird Hybrids,** Commonwealth Agric. Bureaux, Farnham Royal, Bucks., England 1958. Ripley. **Aviculture Magazine,** 62:181-82, 1956. **Robert P. Russell, Jr., Department of Geography, University of Arizona, Tucson, AZ 85721.**

WESTERN TANAGER IN MARTIN COUNTY — A highlight of spring birding in Martin County parks this year was the sighting of a male Western Tanager. On May 13, 1978, my wife, Denece, and I met with two other birders at Cedar Lake Park in the northwestern corner of Martin County. This was one of several Saturday morning outings that I had planned for area birders to get together. The early morning weather was uninviting with high winds and cold temperatures and several other birders thought better of it, much to their regret. But once into the protected wooded area (open deciduous, with oak. basswood, red cedar, dying elm, etc.), observation conditions were excellent. We were observing warblers, vireos, thrushes and many Northern Orioles when I spotted the male Western Tanager at about eight o'clock. He was feeding with the flock of orioles and we suspect, migrating with them. We were within about 100 feet of the bird and able to watch it for ten minutes or more. The black back, wings, and tail, the wing bars, and the yellow body were all as usually described. The red color of the face and head, however, extended only to the top of the head and not beyond. The back of the head was yellow. We observed the bird with 8x40, 7x50, and 7x35 binoculars and we confirmed our identification with the Robbins "Birds of America." The Western Tanager was a first for all of us. Unfortunately, no camera equipment was available to record the event. **Ed Brekke-Kramer, 322½ Lake Ave., Fairmont, MN 56031.**

WESTERN TANAGER AT AUSTIN — A male Western Tanager was seen at about 5:00 p.m. on May 7, 1978 at the Hormel Nature Center in Austin, Mower County. The bird was about the same size as a Northern Oriole. I compared it with the oriole as both birds were on the same branch for a while. Though the head was definitely red, it was not a solid opaque red like a Red-headed Woodpecker but a lighter almost translucent red. Yellow breast and rump, black wings and black tail, two light wingbars, one whitish, the other either a dirty white or yellowish. **Michael C. Beatrice, 1711 1st Ave. S.E., Austin, MN 55912.**

ANOTHER LAUGHING GULL AT STONEY POINT — On August 7, 1978 about 10:30 a.m. our family was driving along the road at Stoney Point, just north of the lookout area where there is an open grassy area between the road and Lake Superior. On the water there were about 70 Herring Gulls, and a smaller dark gull that both my son Nick and I noticed. It was somewhat closer than the Herring Gulls, not too far away from the shore. My husband stopped the car so we could get a better look, and as I watched the bird through my binoculars I remember thinking that I had never seen a Franklin's Gull in plumage like this. The following is a composite of the field markings Nick and I observed: Size: Approximately half the size of the Herring Gulls; Head: Completely dark brown - some white noticed above and below the eye, though not really an eye ring; Throat: Lighter than head - sun was very bright on water and may have been a reflection; Breast: Dark brown; Wings: Dark brown - except some white could be seen along wing edges when bird turned sideways - wings

extended back and pointed upward; Back: Dark brown; Tail: White with wide black band at end - white of tail extended up onto lower back - tail was held up; Bill: Dark; Feet: Not seen; Length of Observation: I say about 5 minutes - Nick says more like 8 to 10 minutes. The gull was moving around quite a bit on the water and it was hard to get a good look in one position for very long. Nick began checking through BIRDS OF NORTH AMERICA and kept insisting that it was an immature Laughing Gull. I of course kept insisting that it wasn't too likely - in fact that it was practically impossible. At this point I got out of the car and began walking toward the lake. The gull then started swimming farther out and joined the Herring Gulls. By this time the other children in the family were getting anxious to be on their way, so I reluctantly gave in and we left the area. As we drove off Nick also checked through Peterson's Eastern FIELD GUIDE TO THE BIRDS and still couldn't come up with anything but an immature Laughing Gull. He noted that the only other bird that even remotely resembled ours was a jaeger pictured in BIRDS OF NORTH AMERICA, and that was only because of the position of the wings. After we returned home several days later I checked in Janssen, Green and didn't even find a Laughing Gull included in the book. So, that settled it for me. It simply wasn't a Laughing Gull. Nick still insisted that it was, and said he didn't care what THAT BOOK said. After hearing the August 25th report of an immature Laughing Gull on the Rare Bird Alert in the same area as the supposed one we saw, I brought up the subject again with my son. Of course he knew he was right all along. A little further checking on my part through some old issues of the LOON unearthed a report by Janssen, et al in the Winter 1975 issue on an immature Laughing Gull at Stoney Point. Nick read it and we both felt like we were reading about our own observation of three years later, even down to the mention of a jaeger. **Mrs. Joanne Dempsey and Nick Dempsey, 1017 W. 14th St., Hastings, MN 55033.**

IMMATURE LAUGHING GULL AT STONEY POINT — On August 26, 1978 I found a first-year Laughing Gull swimming off shore from the fishing shacks at Stoney Point, St. Louis Co. The bird never left the water during the 20 minutes of my observation, and was about 80 yards away as I watched it with 15x spotting scope. Herring and Ring-billed Gulls were with it and offered direct size comparison. Following is a description as taken from field notes written while bird was in view before any field guides were consulted. Size: smaller than Ring-billed Gulls which seemed half way in size between this bird and Herring Gull. Back, head and chest solid dark brown with no hint of gray. Underparts and throat white; also a broken white eye-ring was visible but not very distinct. Folded wings dark brown becoming blackish at the tips; tiny white spots also visible along the top edge of the primaries. Tail mostly hidden from view but wide black area clearly visible at least once which suggested a subterminal tail band. Bill was all dark. Because of the dark brown coloration, especially on the head (with no white on the forehead or nape) and the chest (I could not determine whether the dark color on both sides of the chest met in the middle or was separated by a whitish line), I was able to separate this bird from Franklin's Gull, the only similar species. I have seen immature Franklin's with a suggestion of a dark chest, but it was paler gray and not as distinct or extensive; also a Franklin's is whiter on the forehead and nape and would not have a uniform dark brown head. I returned to the area the next morning but the gull was not present.

