Record for the Cape fur seal *Arctocephalus pusillus pusillus* from subantarctic Marion Island

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During routine work on the breeding populations of the subantarctic fur seal (*Arctocephalus tropicalis*) and antarctic fur seal (*A. gazella*), an unusual seal, subsequently identified as *A. pusillus pusillus*, was sighted at Sealers Beach, Cape Davis (46°49′S/37°42′E) on the north-west coast of Marion Island between 15 and 21 January 1982. Initial identification was based on external morphological characteristics, subsequently confirmed through examination of skull and dental characteristics after culling (21 January). Body measurements, the skull, baculum, skin and serum samples were collected (Mammal Research Institute seal specimen number MFS 160) for identification, and age determination was based on incremental lines (dentine) from canine tooth sections and external dental ridges (Payne 1977).

The Cape fur seal was associated with a large number of *A. tropicalis* subadults, hauled out on a vegetated area, inland of the main breeding section of the Cape Davis seal colony. The pelage of the Cape fur seal was a dark liver colour with a silvery appearance on the head, differing markedly from both *A. tropicalis* (Bester 1977) and *A. gazella* (Condy 1978). Its snout had an uptilted appearance and was broader with a longer gape than either *A. tropicalis* or *A. gazella*. The flippers, in relation to the rest of the body appeared to be longer than those of *A. tropicalis* but approximately the same length as those of *A. gazella*. Shaughnessy & Ross (1980) also noted the differences in flipper length between *A. tropicalis* and *A. pusillus*.

The upper tooth row and postcanine teeth of *A. tropicalis, A. gazella* and *A. pusillus* are distinctly different (Figure 1). Both *A. tropicalis* and *A. gazella* have distinct diastemata with small simple postcanine teeth with *A. tropicalis* having rudimentary anterior accessory cusps. The last two upper postcanines in *A. gazella* are much reduced and peglike. The upper tooth row of *A. gazella* is distinctly arched. In contrast the postcanines of *A. pusillus* are robust with prominent anterior and posterior accessory cusps and there is a slight diastema between the 5th and 6th postcanines (Repenning, Peterson & Hubbs 1971).

The skull and dentition of *A. pusillus* are similar to those of the South American fur seal *A. australis* but can be distinguished by the occurrence of single-rooted 5th upper postcanines (1st molars), the broad coronoid process of the mandible and the short maxillary shelf in *A. pusillus*. Although the skull and dentition of *A. pusillus* are similar

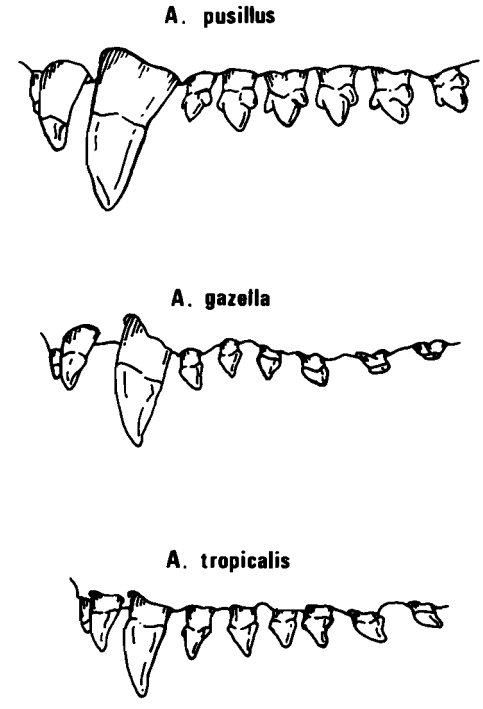

Figure 1 The left upper dentition of *A. pusillus*, *A. gazella* and *A. tropicalis* (redrawn from Repenning *et al.* 1971).

also to those of the sea lion genus *Neophoca*, the fur seal pelage possesses dense underfur (Repenning *et al.* 1971). The following data were recorded:

Sex	= male
Body mass	= 36,0 kg
Standard length	= 122,4 cm
Axillary girth	= 78,1 cm
Condylobasal length	= 197,5 mm
Zygomatic width	= 110,4 mm
Baculum length	= 66,2 mm

This specimen was found to be two years old with a cranial suture closure index of 11 (Sivertson 1954). The above morphometric measurements correspond to Rand's (1956) age-class C for *A. pusillus* which he considered to be two years old and is in agreement with the age estimated in the present study.

