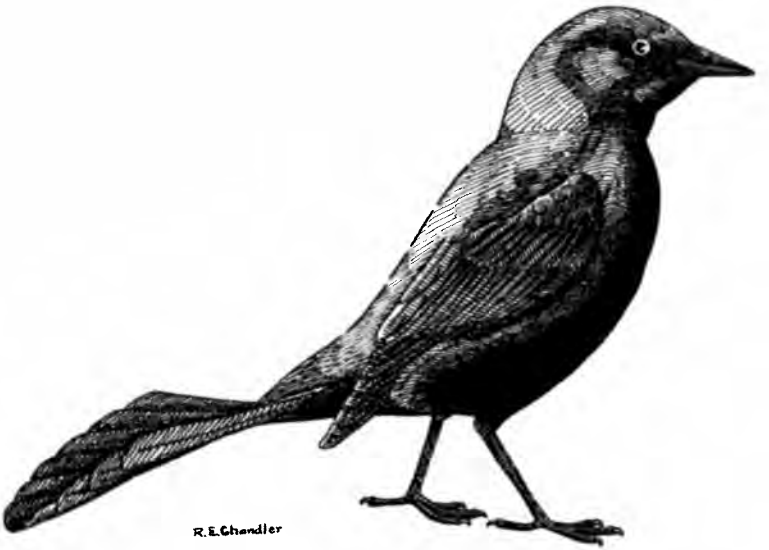
ONTARIO Bird Banding

VOL. 5, NO. 2 JUNE, 1969



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ONTARIO BIRD BANDING

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CONTENTS

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Ontario Bird Banding 5: 50-51. (1969)

FEEDING BEHAVIOUR OF THREE UNRELATED FLYCATCHING BIRDS AT A COMMON SITE

BARRY KENT MACKAY

On August 30 1967, at Laval sur le Lac, Montreal, I observed three unrelated species of birds catching flying insects at different elevations above a fast, shallow river. My observations were only casual but they may be of interest, since so little has been recorded about the precise details of the feeding behaviour of the species involved.

The river was up to 50 yards wide in places and was apparently quite shallow, with the shelf-rock bottom protruding above the surface in many places to produce rapids. The air temperature was approximately 21°C. The sky was completely overcast, with intermittent light rain. Observations began at 3.00 pm., EDT.

The first of the species catching insects over the river was the Cedar Waxwing Bombycilla garrula. At one time I estimated that about 50 of these were present. Since my observations were limited to a relatively short section of one shore, it was impossible to estimate the total number of Waxwings (or of the other species) present along the whole stretch of river.

Most of the waxwings flew between 20-50 feet above the water; as a rule, they did not swoop low over the surface. The birds seemed to base themselves on telephone wires and mature deciduous shade trees close to the river bank. Individual Waxwings sallied out over the river, and then returned to their perches. Others remained out over the river for several minutes, until lost from view.

Slightly upstream from the observation point was a flock of brown-backed swallows; all those which came close enough to be specifically identified proved to be Bank Swallows Riparia riparia. These swallows flew low over the water, often skimming the surface. Although there was a zone in which swallows and waxwings intermingled, most of the swallows flew under the waxwings. The swallows did not alight on branches or telephone wires during the brief period that they were under observation.

Above the waxwings flew a third species - the Chimney Swift Chaetura pelagica. Almost without exception, these swifts stayed well above all but the highest of the waxwings. While the waxwings and swallows concentrated their efforts over the river itself, the swifts made no apparent attempt to do so - they apparently flew over the land as often as they flew over the river. Like the swallows, the swifts did not alight.

My observations took place over a period of about 20 minutes. During this time I did not see any interspecific interactions between the swifts, swallows and waxwings.

The point about these observations which struck me was that the air space above the water was roughly divided into three vertical zones for the purposes of flycatching, among these three, quite unrelated species. The Bank Swallows took the zone nearest the river's surface. The Cedar Waxwings, the species least able to sustain continued flight and the least adapted for a flycatching existence, used the middle zone, and rested on perches in between flights. The Chimney Swifts flew in the highest zone and, unlike the others, did not confine their feeding behaviour to the area immediately above the river.

I was not able to identify the insects on which the birds were feeding. It is likely that the swallows and waxwings were taking insects whose life cycle is partly spent in the water and which stay near it after they emerge; it is possible that the birds were exploiting a major insect "hatch". Since different insect species fly at different levels, it is possible that the differences in feeding behaviour which I saw reflect differences in the food preferences of the swifts, swallows and waxwings, as much as differences in their flying abilities. But MacArthur (1958) has shown how different species of warbler feed at different levels in pine trees. My observations suggest that flycatching species have the same kind of vertical zoning.