This represents the fourth Minnesota Laughing Gull record, the last two being adults seen this past spring in Duluth and the first being an immature in 1975, also in August and also at Stoney Point. The presence of this individual was probably the result of easterly winds which had been persisting in the Duluth area without let up for five days. **Kim Eckert, 9735 North Shore Dr., Duluth, MN 55804.**

RUFF - OTTERTAIL COUNTY — My wife, Marion, son Mark, and I were birding the Orwell Reservoir, Orwell township, on Saturday, July 22, 1978, in quest of returning shorebirds. At 11:50 a.m. we stopped by a flooded field about one mile east of the reservoir to observe large numbers of various peeps. Immediately we noted an erect postured shorebird, about the size of a Lesser Yellowlegs, some 50 - 75 feet from our car. Using 10x50 and 10x35 binoculars we viewed it, making sketches and taking field notes, as it stood before us. Twice we flushed it, and twice it returned to its point of departure. At 2:50 p.m. we returned to the same spot and found it again, this time no more than 25 - 30 feet away. We conclude that it was an adult Ruff in the remains of breeding plumage, and base the conclusion upon the following recorded observations: roughly the size of a Lesser Yellowlegs; erect stance; bill rather long, stout, with a hint of being decurved; bill dark except for a faint yellowish near the point of juncture with the head; head, neck, upperparts and breast brown with much black mottling; abrupt, jagged border between breast and white belly; legs olive yellow; white chin in definite contrast with dark neck; tail, while in flight, demonstrated a dark median stripe and large dark terminal band, and a large white oval spot on both sides of the median stripe near the base of the tail. Returning home, we compared our field notes and sketches with Robbins, **Birds of North America;** Hanzak, **Pictoral Encyclopedia of Birds;** Bull and Farrand, **The Audubon Society Field Guide to North American Birds;** Fitter, **The Birds of Britain and Europe;** and Peterson, **Field Guide to Eastern Birds.** As usual, Peterson's text (page 74) gave the best description, especially the subheading, "ADULTS IN REMAINS OR BEGINNINGS OF BREEDING PLUMAGE: brown above with much black spotting and mottling; throat and breast equally dark, in sharp contrast with whitish chin and white belly." That, coupled with the diagnostic tail pattern, identified our Ruff. One word of caution: a Ruff so plumaged can easily be written off as a Pectoral Sandpiper, especially a large one, as there is a superficial resemblance. But the Ruff has such rich black spotting and mottling that it almost appears to have been splattered with ink. The Pectoral Sandpiper, on the other hand, has a more uniform narrow black streaking. Then one must flush it to confirm the identification by observing the white oval tail pattern. As this is the second Ruff we've found in Ottertail County in less than two years (see **THE LOON,** Spring, 1977, pp. 45-46) we're leaning toward the theory that perhaps this bird is more common than thought, but being overlooked, or it is recently increasing in numbers. **Gary L. Otnes, Route 1, Box 181, Fergus Falls, MN 56537.**

BARN OWL AT NORTHFIELD — In the Check List of Minnesota Birds I noticed that the Barn Owl is an accidental, which surprised me. I assumed they were fairly common in the state, although I had never seen one. On March 14, 1978, our garage door was left open till about midnight when, returning from a late meeting, my husband closed it. In the morning on entering the garage he saw a large bird fly from near the door to the back of the building, settling on a cross beam. We both saw it fly back and forth several times, noting its soft, noiseless flight. We could

easily observe it as it faced us from its perch about 22 feet away, and identified it from its very light color, heart shaped face with small, dark eyes, and long legs, looking exactly like the picture of a Barn Owl in Robbins, "Birds of America." Had we known what a rare bird ours was, we would have called Dr. G. N. Rysgaard of Northfield to observe it and get a picture. We left the doors open till late that night and never saw the owl again. A carport attached to the side of our garage, open on two sides is an ideal feeder station, especially during stormy winter days when snow and wind blow over our other feeders. The feed is placed on trays along the inner wall as well as on the gravel floor where many species of birds feed readily. In turn mice are attracted to leftovers, Screech Owls to the mice. Rabbits feeding there attract Great Horned Owls. It is possible that all this activity attracted the Barn Owl who entered the garage in search of mice or, it being spring, for a home in the rafters. **Mrs. Alvin Houston, Route 2, Northfield, MN 55057.**

SCISSOR-TAILED FLYCATCHER IN SIBLEY COUNTY — As I was returning home from work about 7:15 p.m. on July 6, 1978, I noticed an unusual bird perched on the telephone wires next to the road. The feature that caught my eye as I went past was the length of the tail. I stopped and backed up for a better look and the bird cooperated by staying on the wire. I observed it for about two minutes through 7x35 mm binoculars at a distance of about 50 feet. I was sure that what I was looking at was a Scissor-tailed Flycatcher, but I could hardly believe it. The only other sighting I had made of this species was in south central Kansas. I proceeded home, checked the observation against my bird book, and ate my supper, but I was still not quite satisfied. So I bundled my wife (as a witness) into the car and went back to the spot (SW¼ SE¼ Sec. 12, T112N R28W, Sibley County) with bird book and binoculars in hand. Fortunately, the bird was still there, but on our approach it flew to a fenceline about 40-50 yards away from the road. There we observed it for about 10 minutes with the binocs. During that period it made frequent typical flycatcher feeding flights from the fence, giving us the opportunity to observe all of the characteristics of its plumage. There is no doubt in my mind that it was a Scissor-tailed Flycatcher. It had a light gray head shading into a darker gray as you progressed down the back and to the rump. The breast was a silver gray shading to almost white on the belly with a rusty-pink tinge to the legs and under tail coverts. It had a typical flycatcher type bill with a dark line running from its base to the eye. The upper wing was dark gray while the underwing showed bright pink while in flight. The clincher, however, was the long (longer than the body), dark, scissor or forked tail with the white outer feathers exposed during flight maneuvers. This was what sent me back for the second look. During the first obervation, the bird had not moved, had not spread its tail and I did not observe the forking nor the white outer feathers. I note other references to this species in the Loon Index for 1977, but have heard of no other sightings for Sibley County. **Paul Bremer, Route 2, Arlington, MN 55307.**

CINNAMON TEAL AT ARTICHOKE LAKE — On Friday morning May 5, 1978 I saw a drake Cinnamon Teal about one third of a mile north of the north end of Artichoke Lake, Big Stone County, along County Highway #25. The bird was in a roadside ditch on the west side of the road. I got within about 30 feet of the bird and it was with a pair of Blue-winged Teal. I have seen numerous Cinnamon Teal in California, Arizona and also

in Kansas. Identification of this particular bird was positive as I was so close to it and its color was very intense. Description of the bird as I saw it: Rusty red color very prominent as bird turned and sun rays revealed every detail, even the blue and yellowish tertials. Crown much darker, lacked the white crescent mark so prominent on the dark Blue-winged Teal. **Charles Hanson, Route 1, Correll, MN 56227.**

A GRAY-CROWNED ROSY FINCH IN WADENA COUNTY — A friend of mine urged me to report an unusual bird which appeared regularly at feeders in our area last winter. My sister and her husband reported the Gray-crowned Rosy Finch, both male and female, which came to their feeder early in the morning all winter, and returned several times during the day. I saw the same finch several times at my feeder, but only the male. It was similar in size, perhaps a trifle larger, to other finches which came regularly to my feeders, but the gray crown was new to me, so I knew it had to be a new bird. The gray crown and rosy pink on the wings were outstanding. The ground was covered with snow below my feeders, and the rosy finch fed on the ground and also in my large hopper feeder. My sister and husband first saw this bird late in December, all January and February. It appeared early in the morning and came back several times during the day. My sister called their sighting to my attention, so I watched for it to appear here. We live over a mile apart in this town, so I cannot be sure the same individual bird appeared at both places. I noted the time on March 2, 1978, but had seen it several times in February, but did not note the exact times it appeared. **Florence N. Mueller, Box 96, Menahga, MN 56464.**

A DIPPER RECORD FOR 1971 — The bird was seen on June 8, 1971 at the outlet of Mink Lake, Cook Co. (TWP 62N R 2E Sec. 8). It was seen from 50 feet for about 15 minutes in mid-afternoon. Its behavior was unique, walking under water, and bobbing or dipping when at rest. A description of the bird is as follows: small gray bird with short tail and big legs. Walks under water near shore, then hops out to nearby rock to set and dip. I have also seen this bird each year in late May from 1966 through the early 70's at Trout Lake just east of Mink Lake. **Don Woods, Section of Fisheries, Centennial Office Bldg., 658 Cedar St., St. Paul, MN 55155.**

Editor's Note: The above record is most interesting and may indicate the existence of a small population of Dippers in the streams along the North Shore of Lake Superior. The only previous record for the state is a single bird seen in Cook County from January 29 to April 4, 1970 (**Loon** 42:136-137).

