

ONTARIO Bird Banding

VOL. 3, NO. 1

MARCH, 1967



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The aims of the Ontario Bird Banding Association are the study of birds with emphasis on banding and other marking techniques, the promotion of ornithological investigations, the publication of scientific and educational papers pertaining to ornithology, and cooperation with organizations with similar objectives. Particular emphasis is placed on studies within the Province of Ontario. Focal points for field activities are the Long Point and Point Pelee Bird Observatories.

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Published quarterly by The Ontario Bird Banding Association

Vol. 3, No. 1

March, 1967

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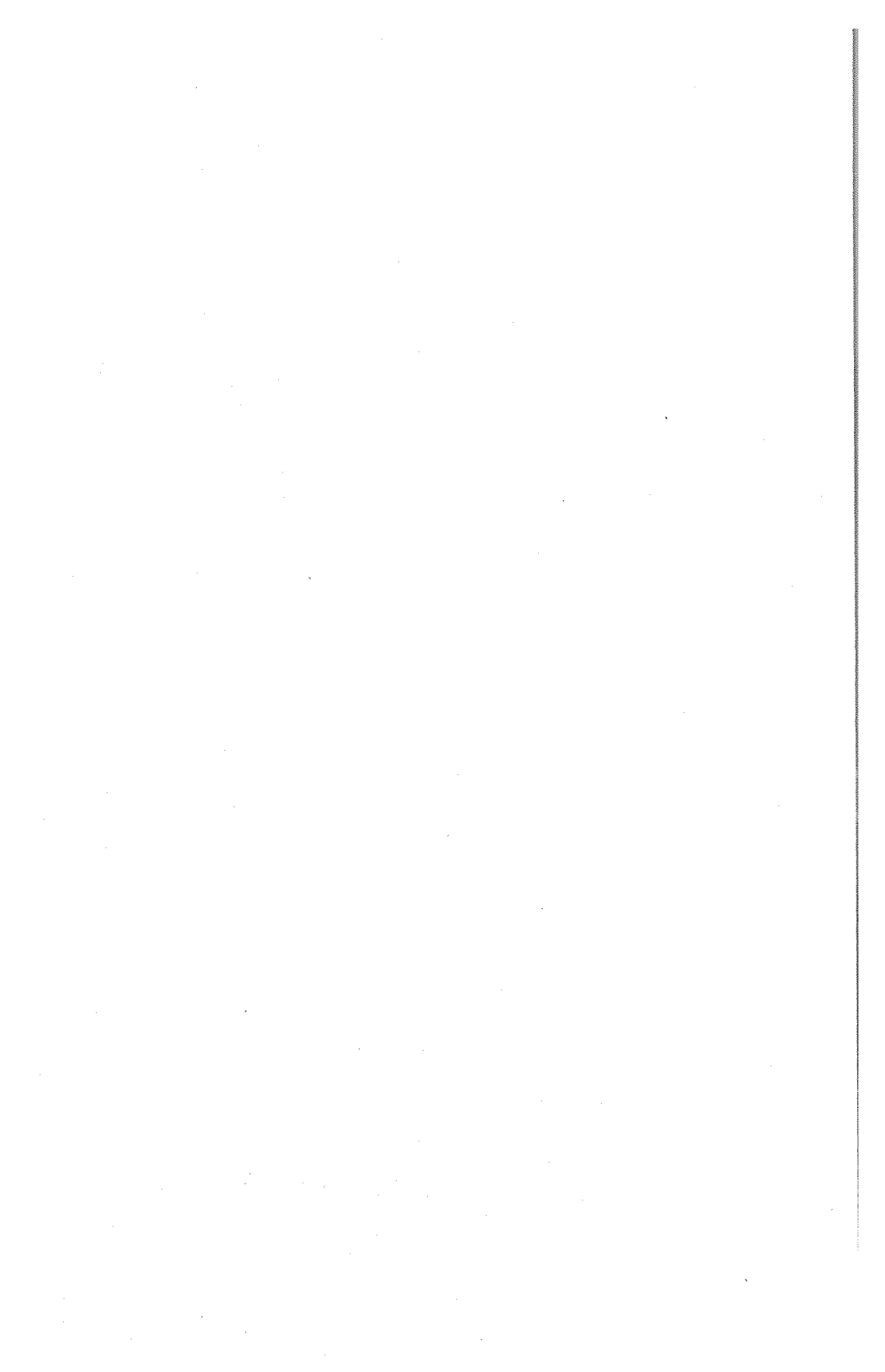
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Donated in memory of
John O.L. Roberts





A PRELIMINARY BALD EAGLE RESEARCH REPORT

by Jim Grier

INTRODUCTION

During recent years, a need has arisen for information concerning the ecology of the Bald Eagle (Haliaeetus leucocephalus). Broley (1958), Sprunt (1961, 1963), and others have noted an apparent, but poorly understood, decline in this species. Aside from concern for the preservation of this species, there is room for investigation from a purely biological standpoint. I began ecological and behavioral research on Bald Eagles in 1959 in western Ontario, an area which appears to contain many nesting eagles. The only other work in this part of Canada has been by Dan Mansell (1965). The purpose of this report is to bring the project to the attention of persons with similar interests and projects.

STUDY AREA

The study area is located in the western part of Ontario, an area of boreal forest with many rivers and lakes (Figure 1). Most of the lakes have many islands and very irregular shorelines. There has been essentially no human disturbance of the habitat, and most of the region is roadless.

The area of approximately 30,000 square miles encompassed by this investigation is bounded on the south by Whitefish Bay of Lake of the Woods (about 30 miles south of Highway 17--"Trans-Canada"), on the east by Slate Lake (about 60 miles east of the town of Red Lake), on the west by Crowduck Lake (about four miles from the Manitoba Border), and on the north by North Spirit Lake (about 110 miles north of Red Lake). Within this area, an estimated 500 square miles were censused for nesting eagles.