Reference

MacArthur, R.M. 1958. Population ecology of some warblers of northeastern coniferous forests. Ecology 39: 599-619

BARRY KENT MACKAY, 35, THORNCLIFFE PARK DRIVE, TORONTO.

Ontario Bird Banding 5: 52-58. (1969)

WEIGHT CHANGES OF SEMIPALMATED AND LEAST SANDPIPERS PAUSING DURING AUTUMN MIGRATION

G.PAGE and A.SALVADORI

During autumn migration shorebirds may pause for as long as a month at resting places along the migratory pathway (Hamilton, 1959; Swinebroad, 1964; Brooks, 1965; Oring and Davis, 1966; Recher, 1966; Mascher, 1966; Page and Bradstreet, 1968). Jehl (1963) suggested that Short-billed Dowitchers Limnodromus griseus stop along the New Jersey coast to replace depleted lipid deposits. Mascher (1966) found that juvenile Dunlin Calidris alpina take advantage of a migratory pause on the Swedish coast to increase their fat reserves. He also found a relationship between the "fatness" of the sandpipers and the duration of their migratory pause. For other shorebirds there is very little information on this aspect of migration. In this study weight variations of resting Semipalmated Sandpipers Ereunetes pusillus and Least Sandpipers Erolia minutilla were examined to determine their ability to accumulate fat reserves. The effect of fat levels on the duration of their migratory pause is also considered.

OCCURRENCE OF THE SANDPIPERS IN THE STUDY AREA

The study was conducted from July through September of 1966, 1967 and 1968 at Long Point (42° 30'N - 80° 10'W), a twenty mile peninsula running east from the north shore of Lake Erie in Norfolk County, Ontario. The north shore of this peninsula is almost entirely cattail marsh but the south shore is sand beach with some gravel sections. The study was restricted to the easternmost five miles of the south side. This area included five or six semipermanent pools, the largest of which had a length of 400 feet, a width of 100 feet and a maximum depth of 48 inches. Semipalmated and Least Sandpipers occurred almost exclusively around these pools.

During the study the daily counts of Semipalmated Sandpipers never exceeded 100 nor Least Sandpipers 60. In 1967 both species were more numerous than in 1966 or 1968 with a calculated total of 463 adults and 279 juvenile Semipalmated Sandpipers and 92 adult and 299 juvenile Least Sandpipers (Page and Bradstreet, 1968). In 1967 and 1968 Semipalmated Sandpipers appeared after July 10, later than the Least Sandpipers which were first recorded on July 2 in 1967 and July 4 in 1968. Least Sandpipers were not observed after September 21 but Semipalmated Sandpipers were recorded into the first week of October. Fragmentary data from the first year of study indicated a similar timing for their migrations in 1966. Adults migrated in advance of the juveniles so that many of the latter occurred after the last adult had disappeared (Page and Bradstreet, 1968).

METHOD

The sandpipers were mist-netted around the pools at dusk. For a detailed description of the trapping technique see Page(1967). The trapping results for the three years are summarized in Table 1. For all birds captured, the wing chord, to the nearest millimetre and the weight, to the nearest gram were taken. In 1966 the sandpipers were transported 1½ miles from the trapping area to the laboratory for processing. They were released at the latter location between one and two hours after capture. In the following years all birds were processed in the trapping area with the result that the holding period was reduced to less than one hour. In 1966 the amount of subcutaneous fat was estimated visually and placed in one of four categories, 0 through 3 (Table 2). In 1968 these data were supplemented with similar estimates collected by two co-operators at Dunnville, Ontario (40 miles east of Long Point). Beginning in 1967 all sandpipers were colour-marked for studies connected with the duration of the migratory pause. Indelible ink was used on the abdomen and flanks. This treatment affected the sandpipers' behaviour only one or two hours after marking, when there was a concentrated effort to wash the ink off. After this period their behaviour was similar to that of the unmarked birds.

RESULTS AND DISCUSSION

The initial weights, excluding retrap weights, of Semipalmated Sandpipers ranged between 19 and 44 grams and those of Least Sandpipers between 16 and 40 grams. Since the adults were significantly heavier than the juveniles (Table 3) they were separated from the latter in the analysis of weight changes. Total body weight was found the correlate with estimates of subcutaneous fat (Figure 1) but not with wing length. We believe, therefore, that the variations in body weight we observed were largely due to variations in body fat as has been reported for passerines (Connell, Odum and Kale, 1960). Because fats are the primary source of flight energy for migration the weight variations of these sandpipers reflect variations in their energy reserves.

