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Received July, 1964

# MOVEMENTS OF BLACK-CAPPED CHICKADEES AT LONG POINT, ONTARIO DURING THE SPRING OF 1962[1]

By D. J. T. HUSSELL AND R. W. STAMP

In October 1961 an invasion of Black-capped Chickadees, *Parus atricapillus*, occurred in southern Ontario (Woodford and Lunn, 1962a). During the winter numbers were well above normal both in southern Ontario (Woodford and Lunn, 1962b) and elsewhere throughout the southern part of their range (James, 1962). In the spring of 1962 a sizeable return movement was noted.

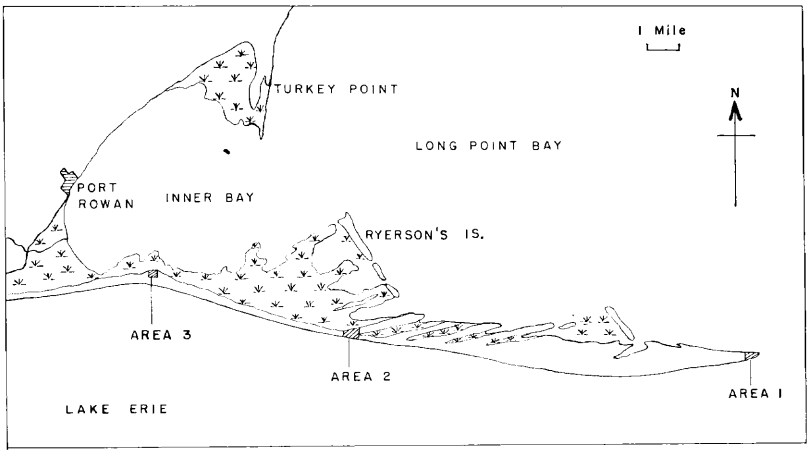
At Long Point the number of Chickadees was one of the outstanding features of the 1962 spring migration. During the period from 20 April to 3 June, 505 were banded, the second most numerous species taken. More remarkable, however, was the large number of retraps obtained, a total of 81 birds being retrapped one or more days after they were first trapped. This paper is based on an analysis of these retrappings together with other available data on numbers and movements of Chickadees.

## LOCATION AND METHODS

The Long Point Bird Observatory maintained observations at three areas on Long Point, on the north shore of Lake Erie, during the period from 20 April to 3 June, 1962. The areas are indicated on the sketch map in Figure 1.

[1]A publication of the Long Point Bird Observatory of the Ontario Bird Banding Association.

Figure 1: Map of Long Point.




Area 1: Eastern end of the point. (42° 33′ N., 80° 03′ W.)

Area 2: West end of Courtright ridge, about 12½ miles west of Area 1.

Area 3: Near Long Point Provincial Park, about 19 miles west of Area 1.

Area 1 consists of low, open dunes with scattered cottonwoods, *Populus deltoides*, mostly less than 30 ft. in height. Area 2 is situated at the western end of the major wooded part of the point, and has mature deciduous trees, mainly oak, *Quercus* sp., up to about 60 ft. in height. Area 3 contains a group of summer cottages and is located about ½ mile from the south beach; the trees in the area consist mainly of Scots pine, *Pinus sylvestris*, up to 20 ft. in height, and groups of cottonwoods up to about 35 ft. in height.

These areas were manned on the following dates:

Area 1: 20 April to 3 June (continuous).

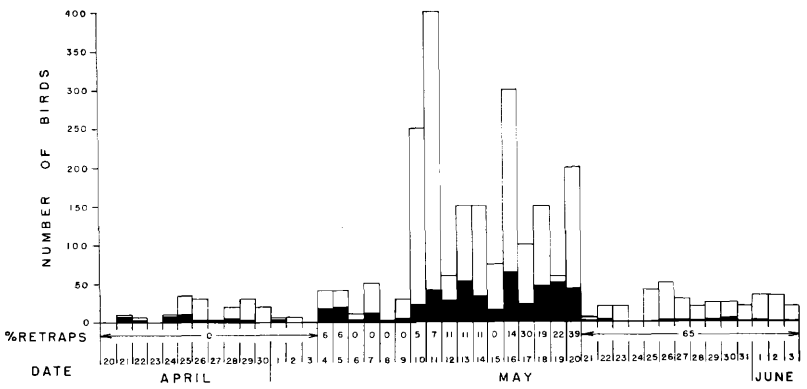
Area 2: 20 to 29 April; 5 to 21 May (except 18 May); 26 and 27 May; 2 and 3 June.

