

## SHORT REPORT

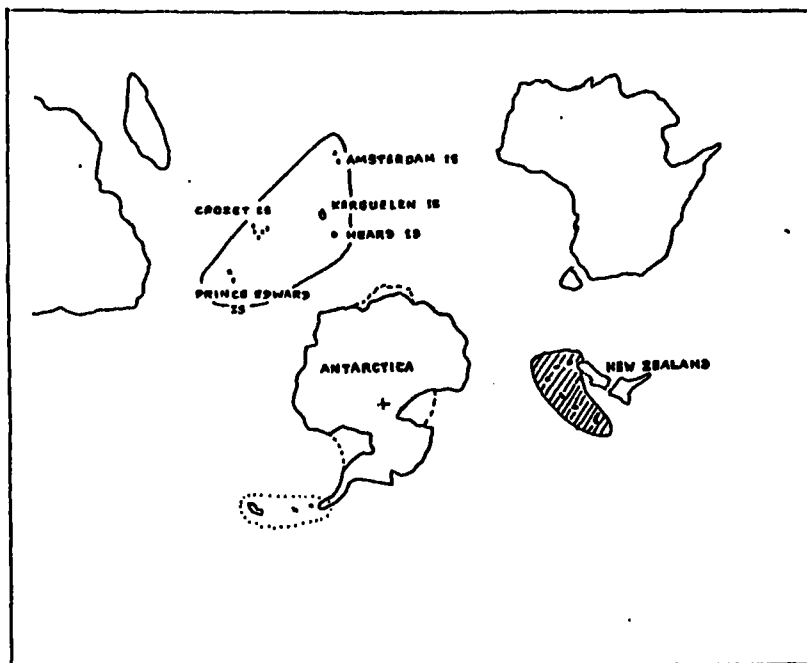
### IDENTITY OF THE HOME RANGES OF BROWN SKUAS *Catharacta antarctica lonnbergi* (AVES: STERCORARIIDAE) COLLECTED IN THE NORTHERN INDIAN OCEAN

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Tarsus lengths of Brown Skuas *Catharacta antarctica lonnbergi* are a reliable guide to their home ranges. Birds from Antarctica have short tarsi, those from the sub-Antarctica islands (Crozet, Kerguelen, Heard, Amsterdam Is. etc.) have longer tarsi whereas the New Zealand populations possess the longest tarsi of all (Furness 1987).



Key to populations:

- Antarctic                   ○
- Sub-Antarctic Is.       ○
- New Zealand               ⊘

**Fig. 1 Map showing the distribution of distinctive populations of Brown Skuas *Catharacta antarctica lonnbergi* in the Indian Ocean and adjacent regions.**

Brown Skuas frequently stray (migrate?) into the northern Indian Ocean. In order to determine the home ranges of these birds, tarsus measurements of five specimens from Sri Lanka and one from India (Tab. I) were compared with the corresponding measurements of Antarctic, sub-Antarctic and New Zealand birds (Tab. II). A comparison of tarsus lengths in tables I and II shows clearly that the birds do not come from Antarctica. However tarsus lengths indicate that the birds could come from the sub-Antarctic islands, New Zealand or possibly both regions.

**Table I**  
**TARSUS LENGTHS IN BROWN SKUAS *Catharacta antarctica lonnbergi*. (After Ali & Ripley 1983, De Silva 1989, in press and Furness 1987)**

	Range (mm.)	n	x	s. d.
New Zealand	74-95	15	79.62	
Sub-Antarctic Islands	68-79	37	74.27	
Antarctica	65-72	12	69.53	
Sri Lanka & India	73-81	6	76.7	2.4

**Table II**  
**TARSUS LENGTHS IN BROWN SKUAS *Catharacta antarctica lonnbergi* FROM SRI LANKA AND INDIA (After Ali & Ripley 1983, De Silva 1989 & in press).**

Tarsus lt. (mm.)	Collected
(1) 77	Sri Lanka
(2) 81	Sri Lanka
(3) 73.5	Sri Lanka
(4) 76.5	Sri Lanka
(5) 77	Sri Lanka
(6) 76	India

A 't' test was carried out to determine if the birds could positively be identified as coming from only one of these regions.

**Tarsus 't' test**

Data from Sri Lanka and India:

$$\bar{x} = 76.7$$

$$s = 2.4$$

$$n = 6$$

Since the sample size was small, and population s. d. was estimated from the sample s. d., correction was made to estimate the population s. d. Furthermore, 't' distribution was used instead of normal distribution.

$$\hat{s} = s \times \sqrt{\frac{n}{n-1}}$$

$$s = 2.4 \sqrt{\frac{6}{5}} = 2.629$$

∴ 99% confidence limits for  $\bar{x}$

$$= \bar{x} \pm t \times \left( \frac{\hat{s}}{\sqrt{n}} \right) \text{ degrees of freedom} = n - 1$$

$$6 - 1 = 5$$

The value of t = 4.032 for 5 d. f.  
0.99

$$= 76.7 \pm \left( 4.032 \times \frac{2.629}{\sqrt{6}} \right)$$

$$= 76.7 \pm 4.3275$$

$$= 81.029 \longrightarrow 72.375$$

Referring to tables I & II it is clear that the northern Indian Ocean birds fall within the limits of both the sub-Antarctic and New Zealand populations. It is concluded therefore that Brown Skuas collected in the northern Indian Ocean probably come from populations originating in both these regions (Fig. 1).

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