The specimen appeared to be in good condition with a blubber thickness of 1,5 cm (measured over the sternum). It was moulting and the stomach contained the remnants of a notothenid fish as well as parasitic nematodes (to be identified).

Repenning *et al.* (1971) recognized two subspecies of *A. pusillus*, the Cape fur seal (*A. p. pusillus*) and the Tasmanian fur seal (*A. p. doriferus*). These subspecies were separated on the basis of an observed difference in the crest length of the exoccipital mastoid-jugular process. However, no comparable data are available for a juvenile the size of the specimen in the present study.

The distribution of the Cape subspecies is along the coast of southern Africa from Baia dos Tigros (lat. 16°30′S) in the north-west to East London (lat. 33°00′S) in the south-east and the seaward range is thought to be approximately 160 km (Rand 1967; Shaughnessy 1976). The Tasmanian subspecies is distributed around Tasmania and along the

coast of Victoria and New South Wales, Australia (Repenning *et al.* 1971). Marion Island is closer to South Africa (1 972 km, great circle route to Cape Agulhas) than to Tasmania (7 642 km, great circle route to western Tasmania) and it is likely that the specimen recorded here originated in South Africa, its movement possibly aided by the southward flowing Agulhas Return Current whose southern limit is in the region of 40°S (Heydorn, Bang, Pearce, Flemming, Carter, Schleyer, Berry, Hughes, Bass, Wallace, van der Elst, Crawford & Shelton 1978). The direct route from Tasmania to Marion Island is against the prevailing currents (West Wind Drift and Return Agulhas Current — Heydorn *et al.* 1978), reducing the likelihood of this seal originating in Tasmania.

Within their normal distribution, marked *A. pusillus* individuals have been recorded to cover distances of 1 300 km within a few months (Rand 1959) following the coastline, and Payne (1979) recorded *A. tropicalis* vagrants covering distances of up to 3 000 km. Shaughnessy & Ross (1980) recorded a total of 23 *A. tropicalis* individuals arriving in South Africa and although the origin of these seals is at present unknown, the possibility does exist that they could have come from Marion Island which is the reverse of the present case. This record of *A. pusillus* on Marion Island is the most southerly record for this species.

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The histology of the venom-secreting apparatus of the puff-adder, *Bitis arietans*

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Recently, Rosenberg (1967) described the histology, histochemistry and emptying mechanisms of the venom glands of more than 20 different elapid species including those of some sea snakes. He showed that these snakes all possess an accessory venom gland in addition to the main gland. The accessory gland was composed of uniform mucous epithelium which was usually P.A.S. positive and surrounded the primary venom duct. The main venom gland consisted of many tubules which usually contained large amounts of secretory product. The lining of the tubules was usually a flat epithelium, but little cellular detail could be observed. Kochva, Shayer-Wollberg & Sobol (1967) and Kochva & Gans (1970) investigated the histology of some 20 species of viperid snakes and found that the venom glands were all of a similar shape and glandular structure except in the mole viper where the accessory gland was absent. De Lucca, Huddad, Kochva, Rothschild & Valeri (1974) demonstrated a relationship between the secretory activity, the morphology of the epithelial cells lining the venom glands and the secretory cycle. The cells varied from low cuboidal to almost squamous epithelium in unmilked snakes, to tall columnar secretory epithelium in milked snakes with the variation between the two cell types depending on the amount of stored venom.

Very little information is available concerning the histology of the venom secreting apparatus of the puff-adder, *Bitis arietans*. King & Hattingh (1979) investigated the main venom gland of this snake in the resting and stimulated state. In the resting state the tubules comprising the venom gland were lined with columnar secretory cells. After repeated milkings the histological appearance of the gland changed and the lining epithelim of the individual tubules became taller, more slender and the tubules themselves more