Area 3: 20 to 29 April; 5, 6, 12, 19, 20, 21, 26, 27 May; 2 and 3 June.

Three Heligoland traps were in operation in Area 1 and one in Area 2. In addition mist-nets were in use in all three areas.

In Area 1 a census was taken daily (usually between 10 and 11 a. m.) along a predetermined circuit about 1 mile in length. Based on this census, numbers trapped, and incidental observations an estimate was made of the numbers of birds present in or passing through the area, each day. These estimates were made for all species, but only the results for Black-capped Chickadees are presented here. Several different people were involved in making the censuses and estimates, and different personal errors may be ex-

Figure 2: Numbers of chickadees seen, trapped and retrapped in Area 1. The open columns represent the total numbers estimated to be present each day. The solid sections of the columns represent the numbers trapped, including retraps of birds banded one or more days earlier. "% retraps" is the number of retraps expressed as a percentage of the total number of birds trapped (including retraps) for the period concerned.




pected; but the data remain valuable in giving a broad picture of the numbers of birds involved. A similar census and estimate were made on some days in Area 2.

## RESULTS

The estimated total numbers and numbers trapped in Area 1 are shown in Figure 2, together with the percentage of Area 1 retraps in the total trapped, for each day from 21 April to 3 June. The numbers trapped varied according to the number of traps and nets in use, and the number of banders present, but it can be seen that they also tend to reflect the numbers of birds estimated to be present. The relatively small proportion of birds trapped after 20 May was probably due to reduced use of mist-nets during this period.

In Areas 2 and 3 the numbers of Chickadees noted were considerably fewer than in Area 1. A total of 45 Chickadees was banded in Area 2 and only 7 in Area 3, compared with 453 in Area 1. These differences may be accounted for partly, but not entirely, by the different periods of coverage in each area. The 7 Chickadees banded in Area 3 were all trapped on 20 April. The numbers trapped and estimated totals for Area 2 are shown in Table 1.

Data on individual retraps are shown in Figure 3. The majority concern birds both banded and retrapped in Area 1. However, there were 11 cases of birds being banded in one area and retrapped in another. In addition there were two birds recovered at Long Point which had been banded previously at Point Pelee, Ontario (about 135 miles WSW of the eastern end of Long Point). The complete data on these two birds are as follows:

TABLE 1. NUMBERS OF CHICKADEES SEEN AND TRAPPED IN AREA 2.

| Date | Estimated Total Seen | Number Trapped |
|---|---|---|
| 20 April | 3 | 1 |
| 21 " | 5 | 1 |
| 22 " | 4 | 0 |
| 23 " | 4 | 0 |
| 24 " | 4 | 1 |
| 25 " | i | 1 |
| 26 " | — | 2 |
| 27 " | — | 1 |
| 28 " | — | 6 |
| 29 " | — | 0 |
| 5 May | 10 | 2 |
| 6 " | 2 | 0 |
| 7 " | 10 | 1 |
| 8 " | 5 | 0 |
| 9 " | 15 | 4 |
| 10 " | 5 | 3 |
| 11 " | — | 1 |
| 12 " | — | 14 |
| 13 " | 20 | 4 |
| 14 " | 10 | 2 |
| 15 " | 8 | 0 |
| 16 " | — | 0 |
| 17 " | — | 0 |
| 19 " | — | 3 |
| 20 " | 6+ | 0 |
| 21 " | — | 0 |
| 26 " | — | 0 |
| 27 " | 0 | 0 |
| 2 June | 0 | 0 |
| 3 " | — | 0 |

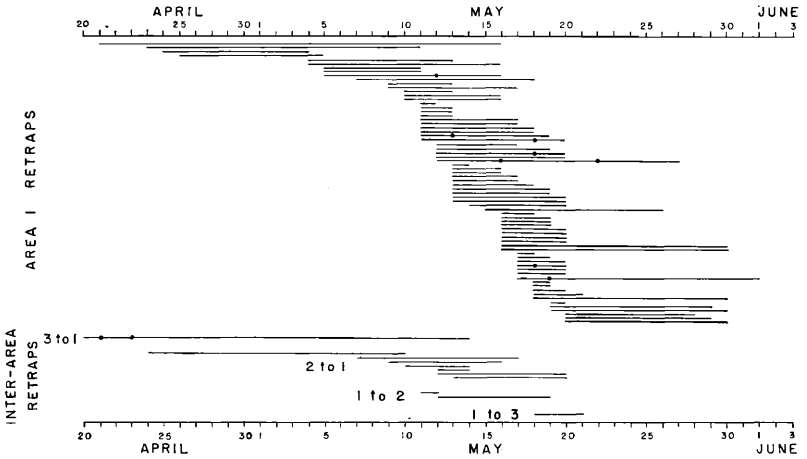
Notes: Numbers trapped include retraps from area 1.
— indicates that no estimate of total numbers was made.
i: increase noted, total numbers not estimated.

