

The sizes of forms are used for birds like the following: 1 Ruby-throated Hummingbird, 2 House Wren, 3 Yellow Warbler, 4 House Sparrow, 5 Common Starling, 6 Common Grackle, 7 Rock Dove, and 8 Ruffed Grouse.

LITERATURE CITED

ANDERSON, R. M. 1932. Methods of Collecting and Preserving Vertebrate Animals. Bulletin 69. National Museum of Canada.

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DISEASES AND INJURIES OF JAMAICAN BIRDS

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From August 1955 to May 1956 as holder of a Fulbright fellowship in Jamaica I was able to handle about 860 birds of forty-odd species at various places on the island. It is not surprising that some evidences of disease, deformity or injury were found. Unfortunately it was not feasible to make a special investigation of the pathology of these examples.

Streamer-tail (*Trochilus p. polytmus*). An immature male had the mandible blunt and deflected at the tip. More than 70 examples of this species were handled.

Loggerhead flycatcher (*Tyrannus caudifasciatus jamaicensis*). Two out of three handled at Woodstock (Westmoreland)¹ showed more or less swelling of the bases of the toes. Six others banded elsewhere were normal.

Northern mockingbird (*Mimus polyglottos orpheus*). One of two banded at Woodstock had the bases of the left toes swollen. Eight banded elsewhere were normal. This swelling of the toes was only seen at Woodstock, unless the male redstart noted later at Hermitage Dam showed the same affection. I rather doubt that this swelling is an earlier stage of what is described below as "scaly leg." No examples of the latter were seen at Woodstock.

White-chinned thrush (*Turdus aurantius*). Four of the seven banded at St. Michael's Seminary, Manning's Hill (St. Andrew), showed swelling of the toes or tarsi with strong distortion of the scales. No indication of exudation was noted. In appearance the condition resembles "scaly leg" (cnemidocoptiasis) in the red-winged blackbird. I am adopting the term for the condition seen in the West Indies without proof of identity. It was not found on 10 white-chinned thrushes banded elsewhere but did occur on two birds of other species banded at the Seminary.

Bananaquit (*Coereba f. flaveola*). One out of four banded in Prof. Parry's garden, Mona (St. Andrew), had a swelling at the chin about

¹Parish names in parentheses.

five mm. long and about three mm. in diameter. The left side of the maxilla was distorted. Compare the black-faced grassquit described beyond.

"Scaly leg" was noted for one of five bananaquits banded at Liguanea (St. Andrew) and one of 34 banded at St. Michael's Seminary. The only bananaquit (*C. f. portoricensis*) banded at Ponce, P. R., showed very severe "scaly leg." At other localities in Jamaica 63 bananaquits were handled without finding the condition.

Orangequit (*Euneornis campestris*). Of 10 banded at Hermitage Dam (St. Andrew) one had the right middle toe missing beyond the second phalanx and also a healed break of the upper right tarsus. One out of 29 banded at St. Michael's Seminary showed an abbreviated right hind claw. Seventy-four of this species handled at other places had no apparent injury or disease.

Black and white warbler (*Mniotilta varia*). Twenty-two were handled, of which one had the tip of the maxilla missing.

Parula warbler (*Parula americana*). One had the left leg missing beyond the middle of the tarsus. In all, eight were handled. An incident recounted to me some months ago suggests that amputations of this sort may be the result of strangulation of the leg by nesting material while the victim is a fledgling.

Ovenbird (*Seiurus aurocapillus*). Out of 49 banded one had a healed break of the left tarsus.

Redstart (*Setophaga ruticilla*). One out of two banded at Hermitage Dam showed a swollen basal phalanx of the right hind toe. I do not know whether this swelling was of the same origin as those noted above. Eighteen redstarts banded elsewhere were normal.

Jamaican oriole (*Icterus l. leucopteryx*). One of the two orioles banded at St. Michael's Seminary had "scaly leg" of the left toes. Five others banded elsewhere were free of disease.

Black-faced grassquit (*Tiaris bicolor marchi*). One of 10 banded at Liguanea had a swelling about 10 by 4 mm. on the underside of the left carpal joint. Flight seemed to be unimpaired. Of seven handled at Hope Gardens (St. Andrew), one had a healed fracture of the right tarsus.

Thirty of this species were banded at St. Michael's Seminary. Three of these had injuries to the feet: end of right rear toe recurved and claw short, straight, and blunt; both outer toes missing beyond the first phalanx; right outer toe missing beyond the second phalanx.

Only one of 44 banded at Content Gap (St. Andrew) showed injury. This one had a fully healed scar on the left side of the head running from above the eye through the nostril and two-thirds the length of the beak.

The 28 birds banded elsewhere showed no injury or disease.

Yellow-backed finch (*Loxipasser anoxanthus*). One of two banded at Hope Gardens had "scaly leg" of both feet. Forty-three banded elsewhere were normal.

Greater Antillean bullfinch (*Loxigilla violacea ruficollis*). One of three banded at Hermitage Dam had a healed transverse injury near the middle of the mandible. The theca was grooved and somewhat displaced downward. Thirteen banded elsewhere were normal.

DISCUSSION

Some points stand out clearly from the cases described above. The over-all rate is 3.3 per cent. In itself this figure does not mean much except as a general guide. Visible injury or disease is present on a small minority of birds handled. If we consider the three species which were banded in greatest number, we find a rate of 1.8 per cent for the orangequit, 2.9 per cent for the bananaquit, and 5 per cent for the black-faced grassquit. Even in these species one case more or less would change the figures given by nearly 1 per cent.

Our guide serves to show that the lack of any record for the yellow-faced grassquit (*Tiaris o. olivacea*) is not strange since the expectation is only one case. Similarly, if we apply the over-all rate to the 65 birds banded on Grand Cayman in October, 1956, when no instances of disease or injury were observed, we would only have expected two cases.

In the native birds 59 percent of the total cases may be regarded as disease but only 25 percent of the four cases among the migrants handled. This difference in incidence may be real.

The situation in regard to what I have called "scaly leg" is interesting. It is responsible for at least 61 percent of the observed cases of disease among the local birds. Its incidence in these resident birds is 1.2 percent. At this rate one could only expect about two cases in the 196 migrants from North America handled. It is more informative to consider all the individuals I have handled of the species represented in the Jamaican bandings. This total is 807 and at the rate of incidence for Jamaican breeding birds, one would expect nine or 10 cases instead of none. The available evidence leads to the conclusion that the particular form of "scaly leg" here recorded is confined to arboreal or semi-arboreal West Indian birds and may not be identical with that affecting the red-winged blackbirds in North America.

No injuries of the feet clearly assignable to foot-pox were observed.

The observation of injuries of the right leg more frequently than of the left leg may be a systematic error arising from routine banding on the former leg. Even the attempt made to examine also the left leg might still result in a more cursory view of it.

The location of observed injuries or evidence of disease is reasonably logical. The actual surface of the bird is most readily observed on the lower legs, the front of the head, and the under side of the wings. Elsewhere the feathers obscure all but injuries extensive enough to disturb their orderly arrangement, unless injury or disease results in considerable loss of feathers.

Detectable fracture of a wing bone would almost certainly be too disabling to permit long survival in the wild. I know of two cases in the literature. On the other hand, fracture or amputation of one leg or partial loss of toes of both feet appears to have a rather small effect on survival. Enough injuries or malformations of the beak are observed to suggest that, if healing occurs at all, the ultimate effect is slight.

No instances of loss of flight caused by wing strain during handling, nor of sudden death, were observed.

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