DESCRIPTION OF THE RESEARCH

From 1959 to 1965, I gathered miscellaneous data on Bald Eagles. During the summer (June-August) of 1965, one nest was observed and photographed from a blind which had been placed in a tree; the blind was 35 feet from the nest and 70 feet

MAP OF STUDY AREA

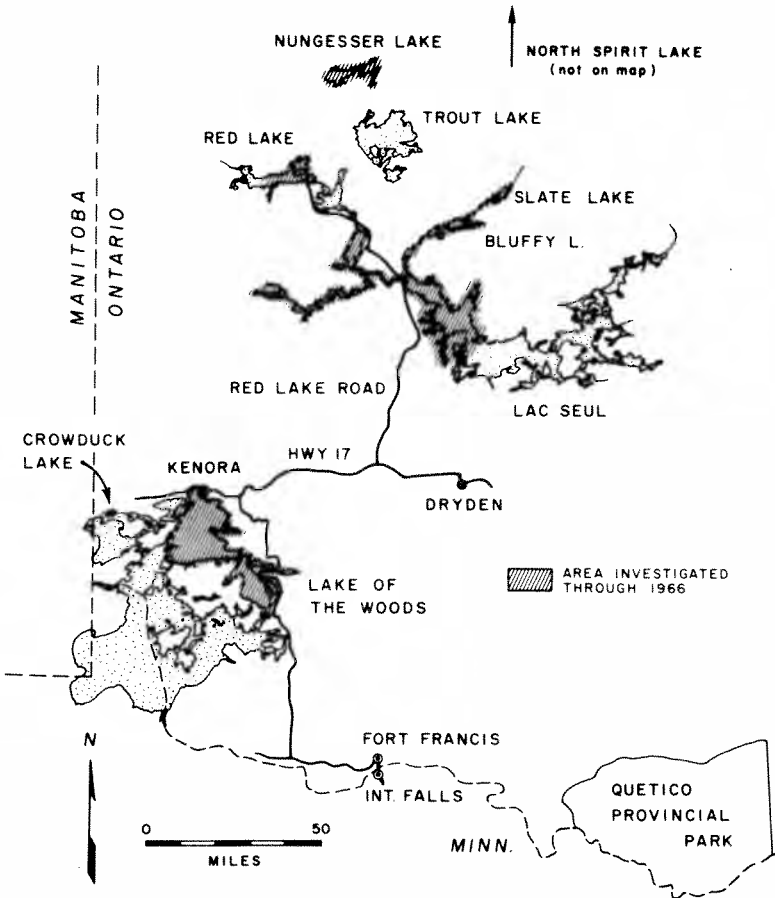


Figure 1. A map of the study area in western Ontario showing the areas investigated through 1966.

from the ground. The first part of the summer of 1966 (to 15 July) was spent travelling to nests and banding young eagles. During the latter part of the summer of 1966, I observed a nestling eagle which was kept on an artificial nest at our camp. This eaglet was found injured beneath its blown-down

nest, but appeared to recover within two weeks.

TECHNIQUES

I observed and photographed nests from the blind mentioned above, at nests while banding young, and from offshore from boats and neighboring islands. For climbing, I generally used a 16 foot ladder followed by a single row of eight inch nails driven into the least conspicuous side of the tree. I believe that nails left in place cause less damage to a live nest-tree than repeated climbing with spurs. Use of the ladder and inconspicuous placement of nails are intended to discourage any other person who may find the nest. I used butt-end bands prior to 1966 and lock-on bands, which are less easily removed by birds of prey, during 1966. Part of my research involves attempts to assess the influence of the techniques on the eagle's behavior and nesting success.

As none of the nests was accessible by land, travel was by water or air. Most of the travel was by canoe, the remainder being by motor boat or pontoon equipped aircraft. I avoided flying close to nests to preclude possible disturbance.

NUMBER OF NESTS AND EAGLES

During the years 1959-1965, I observed two nests. During 1966, 46 nests were censused; eighteen contained no young (included supernumerary nests, i.e., additional nests built by one pair of birds). The remaining 28 nests contained a total of 46 eaglets or about 1.7 young per nest. Three of the nests each contained three young. I have knowledge of approximately 105 nests; this includes 46 which I observed, eight which I could not relocate, and over 50 which I did not have time to check.

Forty nestling eagles have been banded, with no recoveries received as of the date of this report.

ACKNOWLEDGEMENTS

The following agencies have been of much help: Ontario Department of Lands and Forests, Canadian Wildlife Service, United States Fish and Wildlife Service, and the National Audubon Society (U.S.). In particular, I would like to thank the following persons from the above groups: Val Macins,

Richard Persian, Barry Saunders, and the late Alan Snow from the Ontario Department of Lands and Forests; and Alexander Sprunt IV of the National Audubon Society. Information concerning nests, discussion of practical problems, and other help from many persons has been considerable and is greatly appreciated. In particular, I would like to express thanks to my wife, Joyce, who is of constant help and company in this project. As the work thus far has been financed by ourselves, additional thanks are given to my wife for tolerating the impositions resulting from a reduced budget throughout the year.

I would like to thank Fran Hamerstorm and a number of others for reading and criticizing this report in its early drafts.

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RECOVERY RATES FOR SMALL BAND SIZES USED AT THE LONG
POINT BIRD OBSERVATORY, 1960 - 1964

by D.J.T. Hussell

During the years 1960 - 1964, approximately 41,365 birds were banded with a Size 0, 1, 1B, 1A, 2, or 3 band at the Long Point Bird Observatory. By November 1966, a total of 48 reports of recoveries from these bandings had been received, representing an overall recovery rate of 0.12 per cent. Although a few additional recoveries can be expected from these bandings in future years, it may be of some interest to examine the breakdown of those obtained so far.

The number of birds banded and the recoveries for each band size are shown in Table 1. Totals of individual species banded during 1960 - 1964 can be found in the 1964 report of the Long Point Bird Observatory (Hussell, Baldwin, Martin, Montgomerie, and Woodford. Ontario Bird Banding, 2(2): 1-50, 1966). For most species, the number of recoveries is not large enough to allow accurate calculation of the species' recovery rate, but a few selected rates are given here to indicate the range of variation. Sharp-shinned Hawks (Accipiter striatus) have the highest recovery rate: four of 77 banded with Size 3 bands were recovered -- a recovery rate of 5.2 per cent. An additional 70 Sharp-shinned Hawks were banded with Size 3A or 4 bands; two of them were recovered, giving an overall recovery rate of 4.1 per cent for the species. Next, the Common Grackle (Quiscalus quiscula) with four recovered out of 233 banded (1.7 per cent) is followed by the Brown-headed Cowbird (Molothrus ater) with three out of 374 (0.80 per cent). At the other end of the scale, only two of 5963 White-throated Sparrows (Zonotrichia albicollis) have been recovered -- a recovery rate of about 0.034 per cent. There have been no recoveries at all of several species which have been banded in quite large numbers: Swainson's Thrush (Hylocichla ustulata), 1557 banded; Brown Creeper (Certhia familiaris), 1291; Ruby-crowned Kinglet (Regulus calendula), 1046; Hermit Thrush (Hylocichla guttata), 947; Least Flycatcher (Empidonax minimus), 937; and Blackpoll Warbler (Dendroica striata), 841.

