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SCIENCE CENTER
UPPER CANADA COLLEGE
PREPARED BY
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HAWK-BANDING ON THE NORTHERN SHORE OF LAKE ERIE

Marshall Field

ST. THOMAS, ONTARIO

INTRODUCTION

Hawk Cliff in Elgin County has long been a well recognized location for observing birds of prey and other diurnal migrants as they travel southward in their fall migration. It is probable that W. E. Saunders of London first discovered the observation point at Hawk Cliff about 1931. The precise location, which is $42^{\circ} 40' N$; $81^{\circ} 10' W$ represents that portion of Lake Erie projecting the farthest north between Long Point to the east and Point Pelee to the west. It is here the migration appears to be most concentrated (Haugh 1970).

I have been keenly interested in this raptor migration since about 1951. These immense flights were often viewed with the thought of how one could lure the hawks down for capture and banding. I did make a few half-hearted, amateurish attempts using a wire cage with a trap door and pigeons in a lower compartment. Needless to say, these attempts all ended in failure and the hawks went merrily on their way--without bands. With the introduction of mist nets, a promising method was available to Ontario banders, the main difficulty being our inability to get the hawks to come low enough, or looking at it from another angle, to get the nets high enough to catch the birds.

Probably the idea of setting up a permanent hawk-banding station at Hawk Cliff was spawned due to at least two major factors. John Roberts and

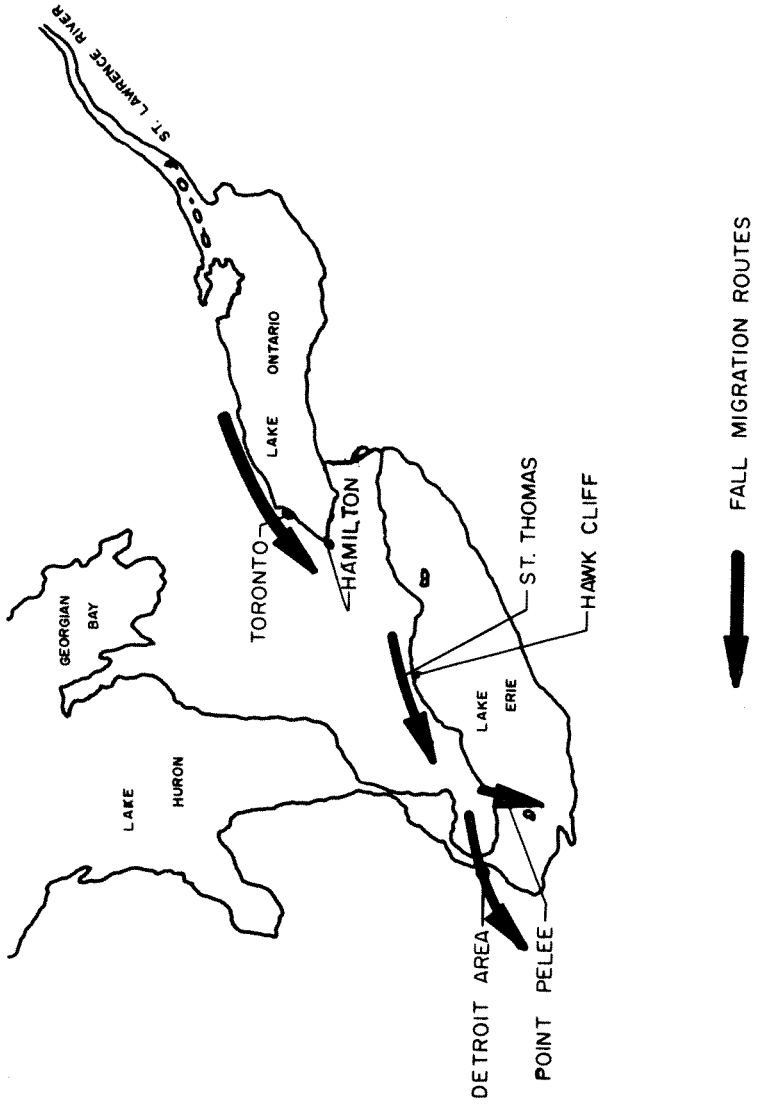


Fig. I

Bill Wasserfall paid a visit to the well-established raptor banding station, operated mainly by Mueller and Berger, at Cedar Grove, Wisconsin. In the spring of 1969, I had the opportunity to visit Derby Hill on the south-east corner of the south shore of Lake Ontario. This is one of the better vantage points to view the spring hawk migration along the lower Great Lakes. I soon learned that Jim Grier and Stan Temple from Cornell University were operating a hawk-trapping station nearby. This was a rather hastily built affair but it did give me an ample opportunity to examine and evaluate the methods used here for capturing hawks.