| | | | |
|---|---|---|---|
| 26-90613 | 28 April | 1962 | Point Pelee. |
| | 11 May | 1962 | Long Point, Area 1. |
| | 18 May | 1962 | " " " |
| 26-90606 | 28 April | 1962 | Point Pelee. |
| | 18 May | 1962 | Long Point, Area 1. |

*Description of movement*

The picture that emerges from these figures and diagrams is that small influxes of Chickadees occurred starting 25 April and 4 May, and that a major influx commenced on 10 May. These influxes were much more noticeable in Area 1 than in Areas 2 and 3. Heavy concentrations occurred in Area 1 from 10 to 20 May after which numbers were considerably reduced, but some birds continued to be present until early June, when observations ceased.

Figure 3: Chickadee retraps and inter-area movements. Each horizontal line shows the recorded stay of one bird. Intermediate dates of retrapping are indicated by solid circles on the lines. The upper group of lines represents birds which were both trapped and retrapped only in Area 1, while the lower group shows movements between areas. (The bird which moved from Area 3 to Area 1 was retrapped twice in Area 3, as indicated by the solid circles, before moving to Area 1).




Reference to Figure 3 shows that although the influx of 10-11 May must have contained many newcomers (this is confirmed by the recovery of one Pelee bird on 11 May) some birds which had been present in late April and early May still remained. One bird banded in Area 3 on 20 April and retrapped there on 21 and 23 April was retrapped in Area 1 on 14 May, another banded in Area 1 on 21 April was retrapped there on 16 May—stays of at least 24 and 25 days respectively.

The average recorded length of stay for all birds retrapped one or more days after banding was 6.7 days. The actual average length of stay of these birds will, of course, have been longer. Figure 3 indicates that many birds which arrived around 10-11 May were present in Area 1 until 20 May. The increasing percentage of retraps indicates that there was no major influx during the period 10-20 May, and the high proportion of retraps during the last 10 days of May suggests that few, if any, new birds arrived after 20 May.

The main movement was undoubtedly from west to east along the south shore of the Point. Of the 45 birds banded in Area 2 none were retrapped there, but 7 were retrapped in Area 1. One of the 7 birds banded in Area 3 was retrapped in Area 1. On the other hand, of 453 birds banded in Area 1 only two were retrapped in Area 2 and one in Area 3. This probably reflects the lack of coverage in Areas 2 and 3 to some extent, but it should be pointed out that both Areas 1 and 2 were manned during the peak period in May. The two Pelee birds also confirm the general direction of movement from west to east.

The evidence suggests that the rate of movement between areas was rather variable. One bird was recorded as moving between Area 1 and Area 2 in one day (27½ hours) and another from Area 2 to Area 1 in 2 days, but most of the recorded intervals were much longer. The intervals for the other six birds which were banded in Area 2 and retrapped in Area 1 were 4, 7, 7, 8, 10 and 16 days. Some of these birds may have been in Area 1 for several days before being retrapped, so their movement may have been considerably more rapid than is indicated by the figures.

During the period from 10 to 20 May movements of Chickadees in Area 1 were quite impressive. During the mornings loose flocks of up to 40 or 50 birds would move east through the cottonwoods on the south shore of the Point. Their progress was rapid, birds moving quickly from tree to tree, calling frequently. On reaching the last group of trees on the Point they would gather in the tallest trees, and, calling noisily, the flock would then take off and fly almost vertically upwards with only a small displacement eastwards over the lake. The flock would usually rise some 150 to 200 ft. very rapidly and would then become almost stationary. After a few minutes birds could be seen diving back into the trees at the end of the Point. Usually a flock would make two or three such apparent attempts to leave the Point, before dispersing into small groups and moving in a westerly direction often among the trees along the north shore. Chickadees were never observed to leave the Point and fly out over the lake. A similar pattern of movement was noted at other times but the numbers involved were not so large.

The small number of retraps in Areas 2 and 3 of birds banded in Area 1 suggests that if any substantial proportion eventually moved off the Point towards the west they must have spread out over a wide area. Possibly some followed the north shore, crossing to the mainland via Ryerson's Island and Turkey Point; however we have no direct evidence in support of this theory.