The correlation of weight change with retrap period (time between capture and subsequent recapture) is significant at the .05 level for adult and juvenile Semipalmated Sandpipers but not significant for juvenile Least Sandpipers (Figure 2). Too few adult Least Sandpipers were retrapped for a comparative evaluation of weight change. Weight loss and stability was characteristic of adult and juvenile Semipalmated Sandpipers with retrap periods of less than three days and weight gain characteristic of those with retrap periods between 3 and 16 days. Juvenile Least Sandpipers displayed a similar tendency except that weight loss and stability characterized individuals with retrap periods of less than four days and weight gain retrap periods between 4 and 15 days. The average, daily weight gain for adult and juvenile Semipalmated Sandpipers with retrap periods between 3 and 16 days was .76 grams and .50 grams

TABLE 1: NUMBER OF SANDPIPERS TRAPPED AT LONG POINT. RETRAPS IN BRACKETS.

Semipalmated Sandpiper

Year	Adult	Juv.
1966	38 (4)	98 (25)
1967	154 (15)	160 (31)
1968	37 (0)	58 (16)
Total	229 (19)	316 (72)

Least Sandpiper

Year	Adult	Juv.
1966	2 (0)	54 (12)
1967	43 (5)	180 (59)
1968	10 (2)	40 (3)
Total	55 (7)	274 (74)

TABLE 3. AVERAGE INITIAL WEIGHTS (gm.) OF THE BIRDS LISTED IN TABLE 1. STANDARD DEVIATIONS IN BRACKETS.

Semipalmated Sandpiper

Year	Adult	Juv.
1966	32.0 (5.6)	24.6 (3.9)
1967	29.0 (5.0)	26.3 (3.7)
1968	30.5 (5.2)	25.9 (4.5)
Av.	29.8 (5.3)	25.7 (4.0)

Least Sandpiper

Year	Adult	Juv.
1966	24.0 (2.0)	22.2 (3.1)
1967	27.0 (4.5)	22.1 (3.4)
1968	28.5 (4.5)	22.9 (4.4)
Av.	27.2 (4.5)	22.2 (3.5)

TABLE 2: CRITERIA FOR ESTIMATING SUBCUTANEOUS FAT

FAT CLASS	DESCRIPTION
0	Fat not readily visible in the furculum.
1	Fat present in the furculum but clavicles visible. Small amounts present in the axillar region, lower back and abdomen.
2	Furculum filled with fat. A thick layer of fat on the abdomen and in the axillar region.
3	Fat present everywhere. Furculum full and swollen with clavicles covered. Marked protruberance of the skin in the axillar region, the lower back and, especially, the abdomen.

respectively. For juvenile Least Sandpipers with retrap periods between 4 and 15 days it was .45 grams (Figure 3). These values are based on the assumption that the rate of weight gain is constant throughout the retrap period. This assumption is contrary to the observation of weight loss and stability for birds with short retrap periods and is inconsistent with similar observations for other species (Nisbet, Drury and Baird, 1963; Mueller and Berger, 1966; Mascher, 1966). Since there is no net weight gain during the first days after the initial capture the average, daily weight-gains presented above are an underestimate of the actual rates. To calculate the corrected rates, the periods of delayed weight-gain, which are two days for Semipalmated and three days for Least Sandpipers, were subtracted from each retrap period to give the actual period of weight gain. This produced an average, daily weight-gain of 1.23 grams for adult and .76 grams for juvenile Semipalmated Sandpipers and .71 grams for juvenile Least Sandpipers. If the non-fat component of a sandpiper's weight is as stable as Connell, Odum and Kale (1960) have reported for passerines, these rates of weight increment reflect the rate of fat deposition and as such are a measure of the accumulation of available flight energy.

From this examination of the weight changes of Semipalmated and Least Sandpipers it is evident that as a result of the migratory pause the individual accumulates migratory-fat reserves. It is now necessary to determine whether the lipid levels of these sandpipers affects the duration of their migratory pause. There is a difficulty in determining the duration of the migratory pause from retrap data since in most instances they represent only a fraction of the stop-over period. The problem is further complicated because all movement from a small area does not necessarily represent the commencement of a demanding migratory flight. As many as 30 colour-marked sandpipers from the Long Point study area have been reported within a 50 mile radius of the point. These appeared between 2 and 15 days after colouring, suggesting that in many instances the full extent of the migratory pause is not restricted to one location. Nevertheless there was some indication that the duration of the pause at Long Point may be affected by the fatness of the birds since lighter birds averaged longer retrap periods than heavier ones. This is demonstrated in Figure 4 where the mean initial weights of sandpipers having retrap periods of more than 1, 2, 3, ...n days are shown to gradually decrease. This tendency is not well defined. Unlike Mascher (1966) we were unable to correct the body weights by removing the variation of the non-fat component. He found a significant correlation between retrap period and the initial weights of juvenile Dunlin indicating a possible relationship between lipid levels and the duration of the migratory pause. Work is being continued at Long Point to determine more accurately any such relationship.