During the summer of 1969 John Roberts, Bill Wasserfall and I were able to start formulating plans for establishing a station at Hawk Cliff under the guidance of the Point Pelee Hawk Banding Committee of the Ontario Bird Banding Association. Permission was received from a farmer near Hawk Cliff to establish the station on his property. The actual construction of an 8' by 16' banding cabin commenced on the Labour Day weekend, and it was made workable in about three days.

PURPOSE

One of the prime objectives in establishing this station was to try to tie in migration data at Hawk Cliff with the established accipiter banding station at Point Pelee. It was deemed important to determine whether it was possible to catch representative numbers of at least a few species of hawks. We were interested in perfecting methods of catching hawks other than accipiters, and in learning more about their migration patterns.

DESCRIPTION OF STATION AREA

There had been no previous hawk observing to our knowledge in the general area where we proposed to locate the banding cabin so its location was a sort of a shot-in-the-dark proposition. We finally

E
#3 #2 #1

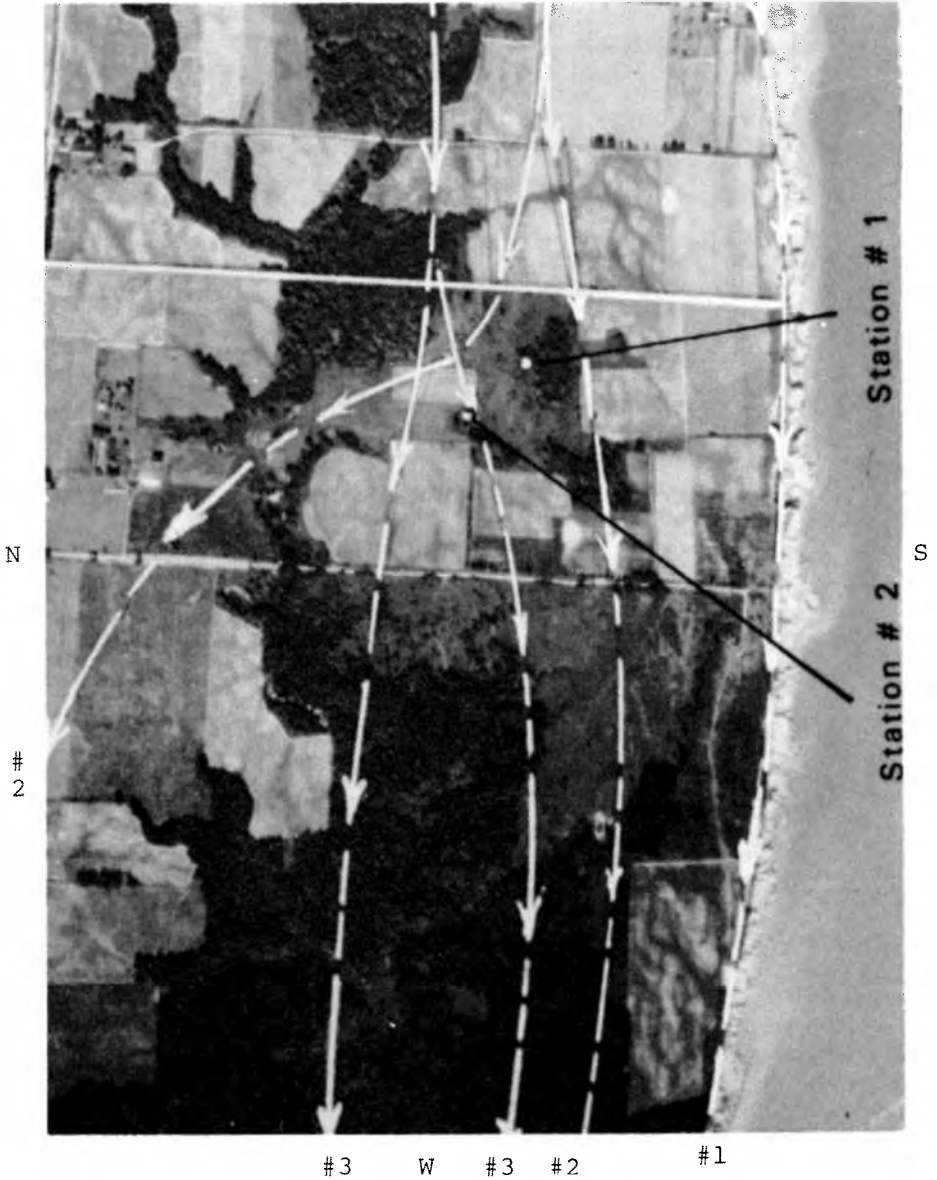


Fig. II. Flight Routes. #1 Main falcon route #2 Main buteo route #3 Main accipiter route.

settled on a knoll with some staghorn sumac in front and a reasonably well grassed area to the east and north. Some of the sumac growth was cleared, and the grass was mowed to facilitate the setting up of trapping locations. The Lake Erie cliff, rising approximately 100 feet at this point, is about 1,500 feet directly to the south. There is a mature woodlot about 500 feet to the north, which seems to influence the accipiter migration considerably--see Fig. II. A relatively small irrigation pond is situated 100 feet to the southwest. There is a good stand of buttonbush in the water, with a fringe of trembling aspen, and silver maple adjacent to the pond. This tree growth gives way to rather extensive stands of dogwood and staghorn sumac. There is a heavy infestation of poison ivy throughout the entire area, much to the discomfort of those who are allergic to it. With some spraying we have been successful in eradicating it in the immediate trapping area. The property to the east is owned by the Ontario Water Resources Commission. There is a good roadway providing access to their pumping station down at the lake level. This roadway, with hydro lines along one side and flanked with alfalfa fields, plays an important role in the concentrations of sparrow hawks that occur here. There are particularly heavy infestations of grasshoppers in these fields, causing the sparrow hawks to congregate along these hydro wires and feed on the abundance of insect life.