*Subsequent recoveries and retraps*

Three Chickadees banded on 16 May 1962 have been retrapped at Long Point after the period discussed above. The full details are as follows:

| | | | | | | |
|---|---|---|---|---|---|---|
| 102-01199 | 16 May | 1962 | Long Point, | | Area 1. | |
| | 27 October | 1962 | " | " | Area 3. | |
| 102-01198 | 16 May | 1962 | " | " | Area 1. | |
| | 30 May | 1962 | " | " | " | |
| | 14 April | 1963 | " | " | " | |
| 102-01153 | 16 May | 1962 | " | " | " | |
| | 16 April | 1963 | " | " | " | |
| | 6 May | 1963 | " | " | " | (Found dead). |

Another bird banded at Point Pelee in the spring of 1962 was retrapped there in the spring of 1963, and subsequently recovered at Long Point:

| | | | |
|---|---|---|---|
| 26-91673 | 20 May | 1962 | Point Pelee. |
| | 24 April | 1963 | " " |
| | 21 May | 1963 | Long Point, Area 1. |

There was no large invasion of chickadees in the fall of 1962, or any return movement in the spring of 1963 comparable with that of the previous year.

*Weather*

Examination of the U. S. Weather Bureau daily weather maps shows the following notable features of the spring weather in 1962.

(1) A warm spell 25-30 April.

(2) Cool weather 7-9 May.

(3) Increasingly warmer temperatures from 10 May, developing into an unseasonably warm spell 13-20 May.

(4) A marked drop in temperature on 21 May, followed by more normal temperatures.

Spring temperatures on Long Point are sometimes as much as 10-15 °F lower than on the adjoining mainland due to the cooling effect of the lake. For example, temperatures of over 90 °F were recorded frequently on the mainland during the period 13-20 May while the maximum temperatures at the eastern end of Long Point were 78 °F and 79 °F on 18 and 19 May, respectively. Similarly the decrease in temperature on and after 21 May was more distinct on the mainland than on the Point.

Chickadee activity on Long Point was associated mainly with periods of warm weather. However the main influx on 10 May occurred with a relatively slight rise in temperature. During the warm spell that followed Chickadees remained on Long Point, although conditions appeared to be very favorable for migration and there were indications of a rapid migration of other species at the same time. The number of Chickadees involved in the daily movements in Area 1 was sharply reduced with the end of the unseasonably warm spell on 21 May.

## DISCUSSION

The data presented in the preceding sections show a somewhat aimless spring movement of Chickadees in which moderate numbers were involved. Although retrapping of banded birds and observations of Chickadee flocks indicated a strong tendency to move towards the east, their movements were apparently deterred by the presence of a wide expanse of open water, resulting in large numbers concentrating at the eastern end of Long Point. While it is possible that many of the birds left Long Point soon after their arrival (424 of the 505 Chickadees banded were not retrapped) others stayed for a week or more. It would be of interest to know whether these birds were the same ones that had been involved in the fall 1961 invasion;

and, if so, whether they were engaged in a return movement to their area of origin. Or were they local breeding birds, or non-breeders spending the summer locally?

According to Lawrence (1958) the incursion of Black-capped Chickadees into southern Ontario in the fall of 1951 was related to a sharp decline in the number of wintering chickadees in the Pimisi Bay area of northern Ontario in the winter of 1951-1952, and was preceded by two cold and sunless summers which presumably affected the food supply. It is not known whether the 1961 invasion had the same cause and origin, but it seems reasonable to assume that many of the chickadees at Long Point in the spring of 1962 had been involved in the fall 1961 southward movement, which presumably originated in the northern part of the range.

Irruptions of tits (*Parus* sp.) in Europe in the autumns of 1957 and 1959 were thought to be due largely to abnormally high populations after the breeding season resulting from a high survival during the previous mild winters followed by a good breeding season (Cramp, 1963: 256-259). Movements of European tits mainly involve young birds (Cramp, Pettet and Sharrock, 1960: 76; Cramp, 1963: 260-261). In the spring following the 1957 irruption of Blue, Great and Coal Tits (*Parus caeruleus, P. major* and *P. ater*) ringing recoveries indicated return movements of birds towards their presumed area of origin (Cramp, Pettet and Sharrock, 1960: 75-76), but numbers recorded were well below those seen in the autumn (Cramp, Pettet and Sharrock, 1960: 66). Kluyver (1961) says that many of these birds never return to their area of origin.