Since the sample is not large enough to indicate reliably the recovery rate for each species, I have calculated the recovery rate for each band size instead (see Table 1 and Figure 1). As expected, the recovery rate increases with

TABLE 1. RECOVERIES FROM ALL SOURCES FOR EACH BAND SIZE

Band Size	Number Banded*	Recoveries		Number banded per recovery
		No.	Per cent	
0	15910	5	0.031	3182
1	4200	2	0.048	2100
1B	14235	8	0.056	1779
1A	2635	6	0.23	439
2	2420	11	0.45	220
3	1965	16	0.81	123

*For each band size, numbers are thought to be accurate to within 10 birds.

NOTE: Species recovered were as follows:

Size 0: Eastern Wood Pewee (Contopus virens) - 1; House Wren (Troglodytes aedon) - 1; Myrtle Warbler (Dendroica coronata) - 1; American Goldfinch (Spinus tristis) - 1; Slate-colored Junco (Junco hyemalis) - 1.

Size 1: Warbling Vireo (Vireo gilvus) - 1; Slate-colored Junco (Junco hyemalis) - 1.

Size 1B: Yellow-bellied Sapsucker (Sphyrapicus varius) - 1; Veery (Hylocichla fuscescens) - 1; White-crowned Sparrow (Zonotrichia leucophrys) - 1; White-throated Sparrow - 2; Song Sparrow (Melospiza melodia) - 3.

Size 1A: Purple Martin (Progne subis) - 1; Catbird (Dumetella carolinensis) - 1; Brown-headed Cowbird - 3; Rose-breasted Grosbeak (Pheucticus ludovicianus) - 1.

TABLE 1. (continued)

Size 2:	Black-billed Cuckoo (<u>Coccyzus erythrophthalmus</u>) - 1; Red-headed Woodpecker (<u>Melanerpes erythrocephalus</u>) - 1; Brown Thrasher (<u>Toxostoma rufum</u>) - 3; Robin (<u>Turdus migratorius</u>) - 1; Red-winged Blackbird (<u>Agelaius phoeniceus</u>) - 3; Rufous-sided Towhee (<u>Pipilo erythrophthalmus</u>) - 2.
Size 3:	Sharp-shinned Hawk - 4; American Woodcock (<u>Philohela minor</u>) - 1; Yellow-shafted Flicker (<u>Colaptes auratus</u>) - 1; Blue Jay (<u>Cyanocitta cristata</u>) - 6; Common Grackle - 4.

increasing band size. For the smaller band sizes, it is extremely low, being about 0.031 per cent for Size 0. This means that 3182 Size 0 bands were used for each recovery obtained. On the other hand, the recovery rate of 0.81 per cent for Size 3 bands means that there was one recovery for every 123 birds banded.

Why are the recovery rates so low and why do they differ so much between band sizes? Clearly, the recovery rates depend upon a large number of factors, including such things as the size, colour, and habits of the species banded and their distributions relative to concentrations of human population. Undoubtedly, many of the birds banded at Long Point spend much of the year in regions of sparse human population where recovery is extremely improbable.

In order to indicate the part played by banders and non-banders in reporting recoveries, recovery rates for birds reported by the general public (i.e., excluding recoveries reported as "trapped and released") are shown in Table 2 and Figure 1. It can be seen that a substantial proportion of recoveries of smaller bands result from reports by banders, whereas most of the larger bands are reported by the general public.

A factor which may influence rate of recovery of bands by the general public is the design of the band. Band Sizes 0, 1, 1B, and 1A have only a serial number stamped on the outside of the band and the notation "WRITE F. & W. SERV. WASH. U.S.A." on the inside of the band where it can be read only

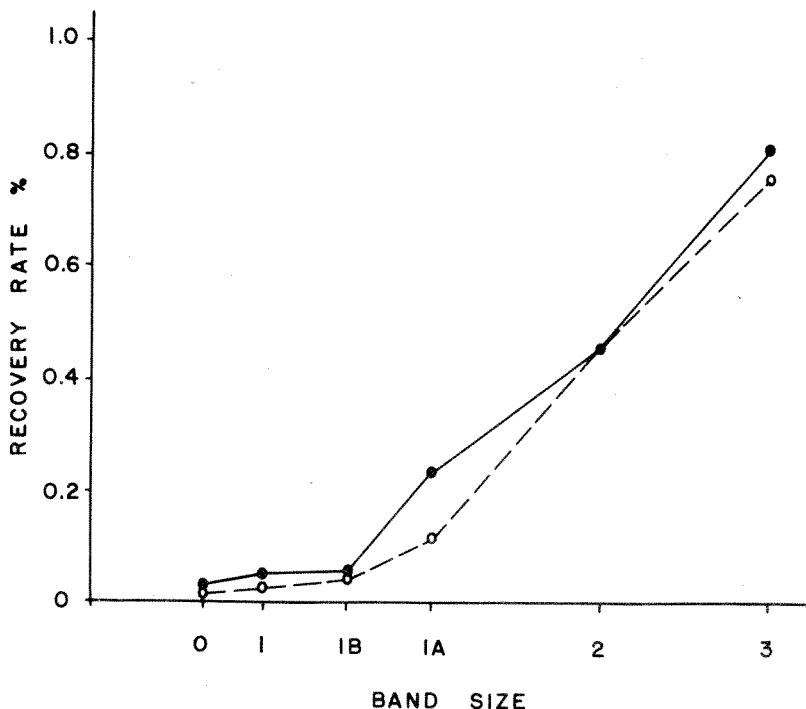


Figure 1. Recovery rates for different band sizes. Overall recovery rates are represented by solid circles joined by solid lines; recovery rates for birds reported by the general public are indicated by open circles and broken lines. Distances between band sizes on the horizontal axis are proportional to differences between the internal diameters of the bands, and thus they are a rough measure of the size differences between the birds banded. The internal diameter of a Size 0 band is 2.1 mm (0.083"); a Size 3 band is 4.8 mm (0.19").

if the band is removed from the bird and opened. The larger bands have the instructions and the address as well as the serial number stamped on the outside where they can all be read easily without removing the band from the bird's leg. If we examine the Long Point recovery data, we see that the largest increase in recovery rates from the general public

TABLE 2. RECOVERIES REPORTED BY THE GENERAL PUBLIC*

Band Size	Number Banded	Recoveries		
		No.	Percentage of Bandings	Percentage of total Recoveries**
0	15910	3	0.019	60
1	4200	1	0.024	50
1B	14235	6	0.042	75
1A	2635	3	0.11	50
2	2420	11	0.45	100
3	1965	15	0.76	94

*Recoveries reported by banders as "trapped and released" (U.S. Bird Banding Laboratory IBM code 89) are excluded.

