

NOTES ON INCIDENCE AND NICHE PREFERENCE OF
MALLOPHAGA AND ANALGOIDEA ECTOPARASITIC
ON SOUTH POLAR SKUA (*Catharacta skua*
maccormicki) ON ROSS ISLAND,
ANTARCTICA¹

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Abstract: The South Polar Skua (*Catharacta skua maccormicki*) is heavily infested with ectoparasites. Others have reported these ectoparasites as "abundant", "moderate", etc., but little information is available on the absolute abundance of these ectoparasites. Sampling from several locations on Ross Island, Antarctica, during the austral summer season of 1966-67 provided some data on the incidence and niche preference of mallophagan and analgoidean ectoparasites.

METHODS

Because no permit to collect Antarctic birds was obtained, only live birds, or those which died of natural causes, were used in this study. To establish a relative incidence of parasitism by the mallophagan *Saemundssonina stresemanni* Timmer., 1949, live birds were examined by visual techniques. To survey the analgoidean mites, a 5-7 cm sample of the trailing barbs of the 6th remex of one wing was cut from the rachis and preserved in alcohol (primary and secondary flight feathers being numbered from the distal remex on the wing (#1) consecutively toward the proximal). Some samples of primary wing coverts (numbered consecutively distal to proximal) were taken to determine if mites favor a particular niche. Subsequent qualitative and quantitative analyses gave some data on the incidence and niche preference of parasitism by 2 feather mites.

Skua carcasses were washed by a technique using an available detergent in 2-gallon plastic pails and agitating by hand. The wash water was allowed to settle for 15-30 minutes and then decanted to leave a volume of about a quart. This remaining quart of water with all settled debris was placed in a funnel fitted with a rubber hose and hose clamp. After 15-30 minutes of settling, the precipitate was drawn off the bottom through the delivery tube and examined under a dissecting scope for ectoparasites.

RESULTS

A summary of the work and results is presented in Table 1. On Ross Island, *C. s. maccormicki* are 17% infested with *Saemundssonina*, 16% with *Zachvatkinia* and 78% with *Alloptes*. On the basis of the examination of only dead birds (5), it appears that *Haffneria* has a relatively high incidence of infestation but further data are needed. Unfortunately the niche at the base of the primary quills was not examined in the live birds, hence the data do not necessarily reflect the incidence of

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Table 1. Summary of work and findings on ectoparasites of the South Polar Skua (*Catharacta skua maccormicki*) on Ross Island, Antarctica.

Species of Ectoparasite	No. of hosts examined			No. hosts infested		Maximum no. parasites per host/or sample.
	Total	Alive	Dead	Number	Percent	
Mallophaga						
<i>Saemundssonina stresemanni</i> Timmer., 1949	48	42	6	8	17	14/host
<i>Haffneria grandis</i> (Piaget, 1880) Timmer., 1966	5	0	5	3	60	25 ^a
Analgesoidea						
<i>Zachvatkinia stercorarii</i> Dubinin, 1952	37 ^b	37 ^b	0	6 ^b	16	28/sample
<i>Alloptes</i> sp.	37 ^b	37 ^b	0	29 ^b	78	149/cm ^c
Nasal Mites	6	0	6	0	—	—

a. One wing of host only.

b. Sample consisted of 5–7 cm of barbs from the trailing edge of the 6th remex.

c. Calculated density per cm along rachis of 6th remex.

Haffneria infestation.

In addition to the determined incidence of parasitism by the respective ectoparasites, it is important to note the niche preference of the ectoparasites upon the host. *Saemundssonina stresemanni* Timmer., 1949 was found in the head and neck feathers, seldom in the breast feathers—the latter appearing too dense to suit this louse. *Haffneria grandis* (Piaget, 1880) Timmer., 1966 inhabits the down on the forewing around the quills of the primary feathers. One skua wing yielded 25 of these lice from this niche.

The niche preference of the feather mite species, *Zachvatkinia* and *Alloptes*, seems to be confined to the proximal 8 cm of the primary wing feathers and to areas of the corresponding primary wing coverts. Some evidence suggests that *Alloptes* prefers the primary feather niche whereas *Zachvatkinia* the primary wing coverts. Of the 37 samples of the primary wing feathers taken, 33 (89%) contained only *Alloptes* specimens. Of the remaining 4 containing both genera, the mean average was 89 *Alloptes* and 16 *Zachvatkinia*. Data from 2 samples of upper primary wing coverts support this difference in preference of niche on the wing. *Zachvatkinia* predominates on the upper primary wing coverts by 88% and 85%.

Another series of collections (made 8 January 1967 and not in mid December as in previous collections), sampling the 5th thru 8th remex and corresponding upper primary wing covert of the same wing, suggests the same preference, but not so pronounced. On the primary feathers 63% (534 of 844 mites) were *Zachvatkinia* (7 ♂♂ and 527 ♀♀ or nymphs) and 37% (310) were *Alloptes*. It is interesting to note that no ♂ *Zachvatkinia* specimens were found on primary wing coverts. This may be due to a difference in preference between the sexes of *Zachvatkinia* or might also be a reflection of the sex ratio for the time of sampling.

From data obtained on the numbers of mites on 37 samples of the 6th remex, plus the observation that most feather mites are present in the area of the wing which is closely outlined by the characteristic white flash pattern, it was possible to estimate absolute mite ectoparasite density. Data from all samples showed that an average of 37 mites per centimeter of shaft were found upon the trailing edge of the primary wing feathers. Considering also the forward barbs, which appear equally suitable, and the whole "favorable" mite niche (the white flash pattern in the wing), one calculates that over 3000 mites may be present on each wing of the South Polar Skua.