WORM-EATING WARBLER AT AUSTIN — On May 17 and 18, 1978 I and my wife Marie saw a Worm-eating Warbler at the Hormel Nature Center in Austin, Mower County. The bird was in about the same spot both days. A description of the bird is as follows: not a sparrow because of slender bill and shape of a warbler. Buffy underparts, brown upperparts, plain back and wings, no wingbars. I saw dark eye stripe above the light stripe and above the dark stripe. Marie saw these stripes and also the light stripe through the middle of the crown. All stripes were seen on May 18. **Michael C. Beatrice, 1711 1st Ave. S.E., Austin, MN 55912.**

BUFFLEHEAD BROOD IN MARSHALL COUNTY — A brood of Bufflehead were seen on three separate occasions from the dike on the East Park WMA, Marshall County. All three times they were seen in the same pond (a borrow pit from dike construction) which is located within 100

yards of the 1,700 acre impoundment. The first two observations were in early July, 1978 with five young seen once and six young the other time. The female and eight young were again seen on July 27. I feel comfortable in saying the latter is the same brood seen in early July. When I first noted the brood of five ducklings they were not familiar — they were dark colored with a trace if white on cheeks. While watching these five, they were joined by the female and one more young bird. The female was dark colored with a distinct ½ to one inch sized white cheek patch. In conversation with Jack Jensen, manager of the Roseau River WMA, he stated he has seen broods of Buffleheads on occasion on that unit. **George Davis, Box 183, Karlstad, MN 56732.**

Editor's Note: The above observation of a Bufflehead brood is the first documented record of this species breeding in Minnesota. The northwestern part of the state seems a logical area for Buffleheads to breed in Minnesota. I would appreciate additional documented reports of breeding Buffleheads from this area.

NORTHERN-MOST NEST OF A YELLOW-CROWNED NIGHT HERON — The recently established Maplewood Nature Center, a preserved forty acre marsh and woodland site located in Ramsey County off Highway 120 and E. 7th Street, offers a variety of nature awareness programs open to the public. "Bird Watching" a popular adult spring program, was often led by bird specialist Elizabeth Campbell, former St. Paul Audubon Treasurer. Bird sightings of over eighty in one morning were seen along the trail. Among them were land birds such as the Scarlet Tanager, Red-eyed Vireo and Crested Flycatcher. Seen also were birds such as Green Herons, Ruddy Ducks, and Canadian Geese. The view of five Black-crowned Night Herons perched in a single tree was common. The unexpected bird that received the most attention, however, was the Yellow-crowned Night Heron, whose nest was first sighted June 7, 1978 during a bird watching program. According to Elizabeth Campbell and Richard Oehlenschlager, ornithologist from the Bell Museum, this southern bird has been occasionally sighted as far north as St. Cloud, but they believe Maplewood is the northern-most area ever to have seen Yellow-crowns "nesting"! Twenty feet off the upland trail, circling the marsh, the twiggy nest was built forty feet high in a Green Ash tree. Only trail guides and local birders were told of its existence. Programs in that area were ceased to avoid any threat to the nesting bird. Many watched the nest, keeping daily records of sightings and behavior. The nest was under construction for an estimated seven days. After June 14, the female sat low in the nest for nineteen days. After July 2, she was found each day standing ridgedly on the nest's edge looking down in the direction of the trail. Occasionally she was not seen in the nest, but seen along the sandy cemetery road adjoining the Nature Center or feeding along the marsh shore. The last sighting of the bird in the nest was July 18. Although adequate time was spent for nesting, young were never seen before the nest was vacated. According to the combined thought of all birders involved, there are several possible answers as to why there were no young birds. One thought was that the eggs may have been destroyed by a natural predator, such as a raccoon commonly found in the Nature Center, although there was no evidence of a torn nest, fallen egg shells or feathers. Unusual heavy wind and rain storms prevailed during that time in which the eggs possibly were blown out of the nest, because of its high location on a small tree limb. A high concentration of pesticides could have been in the embryo where the eggs

could not develop properly or the eggs cracked because the shells were too thin to support the mother's weight. Since the male and female "Yellow-crowns" look alike and viewers never saw the male and female birds together at one time, it is possible that what was seen was one unmated female in which case the eggs would have been unfertile. Although the story is incomplete, there is no real answer as to why there was no young, only guesses. Since spring of 1978 is the second year in a row where the Yellow-crown Night Heron has been seen, we anticipate spring of 1979 to see if the "nesters" return to Maplewood Nature Center. **Megan Gange, Naturalist, Maplewood Nature Center, St. Paul, MN.**

A BURROWING OWL — On August 21, 1978 my friend Rich Prager from Marblehead, Mass. and I observed a Burrowig Owl on Goodman Larson's farm in Lac Qui Parle County, Minnesota. The farm is located in Section 30, Garfield Township, about 150 miles west of the Twin Cities and 1½ miles south of Highway 212. It was 5:30 p.m., a very hot and breezy day. The sky was clear and the landscape was glowing under the strong sun. We drove a tractor out to the rolling prairie pasture to bring back a load of sand from the sand pit. The sand pit has nestled in its pasture hillside for over 50 years. The predominant grass of the gravelly hilltops is Bluegramma, with Goldenrod and Hoary Vervain the most common herbs. Thirty beef cows and calves on the 70 acres have closely cropped the dry hilltop grasses to a neat low carpet leaving islands of undesirable forage herbs that add color and variety to the texture of the pasture. Goodman Larson has purposefully allowed Flickertails (Richardson ground squirrels — a native species) to continue co-existing with the cattle, pock-marking the sandy pasture hills with their burrows. Flickertails fill a valuable niche in the prairie foodchain for the fox, badger, hawks and owls who are all common visitors to the pasture. When we arrived at the sand pit we noticed a group of about 12 Barn Swallows chasing and diving at a small owl-like bird. The bird landed on the ground about 30 yards from us. The swallows continued to dive at the owl. It flew again and landed at the entrance to a Flickertail burrow. The owl was then standing about 40 yards from us. Its erect upright posture, round "neckless" head and the environment in which it was observed made us think that it could be a Burrowing Owl. We drove back to the house and read the descriptions and habits of the Burrowing Owl in Robert's **Birds of Minnesota, Vol. I** and also in Peterson's **Field Guide to the Birds.** Within an hour we grabbed our binoculars and 20-power spotting scope and returned to the sand pit. We approached on the opposite edge from where we had first seen the owl. We looked and saw nothing. We then proceeded along the edge and were startled by the owl flushing from behind us from another Flickertail burrow. The owl flew and lit on the burrow mound where we had seen it earlier. We were 40 yards from the owl, facing it to the south with the sun to the west. We set up the scope and observed the owl. The owl pumped its body up and down for a short time after it landed, a response to being bothered by our presence. It stood about 10 to 12 inches high with long bare legs, a stubby tail and a buffy breast separated by a light trail of feathers from the legs to the chin. The eyes were yellow and stared back at us unblinkingly. After about ten minutes of observing the owl, it seemed to settle down to the ground like a chicken on a nest. Its body was very low and not much of it could be seen above the burrow mound except the head. We left and called my father, Goodman Larson, who was in Minneapolis and expecting to come out the next day. We also called Miki and Chuck Buer of Madison. They met us the next morning