**For each band size, the percentage of total recoveries is equal to:

$$\frac{\text{No. recovered by general public}}{\text{Total no. recovered (from Table 1)}} \times 100$$

occurs between band Sizes 1A and 2. In fact, the recovery rate for Size 2 bands is four times greater than that for Size 1A bands and eleven times greater than the average of the rates for Sizes 0, 1, 1B, and 1A. Although the Long Point sample is too small to allow any definite conclusions to be drawn, the evidence presented here tends to support the idea that the inconspicuousness of the address contributes to the extremely low recovery rates of the smaller band sizes. Of course, it must also be recognized that many other factors are probably involved in the increased recovery rates of Size 2 and larger bands.

In my opinion, the Canadian Wildlife Service and the United States Fish and Wildlife Service should examine the banding and recovery data in their files and, if necessary, conduct suitable experiments in order to determine whether the lack of a readily visible address is having a serious adverse effect on small band recovery rates. If this is found to be so, consideration should be given to the possibility of re-designing the bands in such a way as to make the address more conspicuous.

ACKNOWLEDGEMENTS

Many members of the Ontario Bird Banding Association took part in the banding at the Long Point Bird Observatory. The Long Point Company, the Department of Transport, and the Ontario Department of Lands and Forests granted permission to band birds on their land. The Long Point Bird Observatory has received financial assistance from a number of individuals and the Canadian National Sportsmen's Show, the Federation of Ontario Naturalists, the Province of Quebec Society for the Protection of Birds, the Brantford Nature Club, The Hamilton Naturalists' Club, the St. Thomas Field Naturalist Club, and the Toronto Field Naturalists' Club. Thanks are extended to all of these people and organizations.

NOTES ON THE GRAY JAY (PERISOREUS CANADENSIS)
FROM ALGONQUIN PROVINCIAL PARK, ONTARIO

by R.J. Rutter

The Gray Jay (Perisoreus canadensis) does not have an extensive literature, and its life history is very imperfectly known in spite of its circumpolar range and the fact that it is familiar to a great many people as a tame and confiding bird in its relations with man. Only the gross details of its nesting activities have been recorded, and even less is known about its food habits, although it is often spoken of as being omnivorous.

There are explanations for this lack of information, and one of the most obvious is that, in general, the species is a sedentary resident of forested areas remote from regions of permanent human occupancy. There are other reasons, too, concerned with the somewhat unorthodox habits of the birds. For example, breeding studies are impeded because Gray Jays nest early in the spring when human travel is often made difficult by melting snow and ice; suitable nest-trees are everywhere, so that a searcher is not attracted to any particular site; and the birds are casual in their nest-building, working intermittently over a period of several weeks with little noticeable change in their normal behaviour. As soon as the first egg is laid, the female begins incubation, and will not flush except under extreme disturbance; the male seldom if ever visits the vicinity of the nest between the laying of the first egg and the hatching of the first young.

In view of the general scarcity of data, it seemed desirable to publish my notes, made over a period of years during which I have been able to observe the species almost daily at all seasons.

Algonquin Provincial Park, Ontario, lies just within the southern boundary of the Gray Jay's range, and because its nearly 3,000 square miles comprise accessible but relatively undisturbed forest, it offers unusual opportunities for observation. In September, 1959, I began a modest banding program, at first only with the idea of gathering some information on the movements of Gray Jays within a limited area, for I had begun to suspect that each bird, or perhaps pair of

birds, was restricted to a fairly small territory throughout the year. All banding has been done in the neighborhood of Highway 60, which crosses the south-west corner of the park for a distance of 37 miles.

In the past seven years, I have banded 106 Gray Jays with standard United States Fish and Wildlife Service bands and have obtained records of 32 more banded by others in the same area. In the fall of 1960, I marked seven jays with plastic color-bands; I was unable to follow up that project, although one of these birds is still present, having had her color-band renewed in 1964. In that year, I color-banded another seven birds, all in the vicinity of the Park Museum, and three of these are still under observation in February, 1967.

In October and November, 1966, I color-banded 15 Gray Jays along a 20-mile stretch of highway, for by now it has become clear to me that to carry on anything approaching intensive study of these birds, color-marking is necessary because, although easily trapped the first time, it is usually difficult, and often impossible to re-trap a banded bird, even after several years. This is not an invariable rule, and a few "trap-prone" birds have been re-trapped as often as three times in one month, but, at present, there is at least a score of Gray Jays adjacent to the highway in Algonquin Park that is for practical purposes "out of circulation" simply because the birds are already wearing standard aluminum bands, the numbers of which are unknown. Other than in exceptional circumstances, such as the mass movement described by Roberts (Ontario Bird Banding, 2(4): 11-17, 1966), mist nets are quite unsatisfactory for the systematic capture of Gray Jays. I have found nothing to equal the Potter trap for that purpose, but this is a field for further experimentation. It should be added here that all color-banded birds handled by me are also banded with a standard F. & W. Service band.

In spite of the difficulty of re-trapping, I have recorded 26 returns from the 138 jays known to have been banded along the highway within the park. The greatest number of these (10) is in the 1 to 2 year class, followed by under-one-year (5), 2 to 3 years (3), 3 to 4 years (2), 4 to 5 years (2), 5 to 6 years (2), and 6 to 7 years (2). Because of the erratic trap-reaction of these birds, it would not be safe to project survival rates from recoveries, as may be done with

some easily trapped species. However, the fact that six of the 26 birds recovered had lived more than four years after banding, even though subject to the added hazard of highway traffic, which accounts for many casualties, at least suggests a fairly high survival potential for the Gray Jay. Fifteen of the 26 recoveries were at the point of banding, and all were within one mile.

If it is desirable to use color-bands to facilitate general observation, it is essential in a nesting study, as there is no way of telling the sexes apart in life. Several published accounts of observations at nests refer freely to male and female, but do not indicate how the distinction was made. It can be made with considerable reliability if one has become familiar with the behaviour of the adults in the vicinity of the nest, but if the birds are unmarked, there would always be many situations in which it would be impossible. At the first nest that I watched from the stage of nest-building to that of fledged young, the adult birds were not banded, but the value of my notes was greatly enhanced by the fact that I was also watching another nest, less favorably situated for observing, at which the birds were color-banded and the sexes were known.