Odum (1941: 320) in New York state noted the last date on which winter flocking behaviour of Black-capped Chickadees was seen as 27 April, while the first unmistakable pair had been observed on 11 April. In Massachusetts seven out of 20 pairs studied by Kluyver (1961) started egg laying on or before 28 April; the latest date recorded for the start of laying was 8 June for a second brood. In southern Ontario the median date for full sets of unincubated eggs was calculated to be about 25 May by Speirs (1963) from 20 nests in the Royal Ontario Museum. Thus, if the chickadees at Long Point in the spring of 1962 were preparing to breed either there or elsewhere in southern Ontario they were unusually late. Nesting in northern Ontario would probably be about 10 days to 2 weeks later than in the south, so possibly some may have had time to move north and start nesting activities. However, the presence of large numbers of chickadees as late as 20 May, the recoveries of Pelee birds which indicated a rather slow movement, and the retrapping of some Long Point birds in the fall of 1962 and spring of 1963, suggest that many of these chickadees were non-breeders and were involved only in relatively local wandering. If they were birds which had been involved in the fall 1961 invasion and had originated in the northern part of the range, it seems probable that many of them did not return to their area of origin in the summer of 1962.

ACKNOWLEDGMENTS

We wish to thank the many members of the Ontario Bird Banding Association who co-operated at the Long Point Bird Observatory in making the observations on which this paper is based.

Our thanks are due to the Canadian Department of Transport, the Long Point Company, and the Ontario Department of Lands and Forests for permission to work on their properties at Long Point. The Long Point Bird Observatory has received financial assistance from 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 Peterborough Nature Club, the St. Thomas Field Naturalist Club and the Toronto Field Naturalists' Club.

Mr. R. W. Ansley, Canadian Department of Transport, kindly supplied weather data for Long Point.

SUMMARY

1. An invasion of Black-capped Chickadees occurred in southern Ontario in the fall of 1961. An apparent return movement was observed at Long Point, Ontario in the spring of 1962. 505 chickadees were banded at three locations on Long Point, and 81 were retrapped one or more days after banding.
2. Small influxes of chickadees occurred starting 25 April and 4 May, and a major influx commenced on 10 May. Large numbers were present at the eastern end of Long Point from 10 to 20 May during a period of unseasonably warm weather. After 20 May there were considerably fewer.
3. Retrapping of banded birds indicated that many stayed at Long Point for a week or more. Birds arrived from the west, following the south shore of the Point, but none were seen to leave the Point to the east and fly over the lake.
4. The origin and destination of the chickadees is discussed. It is concluded that many were probably non-breeders involved in relatively local wandering; and that, if they were birds from the northern part of the range which had been involved in the fall 1961 invasion, it is probable that many did not return to their area of origin for the 1962 breeding season.

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Received September, 1964

## AN EFFECTIVE METHOD FOR TRAPPING TERRITORIAL MALE INDIGO BUNTINGS

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In the course of a long-range study of breeding and migratory Indigo Buntings (*Passerina cyanea*), I found it necessary to obtain males on their breeding territories so that these birds could be examined in the hand, color-banded, and released. It was desirable to devise a method whereby a specific individual could be trapped quickly at a specific time and place. The method ultimately devised, and the one proving to be the most effective, involved the simultaneous use of a Japanese mist net, a stuffed male in breeding plumage, and a recording of the species' song. The success of the trapping operations depended not only upon the correct use of this apparatus but also upon the strong defense of territories by male Indigos during the breeding season.

From the Laboratory of Ornithology at Cornell University a tape recording of this species' song was obtained through the courtesy of Dr. P. P. Kellogg. A "typical" song was then transferred to a nonbreakable 45 rpm record in such a way that the same song pattern was repeated at intervals over and over on the record. (Although song patterns of this species are highly variable according to Borror (1961), it seemed to make little difference afield as to which song pattern was used.) A portable, battery-operated phonograph was purchased from Herter's Inc., of Waseca, Minnesota (an "Electronic Game Caller" intended for use by crow-hunters), along with a loud speaker and 100 feet of cord. A stuffed male Indigo Bunting was prepared with wires so that it could be mounted atop a small pole in an upright and more or less life-like position behind the net. The whole apparatus—net, poles, phonograph, speaker, etc. —weighed about 20 pounds.

Once a singing, territorial male bunting was located afield, the apparatus was set up as shown in the accompanying illustration. Depending upon the amount of clearing that was necessary before the net could be strung, the entire apparatus could be set up in five to ten minutes. The mist net was placed at right angles to the plane