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Survey of South Polar Skuas (*Catharacta maccormicki*) for Blood Parasites in the Vestfold Hills Region of Antarctica

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ABSTRACT: Thin blood smears prepared from 125 South Polar skuas (*Catharacta maccormicki*) at breeding islands and feeding sites in the Vestfold Hills region of Antarctica between December 1999 and January 2000 did not contain hematozoa. These findings confirm results of previous smaller studies, and provide baseline data for this species.

Key words: Antarctic, *Catharacta maccormicki*, hematozoa, skuas, Stercorariidae.

Skuas and jaegers comprise a small family of six species of seabirds, of which four breed in north polar regions and two in south polar regions. All species are predators and scavengers and range widely over the open ocean out of the breeding season. In the south, brown skuas (*Catharacta lonnbergi*) breed on the Antarctic Peninsula and on many subantarctic and south temperate oceanic islands, whereas *Catharacta maccormicki* has a more southerly distribution, breeding only on the Antarctic continent and adjacent islands (Watson, 1975).

In the present study, 125 adult *C. maccormicki* were trapped during the breeding season in December 1999 and January 2000 at six breeding sites and at scavenging sites on islands and the antarctic mainland near the Australian Antarctic Davis Station (68°35′S, 77°58′E) in the Vestfold Hills on the Ingrid Christiansen Coast of Princess Elizabeth Land, East Antarctica (Fig. 1). Birds were caught by one of two methods: on the wing using a handnet (1.1 m diameter with 1.5 m handle) as the skuas dived to attack or in a spring trap using a scavenged penguin carcass as bait. No birds were injured by either of these methods. A standard leg band was applied to each bird to avoid recapture and for future identification. United States Fish and Wildlife Service-approved bands were used. The sexes of the birds were not determined. Three ml of blood was collected from the brachial vein and 1.5 ml of this was stored in ethylenediaminetetraacetic acid (EDTA). The birds were examined for external parasites and released. If weather conditions made it impractical to prepare smears directly at the site of collection, smears were prepared in the laboratory within 5 hr of collection. They were fixed in 100% methanol and on return to Australia, stained with 3% Giemsa for 20 min and air-dried, according to standard procedures (Ash and Orihel, 1987). Smears were subsequently examined dry at 200× and 400× for 10–15 min and under oil at 1,000× for a further 5–7 min, with an Olympus BH microscope. Approximately 25,000 red blood cells were examined under 40x objective and 6,000 under 100× objective. For consistency, all examinations were made by one observer.

No protozoal or microfilarial parasites were seen. In previous studies of skuas and jaegers, no parasites were found in 17 *C. maccormicki* at McMurdo Sound (Becker and Holloway, 1968), in one *C. lonnbergi* at South Georgia (Peirce and Prince, 1980), in one *C. skua* (=*C. lonnbergi*) at Tristan da Cunha (Bishop and Bennett, 1992), or in long tailed skuas *Stercorarius longicaudus* (Bennett et al., 1982). The filarioid nematode *Eulimdana rauschorum* (Onchocercidae: Lemdaninae) was found in southern black-backed gulls (*Larus dominicanus*) at Anvers Island in the antarctic (Hoberg, 1986) No microfilariae were seen in blood films, nor were adult or larval worms found in *C. lonnbergi* or *C. maccormicki* (Hoberg, 1983) and it was

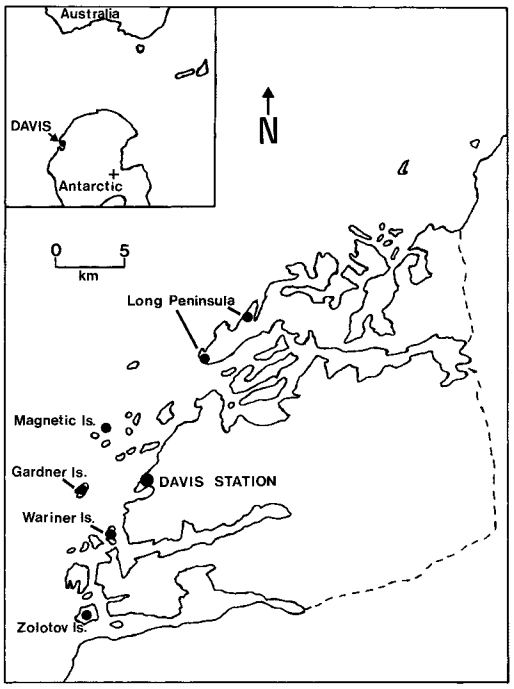

FIGURE 1. Seven sites at which skuas were caught on the Antarctic mainland and nearby islands in the vicinity of Davis Station, Vestfold Hills, Antarctica. Dotted line indicates eastern limit of ice-free land.

suggested that infections in the gulls were not acquired at the breeding grounds.

The antarctic climate precludes most blood-feeding arthropods that could act as vectors of parasites. However, the bipolar tick *Ixodes uriae,* which occurs on many species of seabirds and may be a vector of *Babesia peircei* in jackass penguins (*Spheniscus demersus*) in South Africa (Earle et al., 1993), has been found on king penguins (*Aptenodytes patagonicus*) on Crozet Archipelago (Gautier-Clerc et al., 1999) and on several species of birds on South Georgia (Bergstrom et al., 1999). Furthermore, many *Ixodes* sp. ticks were observed on Adelie penguins (*Pygoscelis adeliae*) and on southern giant petrels (*Macronectes giganteus*) around Palmer Station, Anvers Island, on the Antarctic Peninsula in 1999 (pers. comm., D. Patterson). No *I. uriae* ticks were found on brown skuas on South Georgia (Bergstrom et al., 1999) and no ectoparasites were noted during the handling of the birds in the present study. One species of feather mite and two species of feather lice have been recorded from *C. maccormicki* (Watson, 1975). This study strengthens the growing body of data indicating that transfer of avian hematozoa is rare in the antarctic.

There is increasing awareness that anthropogenic changes in the earth's climate, together with increasing human presence in the antarctic (Enzenbacher, 1994) and interference with oceanic food availability, could directly or indirectly expose hitherto disease-free antarctic wildlife populations to arthropod-borne and other infectious agents (Kerry and Clarke, 1995). A small amelioration of the climate might allow more arthropod vectors and thus more blood-borne parasites to enter the antarctic ecosystem. Monitoring the disease status of wildlife before changes become apparent is therefore a mandatory aspect of antarctic conservation.

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