at sunrise. The morning was drizzly and cold. We saw no owl but noticed fresh fox diggings within ten feet of the burrow from which the owl had flown. We spent much time during the next two weeks looking for the owl but did not see it again. This was the first sighting of a Burrowing Owl on the farm in the last 15 years. **Gary Larson, 4331 Luverne St., Duluth, MN 55804.**

PRAIRIE FALCON AT ROTHSAY PRAIRIE — On October 1, 1978 Dick Ruhme and I were birding on the Rothsay Prairie area of Wilkin County. We had covered the area quite extensively the day before and had not seen anything of unusual interest. Probably the most interesting had been the number of sparrows in the area, especially Savannah's and we observed at least 20 Le Conte's Sparrows in one area. We returned to the prairie area around noon after a trip to the Felton area. The winds were blowing very strong and from the southeast. Skies were partly cloudy and the temperature was in the 60's. We drove out onto the prairie area just west of Lawndale where we had seen the Le Conte's Sparrows on the previous day. In a large mowed area nearby we stopped the car and almost immediately I spotted a large falcon coming in from our right (west) skimming across the ground about 100 yards away. My first impression was that the bird was a Prairie Falcon because of the uniform light brownish color of the back. We got out of the car and watched the bird pass in front of us and confirmed that it was a large falcon. The bird wheeled and came back toward us. As it did this, we noted the black axillars. Actually, the dark extended beyond the axillar region onto the secondary wing lining. The bird flew by us at a distance of 50 yards and again skimmed low over the prairie area. Neither of us noted the face pattern but the size (larger than a Peregrine) the light brown overall on the back, wing and tail and the black axillars confirmed the bird as a Prairie Falcon. **Robert B. Janssen, 10521 S. Cedar Lake Road, Minnetonka, MN 55343** and **Dick Ruhme, 9655 Upton Road S., Bloomington, MN 55431.**

FALL HENSLOW'S SPARROW OBSERVATION — On September 24, 1978 Steve Schon and I saw a sparrow at Wood Lake in Richfield, Hennepin County, that I believe was a Henslow's Sparrow. The weather was clear and warm, with little wind. We first saw the bird about 10 A.M. on top of a long clump of thick grass about 10 yards away, and it approached to within 3-4 yards in response to "pishing" noises. It was well exposed and well illuminated (from the side). After a minute, it flew past us to a clump of drier grass about 30 yards away, with the light now coming from behind us, and remained near the top of the grass and continued to show agitation at our noises. After we had observed it for about 5 minutes with 7x35 and 9x36 binoculars, it flew back to its original spot and disappeared. At first we noticed that it was a "flat-headed" sparrow with a large pale bill and clear light underparts. There were two solid dark stripes on the crown separated by a thin light line. The tail was much shorter than that of a Song Sparrow, but did not appear to be as extreme as that of, say, a Sharp-tailed Sparrow. On further observation we saw that the flanks were marked with short dark streaks, most extensive on the breast but never forming a band. The wings were markedly brown and the chin and throat were very white, the underparts slightly buffier. The face seemed colored by a grayish "wash," appearing grayish-yellow in some light, but I would not call it "olive." (but then neither did I think so when I saw singing Henslow's at Winona!) There was a promi-

nent dark mark behind the eye, evidently along the top of the auriculars. We noticed no other strong marks on the face. The gray was clearly demarked from the throat and sides, and the black marks on the head ended at the same "line," at which there was a brownish patch on the nape. (This did not appear reddish or streaked as it is supposed to be on a Le Conte's Sparrow, and at any rate the face lacked any orange color.) The bird made repeated unremarkable alarm notes, neither especially

Henslow's Sparrow, Wood Lake, Hennepin County, 9-24-78

loud nor sweet nor insect-like. The habitat was interesting (although anything can happen on migration) — a very wet area thickly covered with a dark green, broad-leaved grass (that appears like giant "crabgrass," about 2 feet tall), between the cattails and drier vegetation. It struck me that I had seen a Short-billed Marsh Wren at the same spot a previous Fall — of course another sedge dweller, which breeds at the same site as does Henslow's Sparrow at O.L. Kipp State Park. From the facial markings, the brown wings, and the streaks on the breast I believe that this was an adult Henslow's Sparrow, a rare and local bird, and here near the end of its range. **Stephen Greenfield, 3602 Bloomington Ave. S., Minneapolis, MN 55407**

Editor's Note: Mr. Greenfield asked me to help him with interpretation of the above observation. In checking the readily available literature such as field guides, Bents "Life Histories" and a number of other sources it is very difficult to find a description of a fall Henslow's Sparrow. However the complete description given above leaves little doubt in my mind that the sparrow was a Henslow's. Birders certainly are in need of a good source for fall plumage descriptions!

BALD EAGLE - OSPREY STATUS REPORT, 1978 — This report summarizes the 1978 Bald Eagle and Osprey nesting surveys and other pertinent data relative to populations within the Chippewa National Forest. Nesting surveys were accomplished with an airplane, and consisted of two separate flights. The eagle nests were observed on April 12 and 13 to determine nest occupancy, and again on July 10 to determine nesting success. Osprey nests were checked on May 24, July 21 and August 1.

BALD EAGLE

New Nests and Nest Losses — Nine eagle nests had blown down since last year, and 15 new nests were either constructed or located. Most of these were considered alternate nests sites in previously located territories. Three were new territories. This brought the total number of nest sites on the Chippewa to 200. Twelve of these are considered to be "remnant" nests, not being maintained by eagles in recent years. The number of breeding pairs known to nest on the Chippewa is 107.

Nesting Success — All of the known eagle territories were observed to determine occupancy and number of young. Seventy-five percent of the territories contained incubating adults at the time of the April survey. Anoher eleven of the territories had adults present, but not incubating at known nest sites. Thus, the total number of breeding pairs observed on their territories was 91, or 85 percent of the total. Seventy percent of the territories containing incubating birds were successful in raising at least one young. There were 92 young in the nests at the time of the July flight (1:15 per active nest). There were 31 sub-adult eagles observed during the April flights.