MIGRATION ROUTES

The lake cliff edge appears to be a well-used route for the sparrow hawks, especially during the September portion of their migration period. It is also a well-defined route for the peregrine falcon although their numbers now are comparatively few. Harriers and accipiters, (mainly sharp-shins) will also utilize the flyway along the cliff and particularly on days of peak migration. The woodlot to the north of number one banding station



Fig. III. The work-table in the banding cabin.

appears to be a definite lead in attracting a large volume of the migrating accipiters. The flight of the buteos did not appear to be directly affected by any of these land features. The flight direction and patterns appeared to be related to wind direction and thermal activity. Hawk migration seemed to increase considerably after a weather "front" had passed through and the wind direction changed to a northerly sector. The flight patterns of accipiters, falcons and harriers seldom extend farther inland than one and one half miles, which is roughly the extent of the woodlot-ravine pattern of terrain. The buteos in comparison, are pushed, often several miles, inland due to more southerly winds.

HAWK TRAPPING

We were duly warned by Jim Grier, who has

had considerable experience in raptor banding at Cedar Grove, Wisconsin, that there would be many frustrations and disappointments before the Hawk Cliff station could be expected to operate effectively. The old adage, that experience is the best teacher, was certainly applicable here. Despite some valuable assistance by Grier in setting up our nets and traps, we were still initiated by the usual run of bad luck. This was due in part to our lack of experience and the inefficiency of some of the trapping devices. We finally became quite discouraged and ceased operations about October 15, 1969, which was prior to the main flights of the red-tailed hawks. Our greatest concern seemed to be the inability to catch hawks with the type of bownets we were using, which were copied from a design used by Grier at Derby Hill in the spring. The rat trap, used as the spring action, was not positive and proved to be too slow. The large-meshed mist nets used in conjunction with an activated bait bird were effective, but only on days when the lack of wind allowed them to hang loose. We finished the season with a total of 202 raptors banded, a bit disillusioned but with the consolation of having some valuable experience behind us.

When the 1970 fall operations commenced we abandoned the bownet as a means of catching accipiters, concentrating more on the use of at least two mist nets in conjunction with an activated bait bird that could be drawn inside a small wire cage. We were more successful in catching accipiters and a few sparrow hawks using this method. The one rat-trap-powered bownet set up mainly for redtails was still giving us nightmares. Most of the big hawks which could be brought into perfect position would either fly before the net was over them or just push it up and walk out. The turning point came when Grier shipped us one of their "better" bownets. After a few problems involving customs, we were able to put this faster-acting bownet into operation on November 4. We did in



Fig. IV. Immature female Peregrine Falcon, caught at Hawk Cliff, Oct. 8, 1970.

fact catch over fifty hawks, mostly redtails, by the end of the season using this single trap. The only time it failed us was when Hubert had attracted a golden eagle down. The eagle struck the pigeon a short distance away from the bow-net. The bait was then pulled to try and work the eagle into trapping position. It became a bit excited (along with the trappers), and jumped on the hoop of the bow-net. This in turn released the triggering

device tripping the trap and of course the eagle ended up on the outside of the net, much to the chagrin of the anxious banders inside the cabin. This unfortunate experience prompted us to devise a tripping mechanism that could not be released by a clumsy bird.

Frank Folemsbee, who spent one week at the station in early November, introduced the use of baited Bal-chatri noose cages in conjunction with the bownets. They proved to be reasonably effective and, on one occasion, even with a pigeon being activated a goshawk lined up the ringed dove inside the Bal-chatri and was caught on contact with this trap. Similarly an adult red-shouldered hawk veered away from the pigeon and attempted to take a starling inside a nearby Bal-chatri. It would appear that the more proven catching devices you have to offer, the higher percentage of catches in relation to hawk responses.

STATION POTENTIAL

There is little doubt that, with adequate coverage, the numbers of accipiter hawks captured can be increased considerably. The setting up of additional sub-stations, more directly on specific flight lanes, will no doubt make this possible. Sparrow hawks can be taken in fair numbers and, with more suitable nets against good backgrounds, the percentage of takes can be increased. There are good flights of harriers passing through the area on certain days, though we have not as yet worked out an efficient method of catching this species. We have added considerable knowledge pertinent to the migration of red-tailed hawks through the area. As it turned out in 1970, there were some excellent trapping days in December with the ground snow-covered.

December 7 was my first experience of trapping under snow conditions. Despite a few frustrations of working alone

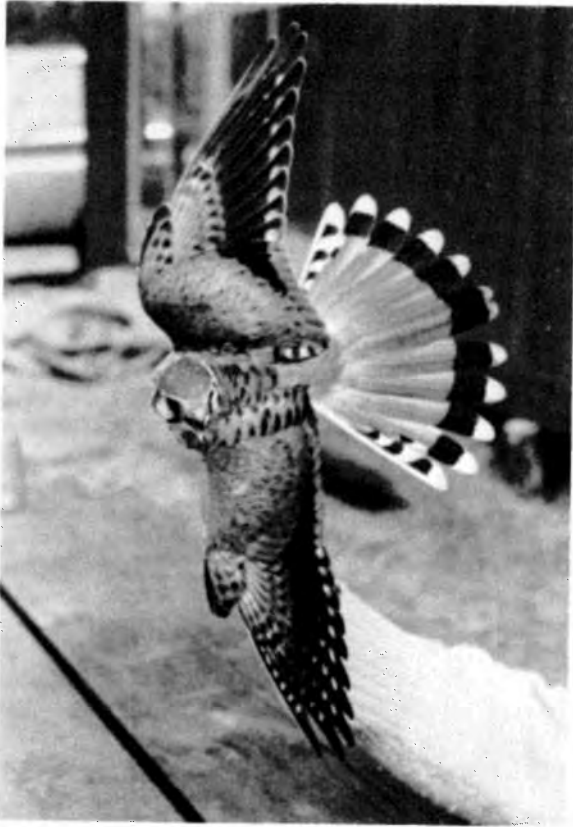


Fig. V. Sparrow-hawk

I experienced one of the best trapping days of the season in relation to the percentage of responses. The percentage of birds caught on this particular day would run from eight to ten percent, while earlier in the season it would be less than one percent. At one point I had four redtail responses simultaneously and managed to catch two of them under the bownet at one time. The first bird pinned the pigeon and I was able to work it over into trapping position. Two others were standing on the snow nearby and a third was sitting on a

post. I did not trip the trap on the first bird hoping that one of the others would come over and offer a challenge for the bait. In a short time this is exactly what happened and when I pulled the trip they were both under the net. I ended up catching ten red-tailed hawks in slightly less than three hours of active trapping.

