



The helminth parasites of the sheathbill, *Chionis alba* (Gmelin), and the diving petrels, *Pelecanoides georgicus* (Murphy and Harper) and *P. urinatrix* (Gmelin), at Bird Island, South Georgia

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ABSTRACT

Twelve sheathbills, *Chionis alba*, 12 South Georgian diving petrels, *Pelecanoides georgicus*, and 5 common diving petrels, *P. urinatrix*, collected at Bird Island, South Georgia, were examined for helminth parasites. These appear to be the first helminthological examinations of birds from South Georgia. Eleven of the 12 sheathbills were infected with helminth parasites and the pattern of infection of adult male and female birds was similar. Five species of helminths were found in sheathbills, namely *Gymnophallus deliciosus*, *Notocotylus chionis*, *Paramonostomum signiensis*, *Lateriporus australis* and *Corynosoma hammani*. Two species, name *Tetrabothrius* sp. and *Stegophorus heardi*, were found in both *Pelecanoides georgicus* and *P. urinatrix*.

The helminth parasites of whales and seals in the Antarctic and Subantarctic have been extensively studied, while in comparison those of birds from these regions have been neglected. As far as we are aware there are no previous reports on helminth parasites from the sheathbill, *Chionis alba* (Gmelin), the South Georgian diving petrel, *Pelecanoides georgicus* (Murphy and Harper), and the common diving petrel, *P. urinatrix* (Gmelin), from South Georgia.

MATERIAL AND METHODS

Twenty-nine birds, comprising 5 juvenile and 7 adult *C. alba*, one chick and 11 adult *P. georgicus* and 5 adult *P. urinatrix*, were collected by MJP on Bird Island, South Georgia (54°S, 38°W), in March 1972. The sheathbills were immediately deep-frozen while the petrels were dissected and the gut from oesophagus to rectum removed and preserved in 5 % formalin.

RESULTS

The condition of the birds appeared to be good and no evidence of disease was noted on examination of the specimens. The body weights of *C. alba* immediately after thawing lay within the normal range reported by Jones (1963) for juvenile and adult sheathbills towards the end of the breeding season at Signy Island, South Orkney Islands. The weights of the present specimens were: juveniles, range 485-601 g, mean + S.E. 559 ± 20 g; adults 573-733, 640 + 25 g. No information is available on the weights of the petrels, (a) *Chionis alba*. Eleven of 12 sheathbills examined were infected with helminth parasites (Table 1). The following species were found: trematodes, *Gymnophallus deliciosus* (Olsson, 1893) (gall bladder), *Notocotylus chionis* Baylis, 1928 (intestinal caeca), *Paramonostomum signiensis* Jones & Williams, 1969 (rectum); cestodes, *Lateriporus australis*: Jones & Williams, 1967 ("third fifth of the intestine"!); Acanthocephala. *Corynosoma hammani*. (von Linstow, 1892) (third fifth of the intestine). No nematodes were found. The pattern of infection of adult male and female sheathbills was similar.

TABLE 1

The helminth parasites of 12 sheathbills, *Chionis alba* (Gmelin), at Bird Island, South Georgia, in March 1972.

Intensity of infection with:	Juvenile hosts					Adult hosts					Number infected	Mean intensity		
	m	m	m	m	m	f	f	f	f	m			m	m
Trematoda														
<i>Gymnophallus deliciosus</i>	18	—	—	—	—	—	5	—	—	2	11	—	4	9
<i>Notocotylus chionis</i>	11	—	—	—	—	18	71	7	—	—	7	40	6	26
<i>Paramonostomum signiensis</i>	—	—	—	—	—	—	11	2	—	—	5	4	4	6
Cestoda														
<i>Lateriporus australis</i>	2	—	—	5	1	—	—	—	—	—	1	1	6	2
Acanthocephala														
<i>Corynosoma hammani</i>	2	6	—	—	—	—	—	1	—	—	—	—	4	3

All specimens of *G. deliciosus* were gravid. In the absence of surface spines and possession of a thin tegument they resemble specimens of *G. deliciosus* obtained from sheathbills at Signy Island, South Orkneys, and differ markedly from the heavily-spined representatives of the species commonly found in gulls in the North Atlantic, North Sea and Barents Sea (Jones and Williams, 1968). The morphological features of *N. chionis*, *P. signiensis*, *L. australis* and *C. hammani* found in sheathbills in the present study agree closely with accounts of these species given by Jones & Williams (1967, 1968, 1969a, 1969b).

Among the 5 juvenile sheathbills were two siblings. These differed remarkably in body weight as well as in helminth infection. One bird, which weighed 486 g, was infected with 6 *C. hammani*, while the other, weighing 601 g, harboured 2 *C. hammani*, 18 *G. deliciosus*, *UN. chionis* and 2 *L. australis*.

(b) *Pelecyanoides georgicus* and *P. urinatrix*. One species of tapeworm, namely *Tetra-bothrius* sp., and one species of nematode, *Stegophorus heardi* Mawson, 1953, were found in both *P. georgicus* and *P. urinatrix*. Unfortunately the single specimens of *Tetrabothrius* sp., found in the second fifth of the intestine of one of 12 *P. georgicus* and one of 5 *P. urinatrix*, were immature and so no specific identification can be given. As far as we are aware there is no previous record of *Tetrabothrius* from *P. georgicus*, though Prudhoe (1969) reported *T. heteroclitus* (Diesing, 1850) and two distinct *Tetrabothrius* sp. from *P. urinatrix** collected at lies de Kerguelen in 1929 and 1930 by members of the British, Australian and New Zealand Antarctic Research Expedition 1929-31.

A total of 12 specimens of *Stegophorus heardi*, comprising 6 adult males, 4 adult females and 2 juvenile females, were found in the oesophagus and stomach of the chick and 2 of 11 *P. georgicus* and in 3 of 5 adult *P. urinatrix*. This seems to be the first record of *S. heardi* from *P. urinatrix* though the original description of the species, given by Mawson (1953), was based on fragmentary specimens from a stormy petrel, *Oceanites oceanicus* (Kuhl), and a South Georgian diving petrel, *P. georgicus*, collected in 1949 at Heard Island (53° 1' S 73° 23' E). From examination of the present specimens of *S. heardi*, and study of the literature, it is clear that the various species attributed to the genus *Stegophorus* Wehr, 1934, require a thorough review to establish morphological characters of systematic reliability and to determine the limits of variability of the different alleged species.

DISCUSSION

None of the 7 species of helminth parasites reported here has been found previously in birds at South Georgia, while *Tetrabothrius* sp. has not been recorded before from *P. georgicus* nor *Stegophorus heardi* from *P. urinatrix*.

The presence of *G. deliciosus*, *N. chionis*, *L. australis* and *C. hammani* in juvenile sheathbills indicates a local source of infection as these birds had not left South Georgia before they were captured. Seasonal movements of sheathbills to and from South Georgia are not well known, but Jones (1963) recorded a general, though incomplete, northward movement from the South Orkney Islands during the winter. It is thus possible that South Georgia sheathbills may overwinter in South America and the Falkland Islands, but they may prove to be resident as they can obtain food from the marine littoral throughout the winter. If this is so then there must also be a local source of infection with *Paramonostomum ngniensis*.

Not unexpectedly the helminth fauna of sheathbills at South Georgia resembles that of sheathbills at Signy Island, South Orkney Islands. There is, however, considerable scope for study of the helminth parasites of Antarctic and Subantarctic birds, especially petrels, as well as the discovery of the intermediate hosts.

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