SUMMARY

Weight aspects of the Semipalmated and Least Sandpiper were examined during the autumn migratory pause at Long Point, Ontario. As a result of variations in their fat levels, these sandpipers exhibited a wide range of weights. The adults were on the average heavier than the juveniles. Weight changes during the migratory pause indicated that there is an increase in fat levels at a rate which is possibly greater for adults than juveniles. Although fat deposition was a very conspicuous aspect of the stop-over period there was only a slight indication that fat levels may influence the duration of the pause.

ACKNOWLEDGEMENTS

The data was collected at Long Point Bird Observatory by its many volunteer participants. Miss M. Connolly and R. Kardos provided the supplimentary data from Dunnville. Dr. A.L. Middleton, Mr. D.J.T. Hussell, Mr. J. Strauch and Mr. M. Cobus examined the manuscript and made many helpful suggestions. Financial support was received through grants to Long Point Bird Observatory from the Canadian National Sportsmen's Show and the Federation of Ontario Naturalists. The authors wish to thank all these people and organizations for their assistance in making this study possible. We are especially grateful to the computing department at the University of Guelph for their assistance in the processing of the data.

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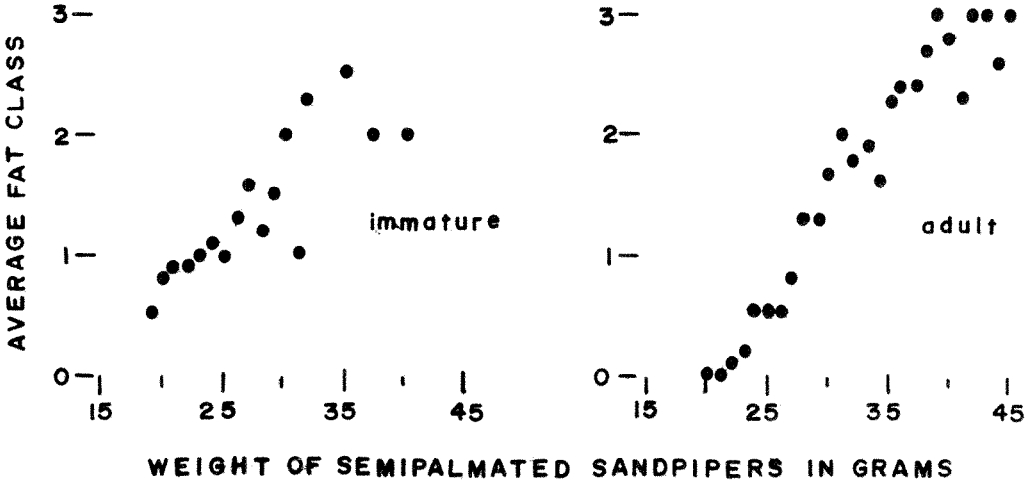

AVERAGE FAT CLASS
3
2
1
0
immature
adult
15
25
35
45
WEIGHT OF SEMIPALMATED SANDPIPERS IN GRAMS

Figure 1.

Figure 2.