The golden eagle could always be considered a bonus bird but after the big one that got away this year we know there is always a definite possibility anytime after October 15.

On October 3, a second trapping station was established about 500 feet slightly north of west from the number one location. This was merely a 4' by 4' canvas-covered frame with barely enough room to operate two sets. This location showed great promise and on any good trapping day doubled the numbers taken. It was here that we began catching our first adult redtails. On November 21 we moved the original #1 cabin about 150' west of the old location. It is lower here and we feel there is a greater opportunity to make it blend in better with the surroundings. Additional portable or semi-portable stations may be added as flight patterns warrant it.

THE BOWNET METHOD

The bownet method of trapping hawks entails a building, or blind with a 12 to 15 foot pole situated about 75 feet away in a location clearly visible to approaching hawks. A 100 lb. test nylon line is fed from the building, through hydro insulators (to prevent extensive wearing) and out to an insulator at ground level on the pole. It is then threaded through another insulator at the top of the pole, then back through a screw-eye on a wooden stake flush with the ground, positioned properly within the span of the bownet. It then continues back to the building through another set of insulators with the two ends then tied to-



Fig. VI. Cooper's Hawk

gether. A heavy snap is attached about half way between the top of the pole and the screw-eye on a wooden stake flush with the ground, positioned properly within the span of the bownet. It then continues back to the building through another set of insulators with the two ends then tied together. A heavy snap is attached about half way between the top of the pole and the screw-eye on the ground. This is where the pigeon bait is attached. The line is adjusted so that when not in operation the pigeon can sit comfortably on the ground. When a hawk within range is sighted, the loop of line inside the cabin is given a forceful yank; the tightening of the line will in turn thrust the pigeon up in the air making it clearly visible to the hawk. When the hawk's attention has been aroused and it starts down for the stoop, the

pigeon is then drawn toward the bownet. Ideally, the pigeon should be properly positioned in the bownet when the hawk makes its strike. Quite frequently the hawk snatches the pigeon when it is still a few feet from the trap. If there is no movement from within the cabin, most often the hawk and the pigeon can be carefully pulled over to the front of the trap to enable a successful catch. If the hawks, particularly redtails, miss the bait on the first swoop, they will invariably sit on the nearest dead tree or post and analyze the situation. If nothing spooks them, they will occasionally come in for a second try.

BAIT

We have found cowbird, starling and rock dove to be an effective combination of bait birds. The activated pigeon can be utilized to attract the hawks' attention from considerable distances, then they can be switched over to a smaller bait bird on another set as they approach the trapping area. One of the problems we have encountered is the ability to maintain a suitable supply of bait birds. We were not losing a great volume of bait birds, but our supply was inadequate to start with. We are planning on having a larger reserve of bait birds for future operations and towards this end have established a breeding loft of barn pigeons near the station.

AGEING AND SEXING

There has been considerable difficulty in attempting to determine the age class of sparrow hawks in fall. Using the criteria available, (K.C. Parkes, 1955) there appear to be many plumage variations which will require further study to interpret if age is related in any way to these variations. We hope to have some known age captive birds available for plumage comparisons. Hatching year accipiters are not difficult to determine; a percentage of the older birds could



Fig. VII. A well-caught Redtail

be age-classed using iris colour (Roberts, 1967). There appears to be no weight overlap in the male and female accipiter. Hatching year redtails are also easily identified but it is almost impossible to sex them with any degree of certainty. If a cloacal method, such as is used for waterfowl, is perfected, then possibly a high percentage of these hawks could be sexed.

CONCLUSION

In this paper I have made no attempt to deal with any particular phase of hawk banding in detail. The intent has been to present a broad general picture of the operation of the Hawk Cliff station. It is hoped that more interest will be aroused among serious banders in this type of hawk trapping. The future banding potential of the Hawk Cliff station could be as extensive as the enthusiasm of those persons associated with its operation.

It would appear to be situated on one of the best hawk flyways in North America. The Ontario Bird Banding Association, under whose direct financial assistance the station was established, has allocated funds to cover operational expenses and to improve the station facilities for the 1971 banding season. We are indeed indebted to the landowner, Mr. Steve Ivan, for his tolerance of our presence on the property, and for his splendid cooperation and interest in the hawk banding station. With this same type of help from banders and cooperators, we should contribute significantly to the knowledge of hawks and their migrations in relation to the Lake Erie flyway.

