

# THE FLORA AND FAUNA OF COFFIN ISLAND

By G. T. SMITH and N. KOLICHIS

## INTRODUCTION

Coffin Island (35°00'S, 118°12'E) lies 300 m from the mainland between Point Gardner and Cape Vancouver; 30 km east of Albany. It is part of the Two Peoples Bay reserve, and a permit is required to land on the island.

The first description of the island was that of Collie (1833) who visited the island on 4 June 1831 with a party of sealers. His description of the vegetation and animals found on the island is brief. "The surface, a few yards removed from the cliffs is composed of a thin covering of light loam and mould, producing the *Anthocercis obovata* (*Anthocercis viscosa*) and another shrub, with a few herbaceous plants and affording a warren for Sooty Petrel, Penguin, lizards, etc. which have riddled the ground with their holes." He further mentions that although no seals were seen, the number of skeletons confirmed reports that large numbers of seals had been killed on the island. The sealers compensated for the lack of seals by taking 500 Great-winged Petrels in three days. Collie referred to them as the "sooty petrel, *procellaria fuliginosa*". It was Major H. M. Whittell who first identified Collie's observation as pertaining to the Great-winged Petrel (Whittell, 1946).

The present article gives the results of four trips to the island on 1 May, 1976, 4 July, 1978, 20 November, 1978 and 14 January, 1979. An average of two hours was spent on the island on each day.

## PHYSICAL DESCRIPTION

The island (1 x 0.2-0.3 km, area 28 ha) is a flat topped ridge of granite running NW-SE, surrounded by steeply sloping rock faces except for a boulder beach on the north east end and a gently sloping rock shelf on the south-east corner. The north-east end of the island is about 8 m above sea level and rises gently to the south-east reaching a height of 45 m some 800 m from the north-west end, when it slopes downwards again. A light sandy soil, in places with abundant humus, covers the island and may be 60-100 cm deep in the middle of the island.

## VEGETATION

The vegetation covers about half the area of the island, essentially the flat top, extending little beyond the well-defined break in slope that separates the granite slopes and the top of the island. It may be divided into two formations; a dense shrub cover one to two metres high extending to about the break in slope and a thin edge zone bordering the shrub layer.

The shrub layer is essentially a dense tangled cover of *Rhagodia radiata* about one metre high, occasionally reaching two metres in depressions. Small clumps or single plants of *Anthocercis viscosa* (1-3 m) are found throughout the island, but are most common in the south-east end of the island and around the three outerops on the north-east side of the island.

The edge zone is best developed on the south-west side of the island and is composed mainly of a number of prostrate shrubs and short grasses and sedges. *Carpobrotus virescens* is the most common plant in this zone. Where the plants of this zone encroach over the break in slope they may on occasions be rolled back by the combined actions of the sea and wind. The following is a list of plants recorded from the island. Those marked with an asterisk have not been recorded from the adjacent mainland.

*Poa* sp. A few small patches (5 cm high) were found on the north-east side of the island in May 1978 on the edge of the *Rhagodia*.

*Stipa* sp. Small tussocks 20-40 cm high in isolated clumps in the edge zone.

*Sporobolus virginicus*\*. Forms small clumps in the edge zone and in depressions on the north-west end of the island.

*Scirpus nodosus* R.Br. Isolated clumps in edge zone.

*Stypandra grandiflora*\*. Scattered in edge zone and forms a well defined patch (30 m x 5 m) in the middle of the south-west side, a similar patch occurs on the north-east side but is larger and not as well defined.

*Carpobrotus virescens*. Common in edge zone and at south-east end forms a zone about 30 m wide, also scattered throughout the island where the *Rhagodia* has been killed by burrowing birds.

*Lepidium foliosum*\*. Forms patches in depressions in the edge zone.

*Oxylobium aff. lanceolatum* (Vent) Druce. Single plants or isolated groups around outcrops.

*Pelargonium australe*\*. Small patches in edge zone—mainly on south-east side.

*Lavatera plebia*\*. A few plants on the north-east side of the island.

*Hibbertia cuneiformis*. A few isolated shrubs around the outcrops.

*Leucopogon revolutus*. Mainly single plants, occasionally small groups around outcrops.

*Apium prostratum*\*. A few clumps in edge zone.

*Anthocercis viscosa*. Distribution is noted above.

*Lobelia alata*. Forming mats in the more sheltered areas in the edge zone, most common on the south-west coast.

*Scaevola crassifolia*. A few small areas in the south-west edge zone.

*Stylidium adnatum*. Small groups in edge zone.

*Rhagodia radiata*. Distribution as above.

#### VERTEBRATES

The main purpose of visiting the island was to record the sea birds breeding on the island. However, notes were made on all the other vertebrates.

#### REPTILES

*Phyllodactylus marmoratus*, *Ctenotus labillardieri*, *Hemiergis peronii* were uncommon and only found under rock slabs in the edge zone or around the outcrops. *Egernia kingii* was abundant in the bird burrows as well as around the rocky areas. The species here is brown rather than the black on the mainland. All these species are common on the adjacent mainland.

#### BIRDS

Little Penguin, *Eudyptula minor*. The calls of this species are frequently heard at dusk from the mainland during the winter. Two half-grown young in down were recorded 20 November 1978.

Great-winged Petrel, *Pterodroma macroptera*. In April and May 1976 2-3,000 birds were seen flying around the island at dusk. 1 May 1976—five pairs and a single bird were found in scrapes, or in burrows under the *Rhagodia*. About 50% of the burrows showed signs of them being used, and judging from the number of ealls, many would have been occupied. 4 July 1978—all the birds seen were on heavily incubated eggs, the nests were in scrapes under the *Rhagodia* or in burrows 30-60 cm in length. