

THE MIGRATION OF TURKEY BUZZARDS AS OBSERVED  
ON BARRO COLORADO ISLAND, CANAL ZONE.

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OBSERVATIONS made on Barro Colorado Island in February and March, 1929, 1930 and 1932 indicate the regular occurrence there at that season of the Turkey Buzzard as a northbound migrant.

The facts may best be presented by quotations from my journals. They should, however, be prefaced by the statement that the island's resident Turkey Buzzard population does not, in my opinion, exceed twenty individuals. Thirteen is the greatest number that I have ever succeeded in attracting to bait; usually the number has not exceeded eight.

1929

"March 1. At about 4.15 there was an apparent migration of Turkey Buzzards toward the south. They came from as far as I could see toward the north and passed over the westerly end of the island at an average height of about 500 feet. They came in loose flocks of 25 to 50 separated by short intervals and were about half an hour in passing. Usually they sailed straight ahead without stopping but at times they circled, though still drifting southward. Following the same line of flight were numbers of large, blackish hawks rather long of tail and wing."

1930

"Feb. 25, 4.45 P. M. Eight, twenty-nine and sixteen Turkey Buzzards flew south wheeling over the western end of the island. Donato who has just come in from the south side reports seeing numbers. It was about 4 P. M., March 1, last year that with Dr. Sharpe I saw a similar sight. Then there were also hawks. This year I evidently saw just part of the flight. It seems to be a true migration. Our local buzzards were not affected."

1931

No migrating buzzards were observed. But I was away from the island March 2-5 when it is possible they may have occurred.

1932

"March 4, 3.30 P. M. With Thomas Barbour, from under my house looking NE., we saw a loose flight of Turkey Buzzards at a height of 4000-5000 feet flying southwest. There were several hundred birds approximately over the island at the same time and others were visible to northeast as far as we could see. They moved in a straight line without circling and sailed without flapping. The wind was very light; the usual northerly trades. The flight lasted continuously for ten minutes, and half an hour later a few more buzzards passed. Meanwhile our local birds were circling as usual. There were no hawks with the buzzards."

"March 5. Turkey Buzzard flight, as reported by Barbour, was continued this morning, about 250 birds going over between 10.50 and 11. The line of flight was slightly more westerly. At times they circled thus giving time for stragglers to join the main body."

"March 6. More buzzards were seen this morning at the same time as yesterday. About fifty passed over the ridge to the west at a height of 2000 feet. Their direction was southwesterly and once they circled. Soon after Dr. Barbour discovered some minute specks against a white cloud overhead. With a 24-power glass they proved to be buzzards and black hawks, apparently the same long-tailed, pointed-winged species I have before seen associated with migrating buzzards here."

"March 17, 5.50 P. M. About 500 Turkey Buzzards went over southwesterly in whirling flock and strung out loosely at an altitude of approximately 1500 feet. They were not more than five minutes in passing."

"March 19. As we came to Fuertes House by launch this morning, at between 7.45 and 8, we passed five tall, leafless trees, usually on ridges, in which Turkey Buzzards were roosting. One contained 22, nine more than I have ever seen together on the island. The other trees contained from three to about nine birds. These were apparently migrating birds which had roosted over night on the island and, becalmed, were waiting for enough wind to resume their flight. Apparently these birds passed over our head at 9.10 circling broadly as they disappeared to the southwestward."

"March 24. At about 9 A. M. between 100 to 125 buzzards were seen whirling low over forest east of dock. They had evidently

roosted on the island and circling, soon gained an altitude at which they slid off to the southwest and disappeared.”

These observations give rise to a number of questions. First, why were so many more birds seen in 1932 than in 1929 and 1930? In reply I can only suggest that this variability was occasioned by change in the line of flight. Our station at Barro Colorado gives us an extended view only toward the north. The birds observed were confined to a comparatively narrow area, a shift of which a mile to either west or east would have carried them beyond the zone of visibility. This theory does not satisfactorily explain the apparently more prolonged migration of 1932; but it is the only one that occurs to me.

Second, why were northbound birds flying toward the south or southwest? The answer is, apparently to follow the general trend of the land which is here toward the southwest. Kingbirds (*Tyrannus tyrannus*) and Barn Swallows (*Hirundo erythrogaster*) follow a similar course in their northward migrations across the Canal Zone.

It is to be noted that the buzzards evidently migrated only by day, and also that those that passed the night on the island did not continue their journey until 9 A. M. In this connection it should be observed that all the migrating birds noted were sailing and were doubtless, therefore, availing themselves of favorable winds or air-currents. Such atmospheric conditions, presumably, do not occur until the trade-wind arises in the morning or the rays of the sun warm the earth sufficiently to produce ascending air-currents. Hence, as my notes say, the birds are practically becalmed until proper sailing conditions arise.

Third, where were these birds bound? Doubtless to a region where the buzzard is not a permanent resident; in other words, to the more northern parts of its North American range. According to our 'Check-List' this species "winters throughout most of its regular range on the Atlantic slope but not north of the Ohio Valley, Nebraska, and California." So we may think of these buzzards as headed for somewhere north of these limits and between British Columbia and Ontario or central New York. If this is true, their migration affords a notable case of "over-lapping" in

which non-residents pass over the area occupied by resident individuals of the same species. Whether the extent of their journey is governed by existing conditions or is what may be termed a "relic habit" is a subject for speculation.

Finally, we ask, on what do these birds feed while migrating? This is an exceedingly interesting question. During the winter they are doubtless distributed over a wide area and do not, therefore, make an appreciable demand upon the food-supply of any one place. But while migrating their numbers are concentrated and from the nature of their feeding habits it would require exceptional conditions to supply them with food. In nature the food-supply of buzzards must be variable in quantity. To a limited extent they may capture small living prey but in the main they are dependent on carrion. Barro Colorado has an exceptionally abundant mammalian fauna, nevertheless it supports apparently less than a score of buzzards and it is more than probable that there are many days in their year when these birds go without food.

Certainly the migrating buzzards that passed the night on the island continued their journey without breakfasting. It is possible that at some resting-places the travellers may be more fortunate, but once started on their diurnal journey it seems probable that the impulse of migration and the further stimulus of flock association prompt them to continue their journey until nightfall.

It is conceivable that a group of migrating buzzards, as do migrants of many other species of birds, might rest for a day or more in their journey. But it must be remembered that if, as has been surmised, these birds are en route to their summer home in the northern United States and southern Canada, they are always passing over a country which has a resident buzzard population that only rarely, in nature, has a surplus of food. The chances, therefore, of their finding food while migrating are limited and it seems more than probable that the journey from winter to summer quarters is accomplished without feeding. Even though buzzards are doubtless accustomed to fasting, this would imply that they must travel rapidly. If my theory in regard to the destination of the Panama migrants is correct, it is evident that they lose no time while on the way.

The earliest dates on which migrating birds have been observed

at Barro Colorado are February 25, March 1, and March 4. The earliest date on which they have been recorded from southern Minnesota is March 16. (Roberts.) The distance by land between these two localities is approximately 3600 miles. Assuming that buzzards while migrating average forty miles per hour and that they fly nine hours per day it would require ten days for a buzzard to migrate from the Canal Zone to southern Minnesota. This estimate makes no allowance for time lost in circling, which the birds occasionally do, perhaps to enable stragglers to keep up with the main body.

These figures, therefore, tend to support the theories advanced in regard to the buzzards' general destination, to their continuity of flight, and abstention from food while migrating.

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