Acknowledgements

I would like to express my appreciation to Mr. Steve Ivan for making it possible to establish a hawk banding station in the Hawk Cliff area, and for the valuable assistance he has given, especially in the moving of our banding cabin. I am grateful to John Roberts for his suggestions and outline for this paper. Bill Wasserfall is to be thanked for the many chores performed and for actually putting the station into operation for the first period in 1969. The help of Jim Grier was appreciated in setting up the trap locations. He also gave invaluable assistance through correspondence. Many local cooperators were mainly responsible for the success achieved in 1970. Bob Hubert has given appreciated assistance in station coordination. Craig Brown has been a most enthusiastic young hawk trapper. Mrs. G. Leverton contributed significantly to the hawk trapping and was helpful by typing the records. My father also helped out in many ways, especially when new traps had to be constructed. Many individuals have assisted in other ways since the station was established.

APPENDIX I

Raptors banded at Hawk Cliff during 1969 - 1971.

	1969	1970-71
Goshawk		5
Sharp-shinned hawk	40	166
Cooper's hawk	9	10
Red-tailed hawk	4	71
Red-shouldered hawk		3
Broad-winged hawk	1	
Marsh hawk	1	2
Peregrine falcon	1	1
Sparrow hawk	143	85
Screech owl	2	
Great horned owl		1
Saw-whet owl	1	
	<u>202</u>	<u>344</u>



APPENDIX II

Foreign recoveries from Hawk Cliff

- Sparrow Hawk UF banded at Hawk Cliff by M. Bradstreet, 18/09/69; recovered Unity area, Ohio (405-0803) 27/11/69.
- Sparrow Hawk caught in hangar at Fingal, Elgin County. Banded and released at Hawk Cliff by M. Field 20/09/55; recovered 30 miles E. of New Orleans, Louisiana 29/12/55.
- Cooper's Hawk HYF banded at Hawk Cliff by M. Field, 03/10/69; recovered Melvindale, Michigan (421-0831) 21/04/70.
- Sharp-shinned Hawk HYF banded at Hawk Cliff by M. Field 09/10/69; trapped and released at Point Pelee, Ontario (415-0823) by W. Wyatt 14/10/69.

Other recoveries from Elgin County

- Red-tailed Hawk Nestling banded near Rodney, Elgin County, 14/05/49 by M. Field, shot Schnellville, Dubois County, Indiana 03/02/50.
- Red-tailed Hawk Nestling banded near Stoney Creek (Hamilton area) Spring 1967; by L. Gray. caught on pole trap, five miles west of Hawk Cliff station, early Sept. 1967. recovery card not available.
- Marsh Hawk Nestling banded at St. Thomas Elgin County by M. Field 09/06/48; shot Covington, St. Tammy County, Louisiana 17/10/48.

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REPLACEMENT OF RECTRICES IN THE TREE SPARROW

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Two Tree Sparrows (Spizella arborea) whose tails were inadvertently removed and who were subsequently recaptured on several occasions provided an opportunity to record replacement of the tail feathers. Tree Sparrow #75-41282, originally banded 12-30-68 HY-U, lost its tail when it returned 11-27-69. Subsequently, another Tree Sparrow #75-42290, banded on 12-24-70, AHY-U lost its tail.

As a precaution against possible injury of the feather follicles, tail measurements were made from the base of the preen gland to the longest rectrix. For comparison, I similarly measured (from the preen gland) the tails of the first ten Tree Sparrows I handled the morning of 1 January 1970. The lengths varied from 73.0 to 64.0 mm, and the average length 67.9 mm. Weights were recorded on an Ohaus Trip Balance Scale. Fat class determination, highly subjective, was based on visual estimation of the amount of fatty tissue stored subcutaneously, ventrally at the base of the neck with "0" designated as no fat present, "1" with but a trace, "3" as a plump, rounded mound of fat, and "2" as intermediate.

