

POSSIBLE NEST-PARASITISM IN THE AUSTRALIAN STIFF-TAILED DUCKS (ANATIDAE : OXYURINI)

Friedmann (1932) wrote: 'It has been well known for many years that a number of kinds of waterfowl are rather careless in their egg-laying habits, not infrequently laying one or more eggs in a nearby nest of another bird of the same or other species, but still caring for their own nests and eggs. . . Among all the groups of birds involved, the habit is met with most frequently in the Anatidae.' Friedmann considered that this tendency to parasitism among the Anatidae reached its climax in the tribe Oxyurini and its pinnacle in the apparently wholly parasitic Black-headed Duck *Heteronetta atricapilla* of South America. However, he did not specifically mention the two Australian members of the Oxyurini, the Blue-billed Duck *Oxyura australis* and the Musk Duck *Biziura lobata*, as practising this habit nor is such behaviour mentioned by Frith (1977) for these two species (though the irregularity of more than one female laying in the one nest has been at least suspected for these species). Below we draw attention to two earlier reports of parasitism in *B. lobata* and to our own observations of parasitism in this species and in *O. australis*.

Campbell (1900 : 1055) wrote: 'On the 31st December, 1893, Mr. Morton flushed a Black Duck [*Anas superciliosa*] from one Musk Duck's egg and seventeen Black Duck's eggs, while five other eggs were scattered round the nest. All were fresh.' Lashmar (1937) reported finding an egg of *B. lobata* in the nest of a Dusky Moorhen *Gallinula tenebrosa* with five eggs of the latter, on Kangaroo Island on 18 October 1936.

ARA recorded the following in the Bool Lagoon Game Reserve, 37°07'S, 140°42'E, south-eastern South Australia:

24 October 1942, nest of Hardhead *Aythya australis* with eleven eggs of host and three of *B. lobata*;

24 October 1942, nest of Dusky Moorhen with eight eggs of host and one of *B. lobata*;

20 October 1946, nest of Pink-eared Duck *Malacorhynchus membranaceus* with seven eggs of host and two of *B. lobata*;

20 October 1946, nest of Blue-billed Duck *O. australis* with eight eggs of host and two of *B. lobata*;

16 November 1947, nest of Black Duck with eleven eggs of host and two of *B. lobata*.

The first time JMB recorded a Musk Duck laying in another bird's nest was in the spring of 1956 in the Bool Lagoon Game Reserve. He flushed a Grey Teal *Anas gibberifrons* from a nest in a cutting-grass tussock that contained eleven eggs and one of the Musk Duck. He has since seen quite a few similar instances, nearly all in Bool Lagoon, mainly in nests of Grey Teal and Hardheads.

On 10 October, 1971, a very wet year in the area, JMB inspected a swamp at Lochaber, 36°50'S, 140°32'E, about thirty-two km north-west of Naracoorte. Breeding ducks were plentiful: Musk, Blue-billed, Hard-

head and Black Ducks and Grey Teal. Nearly all the nests (about fifty were found) were built in cutting-grass tussocks in water thirty to fifty centimetres deep. Most nests of the smaller ducks had at least one egg of either a Blue-billed or Musk Duck and some had both. He noted some unusually large clutches, e.g. Musk Duck with nine eggs and Blue-billed Duck with eleven eggs. (The last was the only nest he found there that had only Blue-billed Duck's eggs in it. All the other Blue-billed Ducks' eggs seen were in combination clutches, mainly with Musk Duck; which bird was then the host and which the parasite it was not possible to ascertain). A nest from which a Black Duck was flushed (in a hollow stump some fifty centimetres above water-level) contained twenty-six eggs including three Musk Ducks' and two Blue-billed Ducks' eggs.

The last time JMB noted a combination clutch was in Bool Lagoon on 12 December 1978, when he flushed a Hardhead from a nest containing two eggs of that bird and two of a Musk Duck. He inspected this nest a week later and found it deserted. This combination clutch is now in the S.A. Museum, B32060-32061.

All the Musk Ducks' and Blue-billed Ducks' eggs referred to above by JMB were fresh and lying beside or on top of the eggs of the host. Proof that such eggs could have been freshly laid is available from Bool Lagoon in 1956, when numerous combination clutches containing Musk Duck eggs were found by ARA in 44-gallon drums erected *that season* to encourage the waterfowl to nest. However, both JMB and Dr L. W. Braithwaite (*in litt.* 9 March 1979) have found *old* eggs of the Musk Duck hidden in the nesting material of other ducks (always Black Ducks in the latter's experience), suggesting that the other duck had simply used an old Musk Duck's nest and eggs as a base for its own nest.

