

# MIGRATORY MOVEMENTS AND MORTALITY RATE OF TURKEY VULTURES

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This paper is an analysis of the migratory movements and mortality rate of Turkey Vultures (*Cathartes aura*) recovered after banding in North America. Because so few of these recoveries are available, a conclusive summation is not presently possible; however, it seems appropriate to consider the implications of the recovery records now available. For use in this study, all of the recovery records available on 13 October 1976 of Turkey Vultures banded in North America were obtained from the Bird Banding Laboratory, U. S. Fish and Wildlife Service, Laurel, Maryland. A total of 131 recoveries was obtained.

## *Migratory movements*

Of the 131 recoveries, most were of birds banded in Virginia (48), Ohio (27), Maryland (21), Indiana (9), Ontario (5), and Missouri (4), with 1 or 2 from each of 14 other states. Thirty-two recoveries were available of birds recovered outside the state or province of banding, and the distribution of these is shown in Figure 1.

Relatively long distance migratory movements are shown by some Turkey Vultures banded in the more northern part of their range, the longest flight by a bird that traveled from Wisconsin to Honduras, a distance of about 3,300 km. Eight birds from the more northern part of their range went to the southern part of the United States, including 1 going from Indiana to Louisiana, 1 from Michigan to Florida, 1 from Michigan to Georgia, 1 from Ohio to Mississippi, 2 from Ohio to Florida, and 2 from Ohio to Georgia. Of 49 birds banded in Illinois, Indiana, Michigan, Ohio, Ontario, and Wisconsin, 14 (28.4%) were recovered to the northward or southward of their banding places, indicating north-south migration.

The Turkey Vultures banded in the more southern part of their range showed a tendency to migrate shorter distances than those from the northern part. Thus, of 70 birds banded in Florida, Maryland, North Carolina, and Virginia, the longer flights were from North Carolina to Pennsylvania (1), Maryland to North Carolina (1), Virginia to South Carolina (1), Kentucky to Alabama (1), and from Florida to Alabama (1). The bird banded in Florida and recovered in Alabama traveled about 560 km.

The recoveries of banded Turkey Vultures indicate that some of these birds remain on their nesting grounds, even in the more northern part, throughout the year. Thus, of 27 recoveries of Turkey Vultures banded in Ohio, 6 (22.2%) were of birds present during both the nesting and winter seasons; of 9 banded in Indiana, 2 (22.2%) were present during both the nesting and winter seasons. Also, the bird recovered after banding in Connecticut was present in Connecticut during both the nesting and winter seasons. Both hatching-year (HY) and after-hatching-year (AHY) birds were

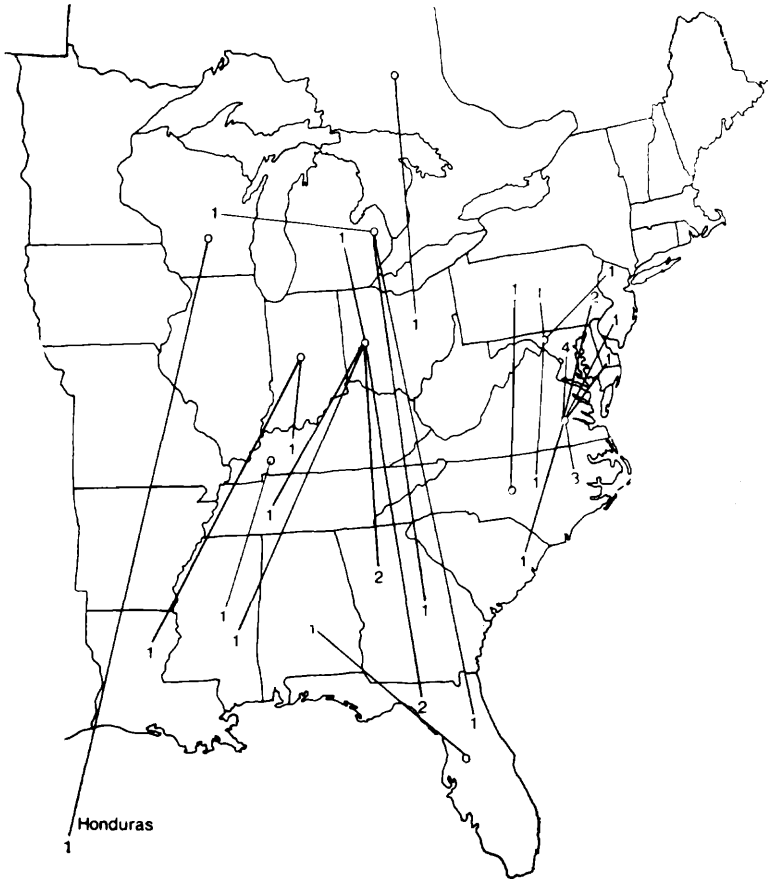


FIGURE 1. States of banding (circles) and recovery (numbers) of Turkey Vultures. The exact locations of banding and recovery within the states and provinces are not indicated by the placement of the circles and figures.

represented in this group, with five (55.6%) in the HY category and four (44.4%) in the AHY category. Thus, available data do not indicate that migratory movement is associated with age, but data are lacking on the movement patterns of birds in their second year of life.

The longer distances traveled by Turkey Vultures from the more northern part of their range has important implications relative to the development of migratory behavior in birds, the Turkey Vultures from more northern nesting areas having migrated much farther southward than was necessary to take them into suitable winter habitat. Thus, migratory behavior may be developed by the segment of the population spreading northward from the periphery of the population center, with the birds spreading into new nesting areas also carrying the tendency to travel farther in their migratory movements.

*Mortality rate*

Only 19 recoveries were available of Turkey Vultures killed or found dead after being banded in their first year of life, and these were used to construct a table of the mortality rate (Table 1). The average annual mortality rate was 21.5 percent, with one bird living into its 16th year.

TABLE 1.  
Mortality data for banded Turkey Vultures

Years of life	No. alive at start of year	No. died	Percent mortality
0-1	19	4	21.1
1-2	15	3	20.0
2-3	12	2	16.7
3-4	10	2	20.0
4-5	8	3	37.5
5-6	5	1	20.0
6-7	4	0	0.0
7-8	4	1	25.0
8-9	3	0	0.0
9-10	3	1	33.3
10-11	2	0	0.0
11-12	2	1	50.0
12-13	1	0	0.0
13-14	1	0	0.0
14-15	1	0	0.0
15-16	1	1	100.0
Total and average		19	21.5

## SUMMARY

A total of 131 recoveries of Turkey Vultures banded in North America was available for analysis. These recoveries showed that some birds of different age groups remained throughout the year in the more northern part of their nesting range, at least northward to Connecticut, Indiana, and Ohio. The birds migrating from the more northern part of their range traveled farther than those on more southern nesting grounds, with those on nesting grounds farthest north moving to more southern wintering grounds than birds on more southern nesting grounds. The longest flight was from Wisconsin to Honduras, a distance of about 3,300 km.

The average annual mortality rate was 21.5 percent, with the oldest bird living into its sixteenth year.

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