For each sparrow, the following data give an approximation of the rate of replacement:

Tree Sparrow # 75-41282

<u>Date</u>	<u>Weight</u> (gms)	<u>Fat Class</u>	<u>Tail Length</u> (mm)
11-27-69	17.1	0	tail removed
12-14-69	16.9	0	25.0
01-01-70	21.6	3	64.0
03-09-70	17.4	0	66.0
03-19-70	17.1	1	68.5

Tree Sparrow # 75-42290

<u>Date</u>	<u>Weight</u> (gms)	<u>Fat Class</u>	<u>Tail Length</u> (mm)
12-24-70	20.2	2	banded
12-27-70	-	-	tail removed
01-03-71	-	-	feathers erupting
01-09-71	17.6	1	20.4
01-11-71	17.5	1	30.0
02-07-71	18.6	3	67.0

On 1 January, thirty-five days after #75-41282 lost its tail, the new feathers had reached approximately 94% of its full growth. The replacement of the othersparrow's tail feathers seemed very rapid too with approximately 45% length reached on the twelfth day. The retrapping of wild birds does not allow one the luxury of gathering exactly comparable data, nor is it as complete as one would like; for example, twice #75-42290 slipped away before being weighed, and the fortuitous periods between measurements do not exactly coincide. However, the data do allow

one close period for comparison:

17 day period (14 Dec.)	#75-41282	37.9%	tail length
16 day period (9 Jan.)	#75-42290	34.5%	" "
18 day period (11 Jan.)	#75-42290	44.8%	" "

Such rapid replacement growth may represent a strong survival factor if one assumes a full length tail to give its possessor a survival advantage to the tailless condition. Thanks are due to my sub-permitee, Trudy Prescott, who twice recaptured sparrow #75-41282 and made the 19 March measurement.

LONGEVITY RECORD OF SEMIPALMATED SANDPIPER

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A Semipalmated Sandpiper (Ereunetes pusillus) was originally banded on August 18, 1957 at Presqu'ile Provincial Park, two miles south of Brighton, Ontario (coordinates 43° 50' N 77° 40' W) by Mrs. Ruth Brown. The band number was 52-37685. At the same location on July 25, 1969, the same band was recovered from a Semipalmated Sandpiper weighing 26.5 grams and with a wing length of 92mm. The band being very thin and pliable was replaced with band number 104-183302.

This bird was at least twelve years old at the time of recapture. Rydzewski (1962, Ring 33: 147-152) reviewed longevity of banded birds from previous accounts. Four records for small European shorebirds are as follows: Common Sandpiper (Tringa hypoleucos) 5 years 9 days; Wood Sandpiper (T. glareola) 7 years 8 months 2 days; Knot (Calidris canutus) 8 years 8 months 7 days; Dunlin (C. alpina) 8 years 9 months 6 days. The time between our banding and recovery dates is 11 years 11 months 7 days. In a recent computer print out from Patuxent Wildlife Research Centre the oldest Semipalmated Sandpiper reported was 4 years 5 months (Gary Page pers comm.) Our record would appear to be the longevity record for this species and for all small sandpiper species.

REQUESTS FOR INFORMATION

COLOUR-MARKED GULLS

During May through July of each year for a five year period, Ring-billed Gulls (Larus delawarensis) from three Great Lakes colonies will be wing-marked with 1.5 inch-diameter "Saflag" tags. Each colony is represented by a specific colour. An attempt is being made to determine the dispersal pattern, migration route, and winter range for each population. Anyone observing such wing-marked gulls is asked to notify DR. WILLIAM E. SOUTHERN, Department of Biological Sciences, Northern Illinois University, DeKalb, Illinois 60115. Please report each observation of marked individuals even though the same bird may be sighted on different days. The following information is desired: date, exact location, marker colour, and the observer's name. Your assistance in this aspect of the project will be greatly appreciated. Respondents will receive information pertaining to colony locations and the date of marking.

SCARLET TANAGERS

I am attempting to summarise migratory data on the Scarlet Tanager Piranga olivacea as supplied to me by the Bird-Banding Laboratory of the Fish and Wildlife Service. I would deeply appreciate additional information (and permission to use) which banders might be able to supply me in relation to recoveries, returns, repeats, individual age and other relevant data.

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ONTARIO BIRD BANDING

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Although emphasis is placed on material of interest to banders, manuscripts of articles or short notes dealing with any aspect of ornithology are welcomed. Manuscripts should be typewritten and double spaced. Tables and figures should be prepared on separate sheets. Photographs should have good contrast for successful reproduction.

Contributors receive 25 reprints of their article gratis. Additional reprints are to be paid for by the author, and these must be ordered at the time the manuscript is returned for proof-reading. Information on the cost of reprints is available from the editor.

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