In the spring of 1964, with the help of Alf Mitchener of Collingwood, Ontario, I found two nests, 15 miles apart, one on 18 March and one on 19 March. Subsequent experience indicates that this feat is not likely to be repeated often. The first nest, which will be referred to throughout this account as No. 1, was discovered by chance; the second was found partly by planned effort -- I had been feeding the pair of birds through the winter and had been stocking the feeding station with not only food but nesting material in the hope that this might be utilized. Although some of the material was used, as a later examination of the nest showed, it was by watching the female carrying off grouse feathers from a bird which had been used to bait fisher and marten near the bird feeder, that the nest was eventually discovered. This will be known as nest No. 2. Later nests, in 1965 and 1966, have shown that this method of working from an established feeding station may facilitate the finding of nests, but it will also introduce certain unnatural features which are not desirable in a nesting study.

On the week-end of 18 and 19 March, 1964, Mitchener had

come to visit me in Algonquin Park, and although we were alive to the possibility of finding Gray Jay nests at that season, we knew of no method to follow, and were, in fact, looking for a trail to Sproule Lake when the first nest was discovered. It was a clear day with the temperature at 20°F and the ground covered by 10 to 14 inches of crusted snow, firm enough to bear our weight without the aid of snowshoes.

We were traversing an extensive black spruce swamp when we encountered two Gray Jays, and soon after, we noticed one on the broken top of a dead tree pecking at a small whitish object. Their movements were so casual and undirected that we did not at once think of them as collecting nesting material, but when, instead of eating its find, one bird flew off with it to the east, followed by its mate, we suspected nest-building. A Gray Jay carrying anything conspicuously in its bill at this season should be watched closely, because, while it may fly off with a large piece of material such as bread when it is being fed by human beings, it normally carries food in the throat with the bill closed whether for storage or for feeding young. I have never seen a Gray Jay approach young in the nest with visible food.

From our position in the swamp, it was not possible to trace the flight of the birds beyond a hundred yards, and we continued on our way. About an hour later, having crossed the swamp, we returned on the higher ground on its east side. Luck was with us again, for presently the two birds appeared, flying one behind the other just above the trees, the leading bird carrying something in its bill. We saw that they were coming down not far to the east, and we ran in that direction arriving just in time to see the bird with the nesting material coast down to the nest.

The nest was located in a densely foliated black spruce (Picea mariana) about 12 feet tall. There was a slight opening in the branches facing south-west, and here the nest was placed against the trunk, its base only four feet above the surface of the snow and resting on three branches to which some of the rough twigs of the foundation were bound by fibres from insect cocoons. It was clearly visible, once attention had been directed to it, and appeared to be a completed nest. The arriving bird deposited its load in the cup, spent only a few seconds arranging it, and then both birds flew away without seeming to notice us. This attitude turned

out to be typical, and throughout the whole nesting cycle, the presence of human observers was acknowledged only a few times; this will be documented later. The nest-tree was situated on a level sand plain, thinly forested with young trees. Black spruce was perhaps most conspicuous, but there was a good intermixture of white pine (Pinus strobus) and aspen (Populus tremuloides and P. grandidentata). Ground cover consisted chiefly of sweet fern (Comptonia peregrina), sheep laurel (Kalmia angustifolia), and blueberry (Vaccinium angustifolium).

Nest No. 2, already mentioned briefly, was found the following day, 19 March, also by watching a bird carrying nesting material. This nest belonged to a pair of birds which had been regular visitors to my feeding station at the Park Museum throughout the winter. The female had been banded with a standard F. & W. Service band on 7 October 1961, and the male on 23 February 1964, but sex was not determined with certainty until 30 March 1964, when the pair was observed in copulation.

This nest was situated against the trunk and two or three feet from the top of a 15-foot balsam fir (Abies balsamea). It was on the east side of a small opening in dense coniferous growth. The tree was spindly and poorly developed, but its sparse limbs and foliage were to some extent intermixed with close-growing black spruce. The nest was clearly exposed from the west side.

Because of the slender unstable trees and the rough spongy ground below, it seemed inadvisable to attempt to reach the nest, but as it was ideally situated for observation from the ground, the birds were marked and sexed. As the two nests seemed to be at exactly the same stage of development, I decided to use this as a control while watching Nest No. 1, where I would avoid the influence of any unnatural factors such as trapping, banding, or feeding the birds.

Results obtained from watching these two nests until the young were fledged, observations on subsequent nests, and general notes on the behaviour, food, voice, and distribution of the Gray Jay in Algonquin Provincial Park will appear in a later article.

THE DUNDAS MARSH BANDING STATION, 1963 - 1966

by John B. Miles and Harold K. MacPherson

HISTORY AND BACKGROUND

The Dundas Marsh, also known as "Cootes Paradise," is an area of nearly 1,800 acres. Owned by the Royal Botanical Gardens, it is located on the north-west outskirts of the city of Hamilton, Ontario.

The area is loosely triangular in shape, bounded on the north and south by wooded hills and on the east by a narrow sedimentary formation one hundred feet high which serves to isolate it from Hamilton Bay (Figure 1). The western apex touches the town of Dundas. The marsh is fed by two major streams which enter near the western end.

Before the area was declared a game-sanctuary in 1927, the marsh had been a mecca for market-hunters in the mid-19th century and, later, for sportsmen drawn by the massive concentrations of waterfowl. The marsh has been visited by the province's ornithologists for many years, and it has long been considered one of the best all-round birding areas in Ontario.

Bird-banding was first carried out in the western end of the marsh by Les Gray in 1957; he was joined by Dr. Robert MacLaren in 1958. After Les Gray moved to Montreal in 1959, interest in banding faded, although Robert Stamp did some banding in 1960. John B. Miles started the present station in the spring of 1963.

The station was located about 100 yards west of the mouth of Spencer Creek and the Desjardins Canal in 1963, 1964, and 1965. The station is now operated by James F. Anderson and John B. Miles in the same general area as utilized previously by Gray, MacLaren, and Stamp, i.e., where Spencer Creek flows into the Desjardin Canal.

COVERAGE

Netting is carried out on weekends from the first mild days of March until the freeze-up in late November. Duck traps are operated daily from April to November.

PERSONNEL

The station is operated by two licenced banders, J.F. Anderson and J.B. Miles. One sub-permit has been issued to Harold K. MacPherson under the permit of J.B. Miles. Four to six unlicenced cooperators are usually present, and assist the licenced banders whenever possible.