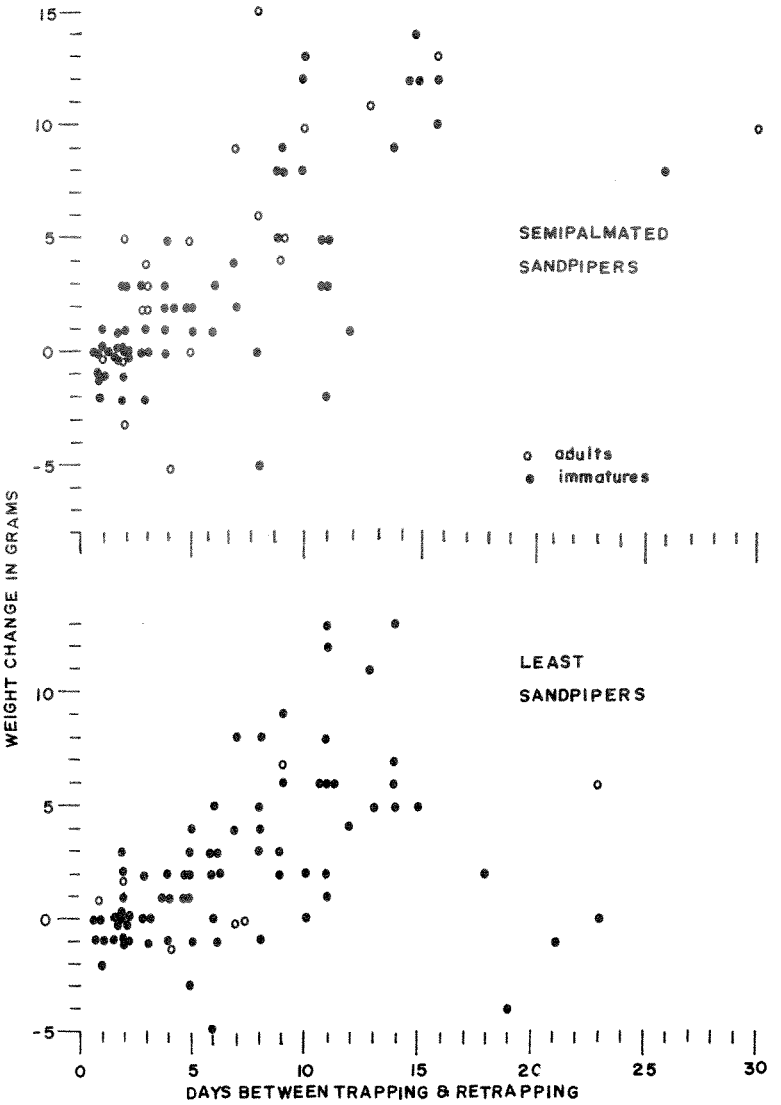
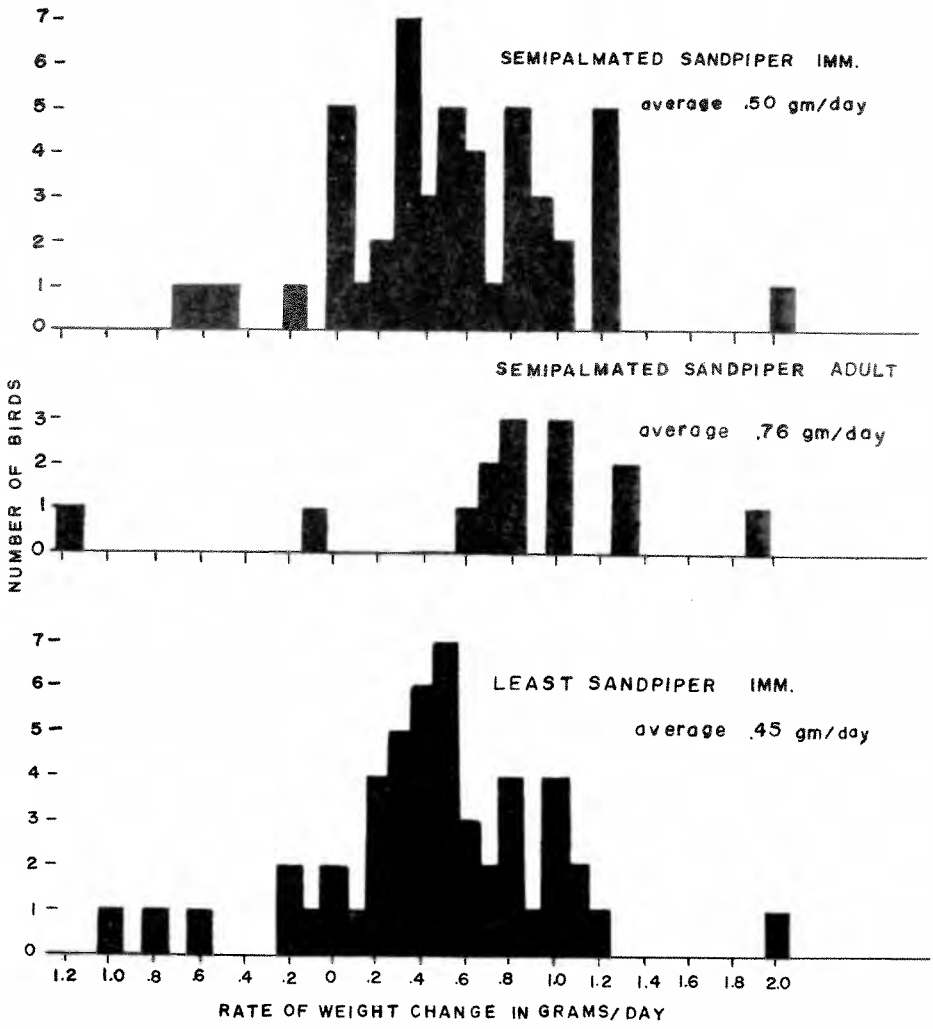