Research and Studies — Forty-two eaglets were banded this year, bringing the total number banded to 373. Sixteen nestlings were color-marked by various means in connection with the Bald Eagle Research Project. Two specimens (nestlings) were found dead and submitted for autopsy and pesticide evaluation. Seven addled eggs were also recovered and submitted. Two graduate students completed field work on Bald Eagle research projects, and have manuscripts in preparation.

TABLE 1
COMPARISON OF BALD EAGLE NESTING DATA, 1963 - 1978

Year	Known Nests	Observed Nests	Active Nests No.	Active Nests %	Successful Nests No.	Successful Nests %	Average Brood Size at Fledgling	Young/ Active Nest
1963	48	31	20	64	6	30	1.7	0.50
1964	55	46	30	65	12	40	1.2	0.50
1965	76	58	39	67	22	56	1.3	0.74
1966	107	70	52	74	19	61	1.5	0.90
1967	135	67	49	73	21	55	1.4	0.79
1968	142	105	52	49	33	63	1.5	0.96
1969	139	117	60	51	29	48	1.5	0.73
1970	141(106)	125(93)	65	52(70)	35	54	1.8	0.95
1971	143(107)	130(99)	65	50(66)	40	61	1.5	0.94
1972	142(110)	137(107)	73	54(68)	40	55	1.6	0.96
1973	147(109)	141(108)	70	50(65)	42	60	1.8	1.02
1974	156(107)	149(106)	68	46(64)	40	59	1.3	0.79
1975	163(94)	159(94)	70	43(74)	47	67	1.7	1.11
1976	176(94)	176(94)	67	38(71)	48	72	1.6	1.17
1977	194(105)	193(105)	77	40(73)	57	74	1.5	1.12
1978	200(107)	200(107)	80	40(75)	56	70	1.6	1.15

Numbers in ( ) are territories

OSPREY

The inventory of Osprey nests on the Chippewa National Forest con-

tinues to be a problem because of frequent blow downs and relocation of nesting sites. There are approximately 214 known nest sites, with many more unaccounted for. A sample of 96 nests was used to assess reproduction success in 1978. The flight on May 24 showed 78 percent of the nests were occupied. Only twenty-four percent of the occupied nests were successful.

TABLE 2
RESULTS OF OSPREY SURVEY, 1968 - 1978

Year	Known Nests	Observed Nests	Active Nests No.	Active Nests %	Successful Nests No.	Successful Nests %	Number of Young	Average Brood Size	Young/ Active Nest
1968	73	56	40	71	13	32	19	1.5	0.47
1969	89	69	49	17	23	47	50	1.7	1.02
1970	99	71	52	77	28	54	48	1.7	0.92
1971	90	74	49	66	22	45	39	1.8	0.80
1972	104	80	59	73	34	57	60	1.7	0.88
1973	124	92	72	78	—	—	—	—	—
1974	139	83	67	80	35	52	59	1.7	1.13
1975	131	72	56	77	29	52	46	1.6	0.82
1976	138	58	50	86	24	48	43	1.8	0.86
1977	146	109	87	80	37	42	66	1.8	0.75
1978	214	96	78	81	19	24	30	1.8	0.38

John E. Mathisen, Chippewa National Forest, Cass Lake, MN 56633.

BALD EAGLE - OSPREY REPORT, 1978 — Bald Eagle - Bald Eagles continued to maintain a strong population in 1978 on the Superior National Forest. Thirty-eight young eagles fledged, which is an above average number of young. We are concerned, though, with the low number of young produced where adult eagles are present. Eight such territories did not successfully raise young. This, however, is about the same level of activity as in previous years. The ratio of young per occupied territories is 1.12 in 1978. A figure of 1.2 or greater is accepted as a growing population. This was the first year that juvenile, non-breeding eagles were seen occupying a territory. Research has documented the congregating of young eagles at certain lakes during their first two years. Previously, we have not seen juvenile eagles return to the Forest. The majority of eagle activity continues to be north and northwest of Ely. Only five of he 34 occupied territories are east or south of Ely. Of the 14 territories outside the Boundary Waters Canoe Area, six were active this year, producing six young. Systematic flights are made each year in an attempt to locate new eagle territories. We believe we may have from 50 to 70 percent of the eagle nests on the Forest located. The vast myriad of lakes and forests in the one million acre Wilderness Area makes it difficult to locate new territories.

Osprey — Osprey activity was similar to the activity in 1977. Of the 21 active territories. 16 were successful in producing young. The percentage of successful nests, 76 percent, was the same for the eagles. Also similar, is the low number of young per active territory, or 1.0 for 1978. Five territories where adult Osprey were incubating in spring did not produce young. Hopefully, the downward trend in all data categories for Osprey since 1976 will not continue. Osprey activity, unlike the Bald Eagle, is distributed

through the center of the Forest and north. Nesting activity and the successful fledging of young is similar inside and out of the Boundary Waters Canoe Area.

Great Blue Heron Rookeries — Aerial checks are also made on the heron rookeries in May and June. This year, 17 rookeries were active. These rookeries are distributed throughout the Forest and occupy a variety of dead and live trees, as well as island and mainland sites. Most mainland sites are in beaver ponds. Most of the rookeries are composed of 10 to 20 active nests, although one large rookery of 100+ birds is present. A detailed report of Great Blue Heron activity on the Forest is being prepared.

BALD EAGLE SURVEY

Year	Observed Territories	Active Territories	Successful Territories	Per Cent Successful	Number of Young	Young Active Territories	Average Brood Size
1973	48	31	18	58%	23	0.7	1.3
1974	43	28	14	50%	18	0.6	1.3
1975	55	32	23	72%	35	1.1	1.5
1976	52	32	26	81%	29	0.9	1.1
1977	52	39	29	74%	43	1.1	1.5
1978	50	34	26	76%	38	1.1	1.5
			OSPREY SURVEY				
1973	29	15	06	40%	09	0.6	1.5
1974	36	24	12	50%	22	0.9	1.8
1975	34	25	10	40%	13	0.5	1.3
1976	34	21	21	100%	32	1.5	1.5
1977	36	23	18	78%	24	1.0	1.3
1978	32	21	16	76%	20	1.0	1.3

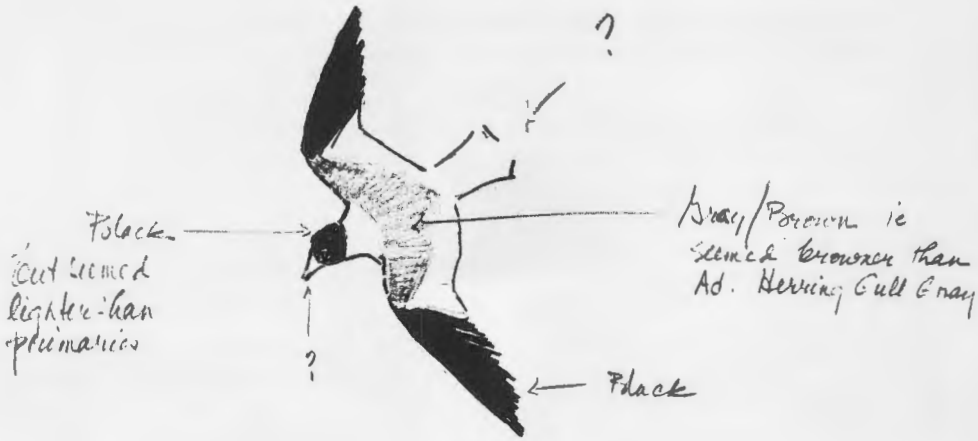
Karl Siderits, Superior National Forest, P.O. Box 338, Duluth, MN 55801.