TRAPPING METHODS

Mist-netting accounts for over 95 per cent of all birds banded. For the 1966 season, the netting section of the banding station was shifted about 200 yards east of the site of previous years so that it was at the east side of the mouth of Hopkins Creek.

In 1963, 1964, and 1965, usually three parallel strings each of two to three 40-foot nets (two and three-eighth inch mesh) were set across the open marsh. A second complex of 30-foot and 40-foot nets (one and one-half inch mesh) was placed between the willows growing along the banks of the old canal.

In 1966, there was a change in the netting scheme. Two parallel series of six nets each (40-foot; two and three-eighth inch mesh) were set across the open marsh. A second complex of 40-foot and 30-foot (one and one-half inch mesh) and 60-foot (one inch mesh) nets was set along the edge of the wooded flood-plain of Hopkins Creek.

Once the net-lanes are established early in the spring, they are rarely changed regardless of season or weather conditions. This provides constant uniform coverage throughout the year.

It should be pointed out that despite the large number of nets being used, only about 50 per cent of them are catching birds at any time. Nets with two and three-eighth inch mesh are effective only early in the morning and late in the evening when swallows and blackbirds are flying to or from their roost in the middle of the marsh. Rarely is a bird caught in these nets between 0800 and one hour before sundown. The fine-mesh nets catch birds during the day, but rarely catch more than 30 on any given day.

In addition to mist-netting, most of which is done by

J.B. Miles, J.F. Anderson maintains and operates two small funnel-entrance duck traps on a man-made island in a pond west of the mouth of Spencer Creek. The first trap was installed in September 1965 and used until the end of November 1965. This trap was again used in the spring of 1966, and a second trap was added in the summer of 1966. The addition of these traps accounts for the marked increase in the numbers of ducks banded in 1965 and 1966 over 1963 and 1964.

FOUR YEARS OF BANDING

Table 1 gives the detailed totals of species banded during each of the four years the station has been in operation. The grand total of birds banded during these four years is 10,819 individuals of 131 species. The species with the highest total is the Red-winged Blackbird with 3,616 individuals banded.

Coverage has been concentrated in the period of June to September each year and 75 per cent of all birds banded have been banded during the breeding season. Blackbirds and swallows with 36.57 and 23.97 per cent respectively of all the birds banded have been the prime species worked with. These birds are mainly caught as they fly into their roost in the middle of the marsh in the evenings. During the hour before sundown, it is not uncommon to catch 100 or more birds.

Many of the birds are processed entirely under flashlights. Six volt "Radar" lanterns and head lanterns as used by commercial worm-pickers are important pieces of equipment at this banding station. It is not unusual to be processing birds as late as 2300 or 2400 or all night in an exceptionally heavy hit. The banding area is extremely wet, and hip-waders are a necessity.

The Royal Botanical Gardens will not allow a building to be erected for banding or for storage of banding equipment in the banding area, and, consequently, all banding equipment must be carried in and out each weekend. Wearing hip-waders, loaded down with knapsacks, and carrying the high powered flashlights commonly used by deer poachers, indeed, it is a suspicious looking group of people who emerge from the marsh late each Sunday night.

RECOVERIES AND RETURNS

At time of writing, of 10,819 birds banded, there have

only been 43 recoveries (0.40 per cent); 16 of these have been waterfowl. The 3,616 Red-winged Blackbirds banded have accounted for only eight recoveries. While the percentage of recoveries has been low, there have been several interesting ones. A Blue-winged Teal was shot at Laguna Ariguanato, Habana, Cuba, in the spring of the year following banding. A Cedar Waxwing was picked up dead in Houston, Texas, and a Spotted Sandpiper was found dead near Brunswick, Georgia. Two Red-winged Blackbirds have been recovered in Georgia, and one has been recovered in South Carolina.

There have been 40 to 60 returns each year; these comprised mainly local nesting birds.

FUTURE PLANS AND PROJECTS

It is hoped to add one or more duck traps to the banding area in 1967 and possibly to have them manned daily by the local conservation officer under the direction of J.F. Anderson.

The station has served to stimulate an interest in banding in the local nature club and, so far, has produced one master bander and one sub-permit holder; application is pending for a second master permit. The station has also developed ten cooperators, several of whom have assisted at the Long Point Bird Observatory and are now members of the Ontario Bird Banding Association.

TABLE 1. SUMMARY OF BANDING TOTALS

Species	1963	1964	1965	1966	Total
Green Heron <u>Butorides virescens</u>				1	1
Black-crowned Night Heron <u>Nycticorax nycticorax</u>				1	1
Least Bittern <u>Ixobrychus exilis</u>	2			3	5
Mallard <u>Anus platyrhynchos</u>		2	20	66	88
Black Duck <u>Anus rubripes</u>			65	28	93
Mallard X Black Hybrid			7	1	8
Pintail <u>Anus acuta</u>			4	11	15
Green-winged Teal <u>Anus carolinensis</u>	24	17	8	1	50
Blue-winged Teal <u>Anus discors</u>	40	16	7	38	101
Shoveler <u>Spatula clypeata</u>	1				1
Wood Duck <u>Aix sponsa</u>	1		45	181	227
Ring-necked Duck <u>Aythya collaris</u>				1	1
Lesser Scaup <u>Aythya affinis</u>				1	1
Sharp-shinned Hawk <u>Accipiter striatus</u>	1				1
Virginia Rail <u>Rallus limicola</u>	3	5	2	1	11

TABLE 1. (continued)

Species	1963	1964	1965	1966	Total
Sora					
<u>Porzana carolina</u>	10	4	3	3	20
Common Gallinule					
<u>Gallinula chloropus</u>	1	1	4	25	31
American Coot					
<u>Fulica americana</u>				1	1
Semipalmated Plover					
<u>Charadrius semipalmatus</u>		1	5		6
Killdeer					
<u>Charadrius vociferus</u>	1		2		3
Woodcock					
<u>Philohela minor</u>	1			1	2
Common Snipe					
<u>Capella gallinago</u>		4	2	1	7
Spotted Sandpiper					
<u>Actitis macularia</u>	43	18	62	2	125
Solitary Sandpiper					
<u>Tringa solitaria</u>	1	4	6		11
Lesser Yellowlegs					
<u>Totanus flavipes</u>		1			1
White-rumped Sandpiper					
<u>Erolia fuscicollis</u>			1		1
Least Sandpiper					
<u>Erolia minutilla</u>	7		4		11
Dunlin					
<u>Erolia alpina</u>		4	7		11
Semipalmated Sandpiper					
<u>Ereunetes pusillus</u>		13	3		16
Herring Gull					
<u>Larus argentatus</u>			2		2

