

PERCENTAGES OF GRACKLES TAKEN IN SUBSEQUENT BREEDING SEASONS IN A DIFFERENT BREEDING AREA FROM THE AREA WHERE BANDED

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The purposes of this study were to determine for the Common Grackle (*Quiscalus quiscula*) from banding data: (1) the percentage banded as young in one breeding area that are recovered in a subsequent year in a different breeding area, (2) the percentage banded as adult in one breeding area that are recovered in a subsequent year in a different breeding area, and (3) if analysis of the records of grackles recovered by shooting give different results than analysis of records of grackles recovered by being found dead.

PROCEDURES

All records of common grackles banded during the nesting season of April 16 through July 15, and shot or found dead in a subsequent nesting season of April 16 through July 15, were obtained from the United States Bird Banding Laboratory. All records were obtained that had been processed by the Laboratory through 1965. Grackles banded or recovered from April 16 through July 15 were assumed to be on or near their breeding sites when taken.

Records of banded grackles recaptured alive were not used because it was thought that these records would be badly biased in favor of the birds being recaptured in the same area as initially banded. The continuing efforts of most banders to recapture birds at the station where originally banded would make the capture of a bird returning to the place of banding more likely than the capture of a bird not returning to the place of banding. The same bias is probably present, but to a much smaller extent, for birds retaken dead. Banders are certainly more apt to check dead birds for bands, and to turn in band numbers to the Banding Laboratory, than non-banders.

Only records of grackles reported as recovered by being shot or found dead were used because it was found from preliminary study that over 75 percent of the records of birds recovered dead were reported to have been obtained in these two ways.

For quality control, records with inexact dates or inexact latitudes or longitudes of banding or recovery were also eliminated from the final analysis.

The remaining records (1,495) were separated into those recovered in the same or adjacent 10-minute block as banded and those recovered in more distant areas. Grackles recovered in the more distant areas were assumed to have moved to new nesting areas.

Percentages were then found separately for adult, young (immature, juveniles, and nestlings), male, and female, that were assumed to have moved to new nesting areas. This was done

first by the use of shot and found dead records lumped together, and second by the use of each type record separately.

For comparative purposes the same procedures were used for grackles banded and recovered within the restricted breeding period of May 1 through June 30. For this restricted period the assumption that the birds were captured on their breeding areas would be more positive but the number of records would be far less.

RESULTS

Larger percentages of grackles banded as young were recovered in subsequent seasons in new breeding areas than adults. For the April 16 through July 15 period the percentage of young recovered in new breeding areas was 18 percent (from 379 records of birds recovered by being found dead or shot), and the percentage of adults similarly recovered was 8 percent (from 1,116 records). These rates of recovery were statistically significant at the 95 percent confidence level (Mainland D., *et al.*, 1956*). For the May 1 through June 30 period the percentage of young recovered in new breeding areas was 14 percent and the percentage of adults 6 percent (from 142 and 501 records respectively). These rates were also significant at 95 percent level (Mainland, *op. cit.*).

Percentages of grackles recovered in new breeding areas were higher when only shot records were used for calculation than when only found dead records were used. For the April 16 through July 15 period the percentages found from shot records were 15 percent (470 records) and from found dead records 9 percent (1,025 records). This difference was significant at the 95 percent level (Mainland, *op. cit.*). For the May 1 through June 30 period the percentages found were 11 percent (190 shot records) and 6 percent (453 found dead records). This difference was not found to be significant at 95 percent level (Mainland, *op. cit.*).

Data for the April 16 through July 15 period showed little differences in the percentages of males and females recovered in new breeding areas (8 percent from 479 records for males and 6 percent from 333 records for females). Data for the May 1 through June 30 period gave roughly similar results (6 percent from 213 records for males and 4 percent from 154 records for females). Differences for neither period were found to be significant at the 95 percent confidence level (Mainland, *op. cit.*).

DISCUSSION

It cannot be ascertained why a higher percentage of grackles recovered by shooting were taken in new areas than those recovered by being found dead. However, a possible explanation is

*Mainland, D., L. Herrera, and M. Sutcliffe. 1956. Tables for use with binomial samples. Department of Medical Statistics, New York University College of Medicine (New York) 83 p.

TABLE 1. NUMBERS AND PERCENTAGES OF GRACKLES TAKEN IN SUBSEQUENT BREEDING SEASONS IN DIFFERENT BREEDING AREAS FROM WHERE BANDED

Age	Sex	How recovered	Total recoveries		No. and % taken in different area from where banded	
			April 16- July 15	May 1- June 30	April 16- July 15	May 1- June 30
Adults	male	found dead	316	149	No. 23 (07.3)	No. 8 (05.4)
		shot	137	58	14 (10.2)	5 (08.6)
	female	found dead	243	120	11 (04.5)	5 (04.2)
		shot	72	31	6 (08.3)	1 (03.2)
	sex not reported	found dead	233	97	22 (09.4)	6 (06.2)
		shot	115	46	17 (14.9)	4 (08.7)
Young	male	found dead	14	3	2 (14.3)	0. (0)
		shot	12	3	1 (08.3)	0. (0)
	female	found dead	12	3	3 (25.0)	0. (0)
		shot	6	0	1 (16.7)	0. (0)
	sex not reported	found dead	207	81	30 (14.5)	9 (11.1)
		shot	128	52	30 (23.4)	11 (21.1)

that some banders report birds killed accidentally in trapping and banding operations as found dead; and for reasons discussed previously, records obtained by banders because of banding operations would almost certainly be biased causing an abnormally large number of birds to seem to return to the same breeding area from one year to the next. If this explanation is valid, percentages obtained from shot records are probably more accurate than those obtained from found dead records.

The percentage of birds that seemingly moved to new breeding areas was always smaller when only records falling within the restricted breeding season were used. This indicates that some of the birds caught near the beginning of the longer period may not have yet arrived on their breeding areas and some caught near the end of the period may have already left their breeding areas.

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