LEAST TERN, SHAM LAKE, LYON COUNTY — August 10, 1978. Time: 12:00 noon; Temperature: 85 to 90 degrees; Wind: SW 8-12 mph; Sky conditions: good viewing conditions with blue sky and no clouds. The bird was seen at NW corner of lake from Highway 23 (new) which is in the process of being built and goes right along the shore at this spot. The tern was seen flying from 5 to 20 yards from shore. I first saw it flying toward me from the north. It was amazingly small. It was in adult spring plumage, yellow bill with dark tip, black cap with white forehead, rest of plumage was white and grays. The tail was forked. It appeared to be starting to molt since a couple of primary feathers and tail feathers were missing. There were four Black Terns in the area, one full spring plumage adult and three either juvenile or adults already partly changed or fully changed into fall plumage. The Least Tern was only about 2/3 the size of the Black Terns. Its wings were narrower and did not appear to be as long. The overall length appeared noticeably smaller and the body build was even more pronounced in its being smaller in the Least Tern. It flew back and forth in front of me three times and then down the shore to the south. I returned home to get the call on the hot line. I returned an hour later and could not find the bird. **Paul Egeland, 12 East 67th Street, Richfield, MN 55423.**

AMERICAN WOODCOCK BREEDING IN RICE COUNTY — On May 24, 1978, three American Woodcock were found dead, including one adult and two young, and brought to me for verification by Greg Carlson of Faribault. As the feathers were still intact, identification was easy to make. The condition of the birds indicated that these were young birds of this year. Mr. Carlson found these birds near a wooded stream at Falls Creek Park, Rice County Park System, located about two miles east of Faribault on State Highway #60. This is the second known breeding record of the American Woodcock for Rice County. The other is recorded in MINNESOTA BIRDS by Green and Janssen. **Orwin A. Rustad, 1134 E. Division St., Faribault, MN 55021.**

TOWNSEND'S SOLITAIRE AT DULUTH — On February 20, 1978 my wife, Linda, and I observed a Townsend's Solitaire at Lester Park, Duluth. The bird was sighted at approximately 10:45 A.M. near the Lester Park picnic area. We observed the solitaire for 25 to 35 minutes as it perched along the ravine created by the Lester River. When we first sighted the bird, which was about 40 yards away, we first thought that it was a Mockingbird. Upon glassing the bird I immediately noticed the buffy (orangish) wing patches and the white eye ring, these characteristics along with the birds general shape made it clear that I was not looking at a Mockingbird. I then suggested we check Robbin's and Zim ("A Field Guide to Birds of North America") for a Townsend's Solitaire (the only solitaires I had seen up to this time were study skins in my ornithology class in college). Before checking for the correct page in Robbin's and Zim my wife looked at the bird with her 8 x 40 binoculars while I set up our 15x to 60x spotting scope. I zoomed the spotting scope up and made a sketch of the bird. By this time Linda had found Townsend's Solitaire in the book and I described the bird, from my sketch, to her. Linda said that my description fit the Townsend's Solitaire in the book. I then checked the picture and was sure we were looking at a Townsend's Solitaire. Linda then looked through the scope and agreed that it was definitely a Townsend's. Subsequent checks of Peterson's, "A Field Guide to Birds of North America" and the Audubon Societies, "Field Guide to Birds of North America" confirmed our identification. Photographs were taken with an 800 mm lens but because of the distance the photos were of little value. **Jimmy and Linda Pichner, 1468 Simpson St., St. Paul, MN 55108.**

A SABINE'S GULL AT DULUTH — On September 12, 1978 I saw a Sabine's Gull on Park Point, Duluth. The bird was seen at mid-day under rather poor light conditions for two minutes at distances of 300 feet to 1,000 feet with 8 x 36 binoculars. I saw the bird once, it disappeared, I looked in Robbins and Zim Field Guide, and then the bird appeared further away. A description of the bird as it appeared follows: wings from wrist out black, back and wing from wrist in buffy-gray, head black. Small tern-like in shape compared to other gulls flying in vicinity. By the time I knew from the guide that I should know what the tail looked like it was too far away and against a bright gray overcast. I later sketched what I had seen.



Bird was seen flying only, in a. 35 mph. wind
Underside All White –

Molly Kohlbry, 2928 Greysolon Road, Duluth, MN 55812.

A RED-NECKED GREBE CENSUS ON LAKE EDWARD IN CROW WING COUNTY — On July 3 and 5, 1978, I conducted a waterfowl census on Lake Edward in Crow Wing County, Minnesota (Township 135 North, Ranges 27 and 28 West). This lake covers approximately 2,844 acres and has a hardstem bulrush (**Scirpus acutus**) edge in certain locations. The census was repeated five times by using three groups of observers on July 3 and two groups of observers on July 5. Youth Conservation Corps (YCC) personnel used canoes to observe waterfowl along the edge of the lake vegetation and the Area Wildlife Office personnel used a boat and motor. All species of waterfowl were tallied, but due to the bulrush edge it was not possible to observe any species with consistency except for the Red-necked Grebe (**Podiceps grisegena**). The following counts were made on Red-necked Grebes:

July 3, 1978	**Adults**	**Young**	**Total**
Group A	62	26	88
Group B	61	32	93
Group C	58	38	96
July 5, 1978			
Group D	75	35	110
Group E	72	31	103

The highest numbers of birds counted were 75 adults and 38 young-of-the-year. Analysis of the sightings showed 21 grebes (10 pairs) with no young, 31 grebes (15 pairs) with 1 young per pair, 21 grebes (10 pairs) with two per pair, and 2 grebes (1 pair) with three young. The net productivity

was 1.1 young per pair. On July 3, the lake was heavily used by fishermen and boaters, and the grebes remained in or near the bulrushes. On July 5, there was little human disturbance and the grebes ranged far out into the lake and could be seen almost anywhere. The concentration of Red-necked Grebes nesting at Lake Edward appears to be the largest concentration of this species known anywhere in Minnesota. The counts made on other species during this census were Mallard (9, 2, 13, 5, 5), Blue-winged Teal (4, 3, 0, 0, 5), Great Blue Heron (6, 6, 4, 10, 5), Common Loon (7, 5, 2, 7; 7), Green Heron (1, 5, 0, 2, 3), Bufflehead (0, 0, 0, 0, 3). Special appreciation is extended to the personnel and supervisors of the Youth Conservation Corps program for assisting with this nongame wildlife survey. **Dennis Hanson, Area Wildlife Manager, P.O. Box 648, Brainerd, MN 56401.**

Editors Note: The occurrence of 3 Buffleheads on July 5 on Lake Edward is a most interesting record.