TABLE 1. (continued)

Species	1963	1964	1965	1966	Total
Black Tern <u>Chlidonias niger</u>	12		1	4	17
Mourning Dove <u>Zenaidura macroura</u>			1	15	16
Yellow-billed Cuckoo <u>Coccyzus americanus</u>	1				1
Black-billed Cuckoo <u>Coccyzus erythrophthalmus</u>		1	2	1	4
Screech Owl <u>Otus asio</u>	1				1
Long-eared Owl <u>Asio otus</u>	2	1			3
Saw-whet Owl <u>Aegolius acadicus</u>	5		3		8
Common Nighthawk <u>Chordeiles minor</u>	14	6	8	1	29
Chimney Swift <u>Chaetura pelagica</u>			3		3
Belted Kingfisher <u>Megasceryle alcyon</u>	1		2	10	13
Yellow-shafted Flicker <u>Colaptes auratus</u>	2		2	3	7
Hairy Woodpecker <u>Dendrocopos villosus</u>	3	4	3		10
Downy Woodpecker <u>Denorocopos pubescens</u>	20	14	16	11	61
Eastern Kingbird <u>Tyrannus tyrannus</u>	7	7	3	2	19
Great Crested Flycatcher <u>Myiarchus crinitus</u>	2	3		1	6

TABLE 1. (continued)

Species	1963	1964	1965	1966	Total
Eastern Phoebe <u>Sayornis phoebe</u>		1		3	4
Yellow-bellied Flycatcher <u>Empidonax flaviventris</u>		1		2	3
Traill's Flycatcher <u>Empidonax trallii</u>	43	7	12	14	76
Least Flycatcher <u>Empidonax minimus</u>	7	6	3	10	26
Unidentified <u>Empidonax</u>	1				1
Eastern Wood Pewee <u>Contopus virens</u>	2		2	4	8
Olive-sided Flycatcher <u>Nuttallornis borealis</u>			1		1
Tree Swallow <u>Iridoprocne bicolor</u>	7	4	15	2	28
Bank Swallow <u>Riparia riparia</u>	566	358	165	35	1124
Rough-winged Swallow <u>Stelgidopteryx ruficollis</u>	18	4	10	2	34
Barn Swallow <u>Hirundo rustica</u>	734	313	219	92	1358
Cliff Swallow <u>Petrochelidon pyrrhonota</u>	18	14	16	1	49
Blue Jay <u>Cyanocitta cristata</u>	5	2	1	5	13
Black-capped Chickadee <u>Parus atricapillus</u>	58	33	29	34	154
White-breasted Nuthatch <u>Sitta carolinensis</u>	2	2	8	3	15

TABLE 1. (continued)

Species	1963	1964	1965	1966	Total
Brown Creeper					
<u>Certhia familiaris</u>	4	2	6	7	19
House Wren					
<u>Troglodytes aedon</u>	3	5	1	2	11
Winter Wren					
<u>Troglodytes troglodytes</u>	1			1	2
Long-billed Marsh Wren					
<u>Telmatodytes palustris</u>	6	8	4	4	22
Catbird					
<u>Dumetella carolinensis</u>	14	19	26	130	189
Brown Thrasher					
<u>Toxostoma rufum</u>	1		2	3	6
Robin					
<u>Turdus migratorius</u>	6	10	18	13	47
Wood Thrush					
<u>Hylocichla mustelina</u>				11	11
Hermit Thrush					
<u>Hylocichla guttata</u>	14	5	2	6	27
Swainson's Thrush					
<u>Hylocichla ustulata</u>	2	2	4	20	28
Gray-cheeked Thrush					
<u>Hylocichla minima</u>	3		3	8	14
Veery					
<u>Hylocichla fuscescens</u>	1	2	2	5	10
Golden-crowned Kinglet					
<u>Regulus satrapa</u>			5	7	12
Ruby-crowned Kinglet					
<u>Regulus calendula</u>	1	3	9	8	21
Cedar Waxwing					
<u>Bombycilla cedrorum</u>	37	18	51	19	125

TABLE 1. (continued)

Species	1963	1964	1965	1966	Total
Northern Shrike <u>Lanius excubitor</u>		1	1		2
Starling <u>Sturnus vulgaris</u>	47	143	30	336	556
Solitary Vireo <u>Vireo solitarius</u>			1		1
Red-eyed Vireo <u>Vireo olivaceus</u>	1	1	1	16	19
Philadelphia Vireo <u>Vireo philadelphia</u>				2	2
Warbling Vireo <u>Vireo gilvus</u>	1		1		2
Black-and-white Warbler <u>Mniotilta varia</u>	1			7	8
Prothonotary Warbler <u>Protonotaria citrea</u>				1	1
Tennessee Warbler <u>Vermivora peregrina</u>		4		6	10
Orange-crowned Warbler <u>Vermivora celata</u>				2	2
Nashville Warbler <u>Vermivora ruficapilla</u>		1	3	2	6
Parula Warbler <u>Parula americana</u>			1		1
Yellow Warbler <u>Dendroica petechia</u>	38	68	33	16	155
Magnolia Warbler <u>Dendroica magnolia</u>		5	6	15	26
Black-throated Blue Warbler <u>Dendroica caerulescens</u>				2	2

TABLE 1. (continued)