Friedmann noted that the eggs of the Oxyurini were, relative to the body-size of the species, the largest eggs of any of the Anatidae. He supposed that the large size of these eggs was correlated with heat-retaining or heat-generating abilities as a consequence of the reduced amount of parental incubation received, as in, for example, *O. jamaicensis* and *O. leucocephala*. Friedmann also reported that Henke found that eggs of *O. leucocephala* hatched of their own accord a week after being left on a warm stove for several hours.

Parental care of the young appears to vary markedly among species of Oxyurini. In *B. lobata* the ducklings are actually fed by the mother and commonly ride on her back (Frith 1977: 318). In the parasitic *H. atricapilla*, however, the fostered young may require no care at all, to judge by the fact that one of its regular hosts (apart from coots, rails, screamers, ibises and other ducks) is the colonially swamp-nesting Snail Kite *Rostrhamus sociabilis* (Delacour 1959: 264; Höhn 1975).

In view of the tendency among waterfowl to lay on occasion in nests other than their own (Friedmann *op.cit.*), it may be that the behaviour cited above for *O. australis* and *B. lobata* is a response to local crowded conditions. On the other hand, the relatively huge eggs of the Oxyurini, with their unusual physiology, and the apparent obligate parasitism of *H. atricapilla*, give grounds for interpreting the above behaviour of the two Australian species as facultative parasitism. The incidence of parasitism in the Australian stiff-tails, the hatching success of host-brooded eggs and the degree of foster-parental care given to the young are matters deserving further attention.

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MIGRATION BY HUTTON'S SHEARWATER

Hutton's Shearwater *Puffinus huttoni* is a medium-sized black-and-white shearwater, which Serventy *et al.* (1971) and Harper and Kinsky (1978) regard as a substantially sedentary species, restricted to waters between Cook Strait and Banks Peninsula on the South Island of New Zealand, although they record that immature birds regularly visit southern Australia. The species breeds in the Seaward Kaikoura Mountains at heights over 1,300 metres above sea-level (Harrow 1965). Birds return to the breeding grounds in September and leave in March or early April when many newly fledged birds have been collected (Harrow 1965, 1976; Falla 1965). Recent observations show that at least some *P. huttoni* spend the season, when not breeding, in the northern Indian Ocean.

I spent 31 July to 6 August 1978 and 30 July to 9 August 1979 about twenty-five kilometres north of Point Cloates, WA. Every day, in four to six hours of observation, several hundred *P. huttoni* were seen about five kilometres offshore (22°30'S, 113°40'E), usually in small flocks comprising between four and twenty birds, but occasionally single birds were seen. All *P. huttoni* that I saw were travelling south. Large numbers of Wedge-tailed Shearwaters *P. pacificus* were also travelling southwards; they frequently gathered in large flocks of more than a hundred birds to feed in association with schools of bonito-like fish. In contrast, only rarely did a few *P. huttoni* join these feeding flocks and no large feeding flocks of the species formed. All *P. huttoni* were at least five kilometres from the shore, i.e. three kilometres or more outside the line of coastal reefs along

this part of the Western Australian coastline. It is not known how much farther offshore the birds occurred.

A specimen of *P. huttoni* was collected on 9 August 1979 and lodged with the Western Australian Museum (Reg. No. A16233). Its details are: total length 337 mm; wing 224 mm; tail 73 mm; entire culmen 49.8 mm; exposed culmen 37.5 mm; inside leg and webs of foot pale pink, outside leg and toes dark brown; weight (frozen) 370 g. Details of plumage are as described by Kinsky and Fowler (1973) for *P. huttoni*: under wing-coverts with dark shafts and smudgy brown outer vanes from carpal joint outwards; long axillaries dark brown and oval-ended; exposed under tail-coverts white but anterior lateral feathers having brown outer vanes; longest (concealed) pair of under tail-coverts mainly dark brown. The bird was a female with abundant subcutaneous and sub-peritoneal fat and an ovary measuring 15.0 × 5.5 millimetres. Histological examination of this ovary showed it contained pedunculate secondary follicles, several of which were 1.3 millimetres in diameter. In the bird's crop were the remains of fish up to thirty millimetres long.

A second specimen, which had been dead for one or two days, was collected on North Cottesloe Beach (31°58'S, 115°45'E) by Miss Ednah Milne on 21 October 1979 and lodged with the Western Australian Museum (Reg. No. A16281). Its details are: total length 361 mm; wing 217 mm; tail 67.5 mm; entire culmen (tip lost) 48 mm; exposed culmen 36 mm; weight 252 g. Coloration of soft parts and plumage is similar to that of the first specimen. The bird appeared to be mature but non-