THE M.O.U. "300 CLUB"

We now have 26 members in the "300 Club" with the addition of Dick and Gloria Wachtler and Violet Lender to the list. Just about everyone in the Club increased their totals with the Rufous Hummingbird. Here are the totals as of January 1, 1979.

Ray Glassel	342	Karol Gresser	319
Bob Janssen	341	Bill Litkey	317
Harding Huber	339	Evelyn Stanley	314
Bill Pieper	337	Jerry Gresser	312
Kim Eckert	335	Gary Otnes	311
Ron Huber	335	Wally Jiracek	308
Paul Egeland	332	Henry Kyllingstad	304
Terry Savaloja	331	Doug Campbell	302
Liz Campbell	329	Ruth Andberg	302
Jan Green	328	Betty Campbell	300
Dick Ruhme	327	Gloria Wachtler	300
Don Bolduc	321	Dick Wachtler	300
Jo Blanich	320	Violet Lender	300

Feathers in the Fog

I would like to relate two experiences of the past summer while on board my sailboat in Lake Superior. The first of these occurred on the weekend of June 17-18 while sailing from Knife River, MN to Port Wing, WI and back. Weather on the lake was generally clear and quiet, with sufficient breeze to keep us moving steadily. Soon after leaving Knife River we began to notice parts of bird plumage, especially wing feathers, at frequent intervals floating in the lake. My wife and I were amazed at the number of birds represented by these parts. Twenty-three were observed in a recorded one-mile stretch of water near Port Wing. They seemed to be

evenly distributed on the surface where we crossed (21 miles) and must therefore have represented a great total number of birds lost. All were small birds and most were probably warblers because of the amounts of color (yellow, orange, green) in the feathers.

A likely explanation is that the birds flew, fell, or were blown into the lake during a period of high winds and dense fog two and a half weeks earlier. This would correspond to a time of heavy migration and explain the absence of more degradable body parts.

The second event occured while trolling (by compass) off Knife River in dense fog on September 10. Soon after losing sight of land, about 50 yards from shore, we began to encounter warblers that showed obvious signs of wanting to rest on the boat. Some even attempted to sit on fishing lines before coming to the boat. Many did not overcome their fear and continued on, but several landed on board. Some of these hunted for insects on the boat and foraged from it for short distances, while others slept, appearing very tired. At one point there were about ten birds on the boat; species observed included Palm Warblers (most abundant), redstarts, one Tennessee Warbler, Yellow-rumped Warblers, and Yellow Warblers.

Some individuals, probably very hungry. became quite used to us and were coaxed to eat insects (flies swatted gently in the cabin) from our hands. One brightly colored magnolia warbler began to anticipate food when someone came up from below and landed on our arm, shoulder and even hat. Never before has a wild bird approached my camera too close to be in focus! As per Noah we made periodic trips to within sight of land to unload our passengers. A very enjoyable afternoon, even though we didn't get a fish. Unfortunately, many birds may also have been lost on this day.

John Eaton

Reprinted from "The Gull, October 1978, Duluth Audubon Society.

BOOK REVIEWS

The World of Roger Tory Peterson, an Authorized Biography by John C. Devlin and Grace Naismith was released in November of 1977 by Quadrangle, The New York Times Book Company. The foreword is by Elliot Richardson, who acknowledges Peterson as teacher of his eye, ear, and hand, and as the naturalist who has done most to enlarge public awareness of the natural world.

Whether or not Peterson really has done the most to enlarge public awareness is not the subject of this book. **The World** is an anecdotal account of his life. The anecdotes create a sense of intimacy with the subject. Sometimes the reportorial style of the authors — short sentences, one sentence paragraphs — works against any such warmth and intimacy.

One wishes for a theme to pull the anecdotes together. Perhaps several themes could do so: Roger was a mischievous boy "saved" from a renegade life by art and his passion for wildlife; a strict Lutheran upbringing provided Peterson with a tolerance for discipline which greatly contributed to his artistic success; Roger's passion for art and widllife sometimes make him difficult to live with. These themes suggest themselves, but are not emphasized.

This is an enlightening book for bird watchers. Getting to know something about the life of RTP is also an introduction to the history of ornithology in the twentieth century. Peterson's birdwatching friends during

his youth included Allan D. Cruickshank and Joseph J. Hickey, both of whom became prominent ornithologists. Peterson, at an AOU meeting at the American Museum of Natural History in New York City in 1925 was overwhelmed by authorities including Ludlow Griscom, Fancis Lee Jaques, Arthur A. Allen, Frank M. Chapman, Edward Howe Forbush, and Louis Agassiz Fuertes. Today, Peterson's name must be listed among those authorities in ornithology of the twentieth century.

Like Yan in Ernest Thompson Seton's **Two Little Savages,** Peterson was Swedish, was a "loner," and was the son of a father who had little interest in birds. Seton's book influenced Peterson's **A Field Guide to the Birds.** He put "labels" or "tags" on all birds in the manner Yan had suggested for ducks. Peterson acknowledges this influence in the introduction to his first field guide, **A Field Guide to the Birds.**

As a young man, Peterson saved enough money to go to New York City to study art full time. An alternative would have been to study ornithology at Cornell University. In 1973, Peterson reflected on his decision not to get a formal education in ornithology: ". . . had I gone to Cornell, I probably would have become more traditional. I think my ornithology would have been better for the simple reason that some of my blind spots wouldn't exist. There are things I simply don't have because of this lack of biological training at an institution like Cornell. A lot of that I might have picked up. I am what you might call a homemade ornithologist."

Going to New York City to study art was a turning point in Peterson's life, and for the discipline of field recognition. Peterson himself says, "My primary contribution — field recognition — could not have been made had I followed the traditional path as a biologist. Because of my art background I approached things visually rather than phylogenetically, hence the Peterson field guide system was born."

Peterson attended the Art Students League where he came under the influence of John Sloan, a painter of the Ashcan school. He left the League, and Sloan, to enroll in the National Academy of Design, modeled after the Royal Academy of the Arts in London. The National Academy helped produce such painters as Audubon, Winslow Homer, Frederic Remington, Howard Pyle, and Norman Rockwell. Peterson did not learn how to paint birds at the National Academy, but he did learn that form of realism which has come at full force to influence his most recent bird paintings, his studio art, which he refers to the simple illustrations of birds in his field guide.

Chapter Eighteen, "Wildlife Painting — and Painters," presents several sides to the discussion of bird painting as art versus bird painting as illustration. John Henry Dick prefers Roger's illustrations and drawings to his later, "artier" studio portraits of birds. The fifteen color plates included in **The World** are artistic or studio art, and will surprise those who are familiar only with his field guide illustrations. The Great Horned Owl is so natty and neat, he could never tear flesh with talons. The Wood Thrush posed neatly beneath a clump of blue violets is a porcelain rose for a woodland bouquet. Finally, the bookjacket, featuring six bird portraits, an orchid, and a butterfly clustered about a head photo of Peterson is too pretty for good taste. To me, Peterson's later aristic realism is sentimental, in the derogatory sense of the word, and the bookjacket, designed by Peterson, detracts from Peterson's dignity and skills as ornithologist and artist.