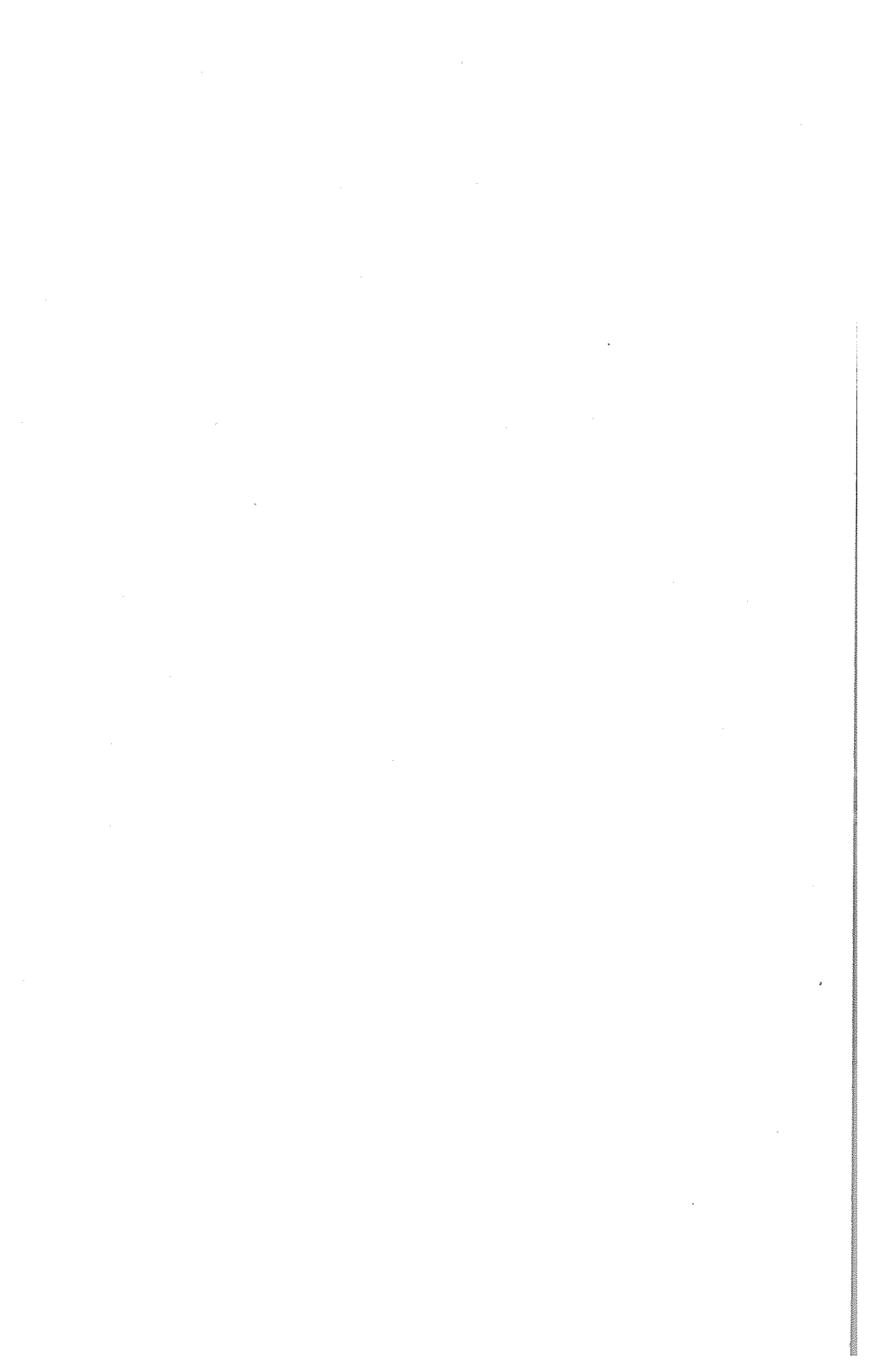
Species	1963	1964	1965	1966	Total
Myrtle Warbler <u>Dendroica coronata</u>	5	12	22	28	67
Black-throated Green Warbler <u>Dendroica virens</u>				3	3
Chestnut-sided Warbler <u>Dendroica pensylvanica</u>				8	8
Bay-breasted Warbler <u>Dendroica castanea</u>				4	4
Blackpoll Warbler <u>Dendroica striata</u>		20	1	3	24
Palm Warbler <u>Dendroica palmarum</u>	1	4		3	8
Ovenbird <u>Seiurus aurocapillus</u>		2	4	13	19
Northern Waterthrush <u>Seiurus noveboracensis</u>	18	19	16	14	67
Louisiana Waterthrush <u>Seiurus motacilla</u>	1	2			3
Mourning Warbler <u>Oporornis philadelphus</u>				1	1
Yellowthroat <u>Geothlypis trichas</u>	13	34	16	12	75
Wilson's Warbler <u>Wilsonia pusilla</u>		3		14	17
Canada Warbler <u>Wilsonia canadensis</u>	1			14	15
American Redstart <u>Setophaga ruticilla</u>	4	5	2	20	31
House Sparrow <u>Passer domesticus</u>			5		5

TABLE 1. (continued)

Species	1963	1964	1965	1966	Total
Bobolink <u>Dolichonyx oryzivorus</u>		1	1		2
Eastern Meadowlark <u>Sturnella magna</u>			1	1	2
Red-winged Blackbird <u>Agelaius phoeniceus</u>	510	764	571	1771	3616
Baltimore Oriole <u>Icterus galbula</u>	2	2	2	13	19
Rusty Blackbird <u>Euphagus carolinus</u>	1	12	1	17	31
Common Grackle <u>Quiscalus quiscula</u>	11	44	5	42	102
Brown-headed Cowbird <u>Molothrus ater</u>	9	12	10	88	119
Scarlet Tanager <u>Piranga olivacea</u>				1	1
Cardinal <u>Richmondia cardinalis</u>	7	3	8	7	25
Rose-breasted Grosbeak <u>Pheucticus ludovicianus</u>	3		5	15	23
Indigo Bunting <u>Passerina cyanea</u>	2	6	2	9	19
Purple Finch <u>Carpodacus purpureus</u>			12		12
Pine Grosbeak <u>Pinicola enucleator</u>			3		3
Common Redpoll <u>Acanthis flammea</u>			1		1
American Goldfinch <u>Spinus tristis</u>	18	13	18	20	69

TABLE 1. (continued)

Species	1963	1964	1965	1966	Total
Rufous-sided Towhee <u>Pipilo erythrophthalmus</u>	4				4
Savannah Sparrow <u>Passerculus sandwichensis</u>	5	3	1	2	11
Slate-colored Junco <u>Junco hyemalis</u>	29	100	25	4	158
Tree Sparrow <u>Spizella arborea</u>	127	127	105	53	412
Chipping Sparrow <u>Spizella passerina</u>			1		1
Field Sparrow <u>Spizella pusilla</u>		2			2
White-crowned Sparrow <u>Zonotrichia leucophrys</u>	1	1	3	2	7
White-throated Sparrow <u>Zonotrichia albicollis</u>	7	20	11	23	61
Fox Sparrow <u>Passerella iliaca</u>	6			2	8
Lincoln's Sparrow <u>Melospiza lincolni</u>	1		5		6
Swamp Sparrow <u>Melospiza georgiana</u>	13	9	24	2	48
Song Sparrow <u>Melospiza melodia</u>	87	104	155	83	429
Total individuals	2734	2492	2030	3563	10819
Total species	81	75	94	98	131



ONTARIO BIRD BANDING

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