

MAINLAND BREEDING BY JACKASS PENGUINS *SPHENISCUS DEMERSUS*
IN SOUTH WEST AFRICA/ NAMIBIA

R. LOUTIT & D. BOYER

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INTRODUCTION

Jackass Penguins *Spheniscus demersus* are endemic to southern Africa where they have long been thought to be confined to island breeding localities (Frost *et al.* 1976). Recently five small colonies have been found on the African mainland, four in South Africa of one to nine nests (Broni 1982, Every 1983, Shelton *et al.* 1984, Cooper 1985) and one with at least 15 nests at Sylvia Hill (25 10S, 14 50E) in South West Africa/Namibia (Finkeldey 1984, Shelton *et al.* 1984).

Here we report further investigations at the Sylvia Hill colony and at two possible additional breeding localities near Easter Point (25 18S, 14 47E) 20 km to the south of Sylvia Hill, and consider the status of these colonies in the light of the known Jackass penguin population changes along the Namib Coast (between the Cunene and the Orange River mouths).

Sylvia Hill and Easter Point are both situated in the Namib Desert within the diamond concession areas between Lüderitz and Walvis Bay. Access to the concession areas is restricted so these colonies are seldom visited. Two mammalian predators large enough to attack Jackass Penguins occur along this coast, the Blackbacked Jackal *Canis mesomelas* and the Brown Hyaena *Hyaena brunnea*. Mainland breeding by Jackass penguins along the Namib Coast is therefore probably limited to areas normally inaccessible to these predators.

SYLVIA HILL

Approximately 1,5 km south of Sylvia Hill there are two large caves about 400 m apart. The entrances to both caves are below sea level and are protected by waves and rocks. Both caves are about 30 m deep. The northern cave has a four-metre cliff above the entrance. The southern cave has raised ledges of sandstone and a recessed area which so far has been impossible to enter. We have no knowledge of the variation in water levels in these caves at extreme low tides and during onshore storms but suspect that predators might be able to gain access to the northern cave at low tides on calm days. The entry to the southern cave is deeper and, we think, totally inaccessible to terrestrial mammalian predators.

The presence of penguins in these caves was first reported by Finkeldey (1984) who found 40 penguins in the area in June 1980 when there were six nests with eggs (these data incorrectly given by Shelton *et al.* 1984) and 60 in June 1983 when there were 15 nests with eggs and chicks present. These observations presumably refer to the southern, less accessible, cave since Finkeldey (1984) also visited a second cave which was accessible to jackals and where there were gulls and cormorants (species not stated) but no penguins.

We explored the Sylvania Hill caves on 28 February 1984. At the northern cave 10 adult penguins swam off to sea and there were five adults and two juvenile penguins in the cave. At the southern cave 26 adult and three immature penguins swam off at our approach and there were 182 adult and 24 juvenile penguins (the latter possibly including large chicks) in the cave. The combined total of live adult and juvenile penguins at the two caves was 285.

The northern cave contained five nest scrapes but no other evidence of active breeding. In the southern cave there were 20 nest sites, three with a pair of adults, fifteen with single adults attending eggs or small chicks, and two each with a single chick. The contents of the fifteen attended nests could not all be ascertained but seven had recently hatched chicks (two with two chicks and five with one chick) and there were eggs at two nests.

Three penguin carcasses were found in the northern cave, two of freshly killed juveniles and an old, dried out, adult carcass. A further fresh juvenile penguin carcass was found at a jackal midden outside the opening of the cave. No carcasses were found in the southern cave. There were at least 19 moulting adult penguins in the southern cave but no moulting birds were seen in the northern cave.

EASTER POINT

Approximately 20 km south of Sylvania Hill there is a four-kilometre stretch of rocky shore South of Easter Point where on 1 March 1984 we found two possible penguin breeding localities. At 25 22S, 14 48E a cave contained 34 adult and 11 juvenile penguins with a further 10 adult penguins swimming close inshore. A kilometre farther south penguins were observed swimming into a small gully at the base of sheer cliffs. Numbers at this locality were at least 25 birds of which at least three were juveniles. At neither site could we gain access or see the rear of the cave or gully to assess whether the penguins were breeding there. During 30 minutes of observation there was no movement of penguins between the two sites. Lack of time prevented investigation of the whole cliffed area but similar rocky terrain alternates with sandy beaches south to 25 56S.

DISCUSSION

There are no previous published records of Jackass Penguins breeding in caves elsewhere although they frequently breed in rocky crevices. However, Jackass Penguins breed within a cave on Plumpudding Island (27 39S, 15 31E) off the coast of South West Africa/Namibia (J. Cooper pers. comm.). Humboldt Penguins *Spheniscus humboldti*, which breed along the coast of the Atacama Desert on the west coast of South America, breed freely at suitable mainland localities (Hays 1984) including caves (Murphy 1936, Johnson 1965).

In June 1980 the population at the caves near Sylvia Hill was 40 birds, in June 1983 60, and in February 1984 it was 295. This suggests a population increase. However, it is difficult to be sure whether the earlier counts fully covered the less accessible southern cave and in addition there is likely to be seasonal variation in population size. In South Africa at west coast colonies the numbers of birds breeding is greater earlier in the calendar year and reaches a low point in mid year (J. Cooper pers. comm.). If the same situation applies along the Namib Coast this would help to account for the difference in the February and June populations in these caves.

It is not known when penguins first colonized the caves at Sylvia Hill. Possibly the colonization is recent. The world population of Jackass Penguins has shrunk from over an estimated one million pairs in the last century to a current level of at least 170 000 pairs (Frost *et al.* 1976, Cooper *et al.* 1984). The population decrease has been particularly severe along the southern Namib Coast, probably as a result of competition for shoaling pelagic fish with the fishing industry (Crawford & Shelton 1981). Recently there has been a continued decrease in Jackass penguin numbers south of Lüderitz but to the north the populations have remained stable or have showed signs of increase (Shelton *et al.* 1984). It has been suggested that this reflects a switch to feeding on the Pelagic Goby *Sufflogobius bibarbatus* (Crawford & Shelton 1981). It is possible that breeding of Jackass Penguins along the mainland coast north of Lüderitz is recent and is associated with a change in prey availability.

Since all the islands along the Namib Coast on which Jackass Penguins breed are politically part of South Africa, the breeding colony at Sylvia Hill is the only confirmed breeding colony of this species within South West Africa/Namibia.

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R. Loutit & D. Boyer, Directorate of Nature Conservation,
Private Bag 13306, Windhoek, S.W. Africa/Namibia.