SEMIPALMATED
SANDPIPERS
o adults
• immatures
LEAST
SANDPIPERS
WEIGHT CHANGE IN GRAMS
DAYS BETWEEN TRAPPING & RETRAPPING
15
10
5
0
-5
0
5
10
15
20
25
30

Figure 3.


SEMIPALMATED SANDPIPER IMM.
average .50 gm/day
SEMIPALMATED SANDPIPER ADULT
average .76 gm/day
LEAST SANDPIPER IMM.
average .45 gm/day
NUMBER OF BIRDS
RATE OF WEIGHT CHANGE IN GRAMS/DAY
1.2 1.0 .8 .6 .4 .2 0 .2 .4 .6 .8 1.0 1.2 1.4 1.6 1.8 2.0

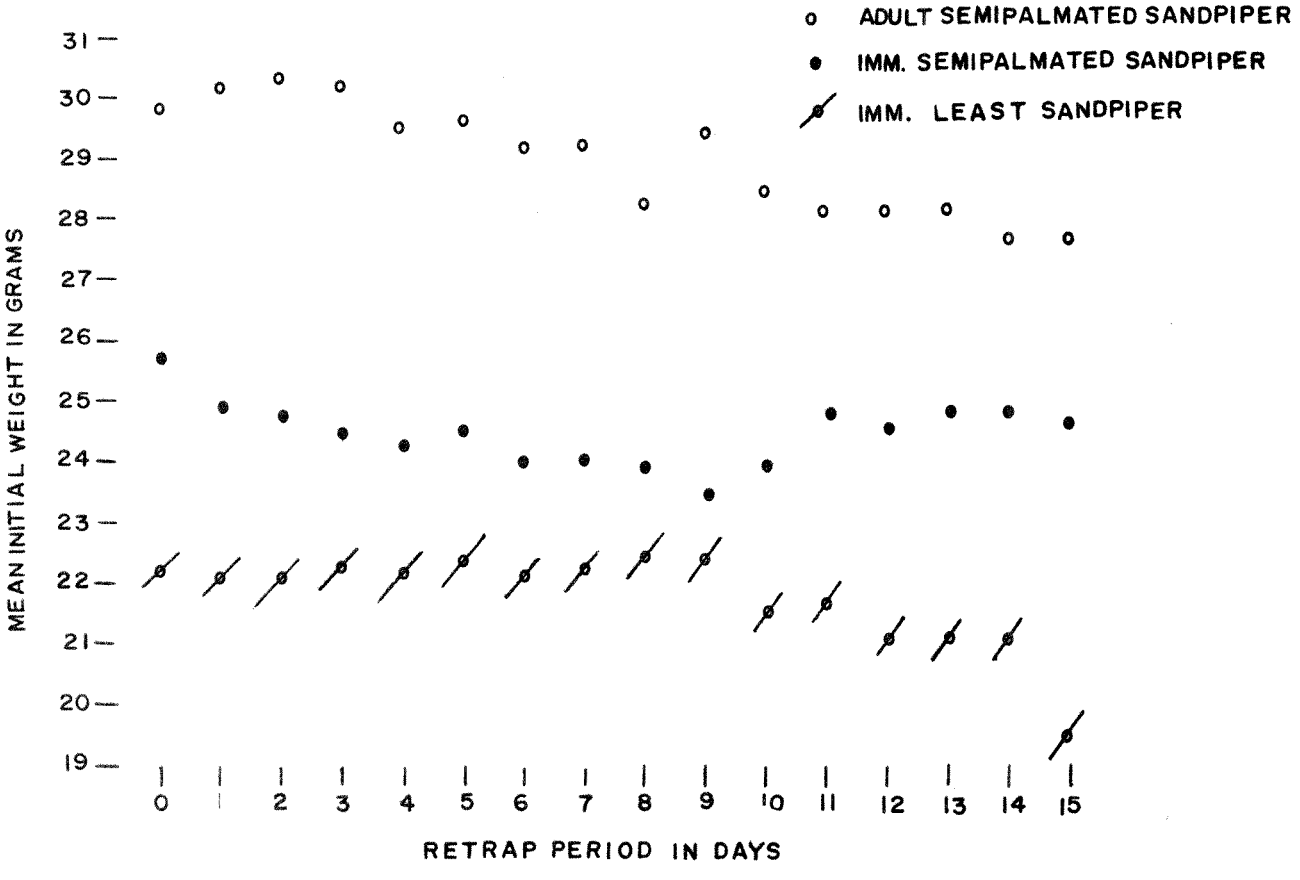

ADULT SEMIPALMATED SANDPIPER
IMM. SEMIPALMATED SANDPIPER
IMM. LEAST SANDPIPER
MEAN INITIAL WEIGHT IN GRAMS
31
30
29
28
27
26
25
24
23
22
21
20
19
0
2
3
4
5
6
7
8
9
10
11
12
13
14
15
RETRAP PERIOD IN DAYS

Figure 4.

Nisbet, I.C.T., W.H. Drury, and J. Baird, 1963. Weight-loss during migration. Part 1: Deposition and consumption of fat by the Blackpoll Warbler (Dendroica striata). Bird-Banding, 34: 107-159.

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Ontario Bird Banding 5: 60-65. (1969)

GRACKLE BANDING IN TORONTO

C. HAROLD RICHARDS

It is surprising how little we know about many of our commonest birds, and the Common Grackle Quiscalus quiscula is no exception. In the last twelve years I have banded 2,379 of these birds, for the most part in my back yard in Leaside, Toronto. I certainly would not claim to be a world authority on the species, but I hope that the experience I have gained in banding Grackles will be useful to other banders.

Trapping Methods

Grackles are very hard on mist-nets. I prefer to use Potter traps, baited with peanuts; bread crusts are useful, but they seem to attract too many Starlings. As in all banding, it is better not to leave the traps unattended for too long; Grackles have an unfortunate habit of killing any bird caught in the same trap with them. They are also apt to damage themselves by poking their beaks through the wire of the trap; this is particularly true if one is using half-inch, square-holed wire screen. One-inch chicken netting is more satisfactory, and if it is firmly "pulled" before it is applied to the framework, the holes can be reduced to about three-quarter-inch width, so that the trap is still useful for catching smaller birds.

The Grackle has the reputation of being rather a clever bird, and I have heard it said that, once caught, they are too smart to be trapped again. But my experience does not bear this out. Table 1 shows that 154 birds were recaptured a year or more after banding; among these, 15 were recaptured twice, and 4 were recaptured a third time. Of the 175 Grackles I banded in 1968, 12 were retaken within a few days. Obviously, at least some Grackles are slow learners.

