

PROBABLE OCCURRENCE OF THE BLACK BITTERN,
Dupetor flavicollis (Linnaeus), IN NEW ZEALAND

Lake Poukawa and its encircling swamp, adjacent to which are some archaeological sites, lies some 20 km south-west of Hastings, Hawkes Bay. Extensive systematic excavations by Mr T. R. Price on four of the sites have yielded a considerable number of avian bones from various stratigraphic levels (Price 1963). The soil of the drained peaty swamp contains a number of volcanic ash beds, the most distinctive being the Taupo Pumice (1849 ± 17 years BP) and the Waimihia Ash (3470 ± 70 years BP) (Pullar 1970). There has been some discussion as to whether the bones found below the Maori midden layers were natural deposits or were the results of early human hunting activity (Price 1965, Pullar 1970, McFadgen 1979).

Fifty-four species of bird, excluding the moas, have been identified from the four sites. During analysis of the bone material from site N141/12 (NZ Archaeological Association reference number) (Grid Ref. N141/140050), five bones referable to a small bittern were found. I considered it possible that they were of the Australian Little Bittern, *Ixobrychus minutus*, or its presumed extinct New Zealand counterpart, *Ixobrychus minutus novaeselandiae* (Falla 1964). There are only small quantities of bone material from these species in New Zealand museums, although several mounted skins are available.

Three of the bones were examined by Dr G. F. van Tets, CSIRO Division of Wildlife Research, Canberra. He found that they were definitely from a small bittern, but although agreeing in shape with *Ixobrychus*, were much too large to be of either *minutus* or *novaezelandiae*. They were also too large to be from the Yellow Bittern (*Ixobrychus sinensis*). Dr van Tets concluded that the bones were most probably those of the Black Bittern (*Dupetor flavicollis*). This is the first record of that species from New Zealand. The measurements of the five bones from Poukawa were similar to those obtained from X-ray photographs of nine skins of the Black Bittern held by the CSIRO Division of Wildlife Research. *Dupetor* has at times been placed in the genus *Ixobrychus*, but most authors prefer to keep them separate (Condon 1975).

The bones recovered at Poukawa were two right femora, one right and one left tibiotarsus, and a left tarsometatarsus (Fig. 1). One femur (from a submature bird) was excavated from a Maori midden deposit. The tarsometatarsus and left tibiotarsus were found together 3 cm below the Taupo Pumice band, and are probably from the same bird. The other tibiotarsus was situated 2 cm below the Taupo Pumice, and the remaining femur was 2 cm above the pumice band. All the bones were broken, with the proximal end missing in each case. Those measurements obtainable are listed in Table 1.

It would appear, therefore, that a minimum of three, but probably four, birds are represented at Poukawa. The most recent example, the

TABLE 1 — Measurements.

	D.	M.	
Tarsometatarsus*	—	0.29	
Tibiotarsus L.*	0.64	0.29	
Tibiotarsus R.	0.62+	—	(worn)
Femur*	0.63	0.31	
Femur	0.59+	0.29	(worn, submature)

(* = bones examined by Dr G. F. van Tets)

submature femur, would be between 150 and 300 years old, as this is the presumed period of Maori occupation, during which the midden was formed (McFadgen 1979). By measuring the vertical distance between layers of known age, the rate of soil build-up on the ridge slope of site N141/12, where the bones were found, has been calculated at approximately 1 cm every 100 years. Hence the estimated age of the femur found just above the Taupo Pumice is 1650 years, and the bones below the pumice band would be about 2150 and 2050 years old.



FIGURE 1 — Bittern bones from Poukawa, From left: R. femur, submature (posterior aspect), R. femur (posterior), R. tibiotarsus (anterior), L. tibiotarsus (anterior), L. tarsometatarsus (anterior).

While four birds do not represent a great abundance of the species, I consider it probable that the Black Bittern was a not infrequent visitor to Lake Poukawa. In terms of minimum numbers of species from site N141/12, it comprised 0.17% of the total avian population from the Maori occupation era (100-1000 years BP) and 0.15% from the Taupo era (1000-2500 years BP). The Paradise Shelduck and Southern Crested Grebe were found in proportions similar to the Black Bittern.

The presence of the submature femur also raises the possibility that this species was breeding in New Zealand. This would not be unlikely, in view of their estimated abundance.

Dupetor flavicollis is found in southern and south-eastern Asia, New Guinea, the Solomons and Australia. One of the five subspecies, *Dupetor flavicollis gouldi*, occurs in Australia. Its recognised range is from the Moluccas to New Guinea, and coastal Australia, except for the southern regions (Condon 1975). It lives near fresh or salt water, in the timbered regions of streams, lakes and mangrove swamps.

LITERATURE CITED

- CONDON, H. T. 1975. Checklist of the birds of Australia; I. Non-passerines: 59.
 FALLA, R. A. 1964. Note on the Little Bittern. *Notornis* 10: 412-413.
 McFADGEN, B. G. 1979. The antiquity of Man at Lake Poukawa, New Zealand. *J. Roy. Soc. NZ* 9: 375-382.
 PRICE, T. R. 1963. Moa remains at Poukawa, Hawkes Bay. *NZ Arch. Ass. Newsl.* 6: 169-174.
 PRICE, T. R. 1965. Excavations at Poukawa, Hawkes Bay, New Zealand. *NZ Arch. Ass. Newsl.* 8: 8-11.
 PULLAR, W. A. 1970. Pumice ash beds and peaty deposits of archaeological significance near Lake Poukawa, Hawkes Bay. *NZ J. Sci.* 13: 667-705.

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COLOUR-MARKED TURNSTONE IN MANUKAU HARBOUR

At this late date it seems worth recording that a Turnstone (*Arenaria interpres*) showing brilliant orange dye on its rump and tail was seen at Karaka shellbanks on 3/12/67, after the summer shorebird census. The writer, with S. Fogarty, T. Harty and S. Payne, had set out to walk the banks to check through the small birds when the Turnstone flew past us. H. R. McKenzie found through correspondence with the late Keith Hindwood in Australia, that the bird had been marked on the Pribilof Islands, off Alaska, shortly before the southern migration and that a similarly marked Turnstone had been seen in Australia at about the same time. Unfortunately no further details are available but banding of migratory waders now under way in New Zealand may be expected to produce interesting results.

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