This review has outlined the historical and artistic significance of Peterson's life. Other chapters deal with the "War Years" (his contributions to airplane identification), his years with the Audubon society, his world travels, his friendship with James Fisher, and his three marriages.

Peterson was a great innovator. His **A Field Guide to the Birds** was revolutionary, and a model for subsequent field guides. His art is excellent, and his contributions to conservation are noteworthy. However, I doubt if he will have a Pulitzer Prize winning poem written about him, such as Robert Penn Warren published in 1969 — **Audubon, a Vision.**

Fred Lesher

The Coot and the Moorhen by Jon Fjeldsa was copyright in 1975, and the English edition translated by Ian Cocker was published in 1977. It is one of five biological monographs by "av-media as," Copenhagen, Denmark. Each of the monographs includes slides, tapes, students' book, work sheets, and teacher's notes. One of the other monographs is titled **Grebes.**

As the foreword indicates, the book concentrates more on the coot than on the moorhen. The scientific names of the species are not used, though the brief literature cited refers to a study by the author of **Fulica atra.** Though the studies were made in Europe, the generalizations about behavior and life cycle are presumably valid throughout the New World.

The book, a paperback six inches by eight inches and 56 pages, was evidently written for young students. Sentences are short. each conveying one idea or fact. This style is sometimes monotonous. The ecologic and anatomic adaptations of each species is discussed, then pair formation, territorial defense, nest building, breeding, brooding, and feeding by the coot is explained in considerable detail. The book includes a brief glossary, mostly of behavioral terms, a bibliography of two works, and an index. The successive stages in the breeding season of the coot are well illustrated by black and white drawings and photographs.

Fred Lesher

North American Ducks, Geese & Swans, by Donald S. Heintzelman, Winchester Press, 205 East 42nd Street, New York, NY 10017. Copyright 1978. Price $15.00.

In recent years there has been a plethora of books on waterfowl. In addition to Heintzelman's, the most recent, there have been the rewritten **Ducks, Geese and Swans of North America** by F. C. Belrose, and **Waterfowl of North America** by Paul A. Johnsgard. I have not seen the Belrose book. Of the other two, I prefer the Johnsgard book, because it contains more specific data and less superfluous information. Heintzelman's book contains information about how to select binoculars and where to watch waterfowl (on ponds, lakes, reservoirs, rivers and marshes!), which a person should be able to learn free from friends or area birdwatchers or figure out by common sense.

Neither the photographs nor the text in the section on "Waterfowl Identification" offer anything that isn't in the various field guides. The photograph of the female Greater Scaup resembles dozens of female Lesser Scaup I have observed this fall. The cement wall of the San Diego Zoo detracts from the usefulness of the photo of male and female Harlequin Ducks in identifying the species in a natural or wild setting. Most photos are black and white.

The "species problem" is discussed in two paragraphs, and chapter three "Eclipse Plumage and Hybrids," is one page in length. The flyway maps included in the chapter on migration are those published some time ago by the Department of the Interior.

Chapter 7 is the most useful chapter in the book. In it are names and addresses of national wildlife refuges in 45 states. State refuges are not included. Maps and photos of selected refuges are also useful.

This book would be most useful to a casual birdwatcher or duck hunter, but it is not a basic book for an ornithological library.

Fred Lesher

How to Make Working Decoys by George R. Starr, Jr., M.D., Winchester Press, 205 E. 42nd St., New York. NY 10017, 1978. $15.00.

Finding a truly comprehensive book is nowadays a rare item, but George Starr has accomplished this feat with flying colors. I really enjoyed his detailed search and knowledge on the subject of the **art** of creating decoys. Whether you are a hunter, collector, or wood carver, this book is a must.

His many photographs, illustrations, and comprehensive step-by-step instructions add a feature that has long been overlooked by other such books. Be you a beginner or a professional, the techniques, material, and painting style are all here. It is truly a book I would highly recommend.

John A. Jarosz

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SYMPOSIUM ON AVIAN ECOLOGY

AND HABITAT MANAGEMENT IN MINNESOTA

Dates: March 9 to March 11, 1979

Sponsored by: Regional Environment Education Council,
Bemidji State University

Location: Bald Eagle Center, Bemidji, Minnesota

Description:

A symposium designed to acquaint educators and others interested in avian ecology and habitat management with recent research findings concerning Minnesota birds and their habitats. Emphasis will be on non-game bird species, though game birds will also be discussed. Sessions will include presentations on colonial and wading birds, endangered species, bird populations of various ecosystems, predator-prey relationships, habitat transitions and changing land use patterns and their affects on birds, forest management. agricultural practices, care of orphaned and injured birds, accidental trapping of raptors, implications of environmental contamination, and other related facets of avian ecology. Purpose of the symposium is to educate those who are in a position to relay information to the public or use the knowledge themselves.

Staff:

Adela S. Elwell, Ph.D.
Patrick Redig, DVM
Carrol Henderson, DNR
James Mattsson, USFWS
John Mathisen, USFS
Al Grewe, Ph.D.
James Kitts, Ph.D.

Costs:

Meals $11.25 (5 meals plus refreshments)
Lodging $5.00 (2 nights)
Linens (if desired) $.50
$16.75 TOTAL meals and Lodging
Credit $23.00 graduate or $10.65 undergraduate or audit on registration.

For Information:

Area Services
Bemidji State University
Bemidji, MN 56601

PURPOSE OF THE MOU

The Minnesota Ornithologists Union is an organization of both professionals and amateurs interested in birds. We foster the study of birds, we aim to create and increase public interest in birds and promote the preservation of birdlife and its natural habitat.

We carry out these aims through the publishing of a magazine, **The Loon;** sponsoring and encouraging the preservation of natural areas; conducting field trips; and holding seminars where research reports, unusual observations and conservation discussions are presented. We are supported by dues from individual members and affiliated clubs and by special gifts. The MOU officers wish to point out to those interested in bird conservation that any or all phases of the MOU program could be expanded significantly with gifts, memorials or bequests willed to the organization.

SUGGESTIONS TO AUTHORS

The editors of **The Loon** invite you to submit articles, shorter "Notes of Interest" and black/white photos. Photos should be preferably 5x7 in size. Manuscripts should be typewritten, double-spaced and on one side of the sheet with generous margins. Notes of interest should be generally less than two typewritten pages double-spaced. If reprints are desired the author should so specify indicating number required. A price quotation on reprints will be sent upon receipt of information.

Club information and announcements of general interest should be sent to the Newsletter editor. See inside front cover. Bird-sighting reports for "The Season" should be sent promptly at the end of February, May, July and November to Robert Janssen. See inside front cover.

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Drawings by Dana Gardner