Sexing

Like some other banders, I had a good deal of difficulty with this at first. According to most books, the females are duller, being iridescent only on the front part of the body. I had thought that females could be distinguished by lack of iridescence; however, a few minutes spent examining museum skins were enough to correct this impression.

Measurements are more reliable. Snyder (1937: Canadian Field Naturalist 51: 37) reports on a sample of serveral hundred birds killed in March on the Jack Miner reserve. He described four measurements by

which the sexes may be separated:

	Males	Females
Culmen length	28-34 mm.	23-29 mm.
Tail length	124-158 mm.	112-134 mm.
Wing length	131-148 mm.	118-133 mm.
Length of middle toe and claw	30-36 mm.	26-33 mm.

In practice, the tail lengths show too much overlap to be very useful. Of the others, I particularly rely on culmen length; a bird with a culmen of less than 28 mm. is almost certainly a female, and one over 29 mm. a male. After much experience with bill measurements, the bander may then begin to develop his own intuition. In the case of the females, there is a rather hard-to-describe difference in the iridescence, and a tendency for brown pigment to persist in the bird's eye, even after the second year.

Longevity

Table 2 shows that most of the recoveries of dead Grackles occurred within two years of banding; there is a steady decline after this. However, there were 3 birds which wore bands for seven years; since they were banded after the hatching year, these must have been at least eight years old. A fourth seven-year bird was still alive at last report.

Unfortunately, I have fewer recoveries of known-age birds, banded in their hatching year. These are listed in Table 3. It is interesting to note that over 70% of them were dead within three years.

However, it is difficult to interpret these longevity statistics, since band-wear is a complicating factor. I do not think we should band Grackles with soft-metal alloys. The bands wear from the inside and become thin; then the bird bites them, and on a recaptured bird the band is often found wrapped tightly around the leg, sometimes causing painful damage. Table 1 gives some figures for band-wear, with birds which I have banded and recaptured myself; I suspect that not many bands last over four years. Probably such banding is not a good way to study the life span of wild Grackles.

