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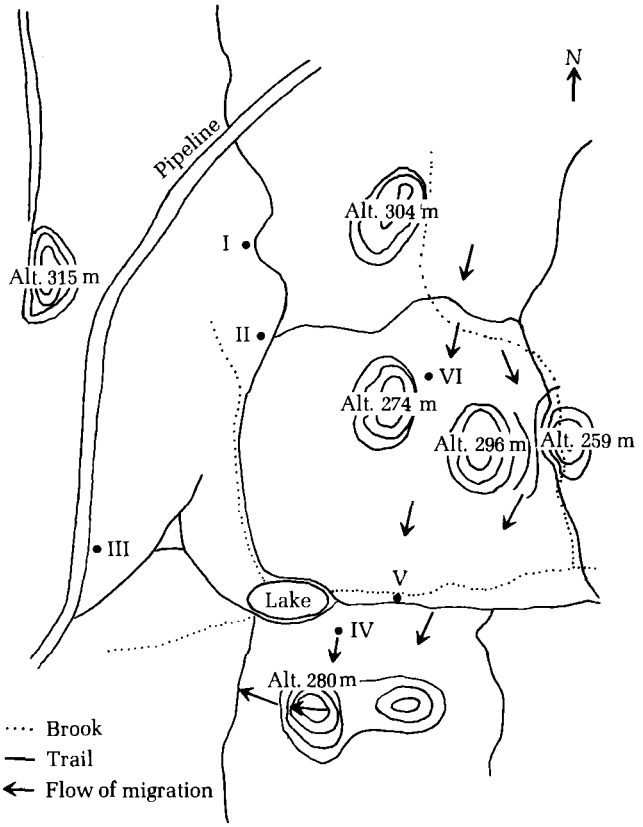

I have been intrigued by the question: What do birds do whenever they come upon a largely mountainous area? Do they avoid the area, do they fly over the area, or do they pass through the area at a lower elevation?

The following study was done in the Ramapo Mountain region of northeastern New Jersey between May 1974 and May 1977. The region lies generally southwest of Harriman State Park, New York. The area is largely privately owned: approximately one third by the Boy Scouts of America, one third by Bergen County, NJ, and one third by private individuals. The area consists of rolling hills from 50-350 m in elevation.

The Dark-eyed Junco *(Junco hyemalis)* study occurred for the most part at Camp Glen Gray Reservation of the Essex Council, B.S.A. The area is largely climax forest consisting of Red, Black, and White Oak; Tulip Poplar; maples; beeches; hickories; and the only conifer, the Eastern Hemlock. There is little secondary growth except around the campsites (particularly those not in regular use) and the roadsides. At the southeastern end of the camp there is a lake fed by springs and mountain runoff. Large stands of ferns occur along the brook that flows from the lake to the Ramapo River. The entire area is rocky; large glacial boulders are found in the eastern part of the camp (Anderson, 1976).

I used six banding sites. Site I was a small bog; no juncos were captured there. Site II was at the intersection of two trails leading to a campsite; this site produced only a few birds during the breeding season, notably Louisiana Waterthrushes *(Seirus motacilla)*. Site III was along a swath of narrow open land (location of an underground pipeline). This site did produce several juncos which, presumably, had migrated along the ridge and/or pipeline. Site IV was near the campsite along a swale. Site III was not extensively used because of interference caused by trailbikes.

From October 1974 to 30 April 1975, I banded 268 Dark-eyed Juncos. Ten or twelve times that number were observed. Banding and/or observations were made chiefly on weekends. A great many birds were retrapped (up to two months after original capture). Banded birds were also observed.

Of 7 juncos captured at site III in October 1974, 1 had been banded at Site IV, 2 hours previously. No foreign retraps were encountered; therefore I feel safe in assuming that all banded birds observed were banded in the study area.

My banding/observations seem to indicate the following:

1. Juncos used the pipeline as a guide in the early fall migration only.
2. Birds that followed the Ramapo River entered the camp along the blacktop road rather than the brook, presumably because there was more secondary growth along the road. The .6 km distance from the river to Sites IV and V gains about 120 m in altitude.
3. Banded birds were observed along a steep incline (100 to 275 m) behind the ranger's house. I believe that birds flew up the hill to the ridge and followed the ridge to the pipeline (Site III); I base

this assumption on previously-mentioned recapture data and observation.

4. A great many birds, banded and unbanded, were observed along the lower parts of the hills and along the tributaries; I believe that they follow the lower strata until they encounter an obstruction. The general flow of movement was between hills at the lower altitude.

My banding and observation stopped in May 1977 as a result of vandalism and a lack of time.

I would like to express my thanks to all who helped me with this project. A very special thanks to the Essex Council B.S.A. for the fine cooperation I received and the permission granted to use the camp for this study. Thanks to Chris Rose for suggesting this study. Deserved thanks also go to the youths who use the camp, for their foresight in treating the flora and fauna with healthy respect, so that they will remain relatively unaltered for the next generation.

Suggested reading

Anderson, Karl. 1976. How the Highlands were formed (and related papers). *New Jersey Audubon* 2:9-10.

84-55 Daniels St., #4F, Jamaica, NY 11435.