Causes of Death

Table 4 shows the causes of death for the 148 birds in Table 2. It is unfortunate that so many are simply "found dead" - I suspect that some reporters are too shy to admit that their cat or air rifle

Table 1. Grackles recaptured in my back yard.

Age of band in years	Number of birds recaptured	Number of bands worn out	Percentage of bands worn out
1	80	4	5.0%
2	42	5	11.9%
3	23	10	43.5%
4 - 7	9	6	66.7%
	154	25	

Table 2. Grackles reported dead.

Years after banding	Number of birds	Percentage of total
Less than 1	33	22.3
1	41	27.7
2	34	23.0
3	21	14.2
4	10	6.8
5	6	4.0
6	0	0
7	3	2.0
	148	

Table 3. Grackles banded in hatching year and later reported dead.

Years after banding	Number of birds	Percentage of total
Less than 1	14	30.1
1	12	26.1
2	10	21.7
3	5	10.9
4	4	8.7
5	1	2.2
	46	

Table 4. Causes of death.

Cause of death	Number of birds
Drowned	1
Flew against window	1
Electrocuted	2
Hit by car	4
Killed by dog	1
Killed by cat	6
Shot	23
Found dead	110
	148

Table 5. Grackles reported dead

Where found	Number of birds	When found
Ohio	4	January, March April
Kentucky	3	November, March
Tennessee	1	December
Indiana	1	May
North Carolina	1	January
Alabama	2	November, February
Virginia	1	November
West Virginia	1	June
Toronto	123	All except Dec., Jan., Feb., Mar.
Elsewhere in Southern Ontario	11	All except Dec., Jan., Feb., Mar.

Table 6. Grackles that died in Southern Ontario.

Month of death	Number of birds
January	0
February	0
March	0
April	23
May	25
June	18
July	21
August	10
September	23
October	11
November	4
December	0
	135

was involved in the matter. But many of these birds must have been victims of starvation or disease.

Migration Patterns

Table 5 shows the areas where my Grackles have been recovered, and the times of year; Table 6 shows the times of year for the southern Ontario recoveries. Taken together, they suggest that my birds are resident in the Toronto area from April till September or October, but that they then move south of the Great Lakes. It looks as though they are wintering in the northern part of the area between the Mississippi and the Appalachians.*

Abnormalities

In a sample of over two thousand Grackles, I found a fairly wide range of abnormal birds:

i. albinism

This is not very common; only one, partial albino was caught - it had three white feathers in its tail.

ii. foot and leg deformities

12 birds had legs or feet that were injured or deformed. Many of these were broken legs that had mended in a crooked shape. One bird had a very short stump leg that had healed cleanly, and he hopped quite expertly on one foot. In another case a deformed back toe was hooked over the leg, causing a nasty sore; I amputated the claw. Foot pox and burrowing mites, though not as prevalent as on the feet of Red-winged Blackbirds, Agelaius phoeniceus are not uncommon on the Grackles.

One healthy bird had legs so large that I had to band it with a 3A, instead of the more normal Size 3 band.

iii. bill deformities

One apparently healthy individual had an unusually long culmen (34.5 mm.), and the tip was hooked over like that of a Crossbill. Three others had rather large pieces missing off the ends of their beaks - presumably caused by air-rifles.

v. other deformities

Three birds had distressing body wounds in various stages of healing - again, presumably caused by air-rifles. One had a wing which had been broken and had effectively mended.

Two of my Grackles were blind in one eye. The more remarkable of these two had no tail, a raw scar covered a large area of the head, and the right eye was missing. To my surprise, I recaptured him a year later, and he seemed as energetic and aggressive as any normal bird;

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* Not all southern Ontario birds have this pattern. In 1968 I found that Grackles had left the Vineland area by mid-July, though there seemed to be a small migration in late July, and another in early October. (Editor)

there seemed to be no reason to doubt that he had made the long trip to the U.S.A.

Ogden Nash once wrote a poem about this species which concludes:

"I cannot help but deem the grackle
An ornithological debacle."

Banders who admire energy and the will to survive may feel inclined to disagree with the poet.

C.H. RICHARDS, 37 KILLDEER CRESCENT, TORONTO 17, ONTARIO.

REQUEST FOR INFORMATION

New Jersey State Museum,
Cultural Center,
Trenton, N.J. 08625
U. S. A.

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:

1. recoveries
2. returns
3. repeats
4. individual age
5. other relevant data.

Kenneth W. Prescott,
Director, State Museum.

ONTARIO BIRD BANDING

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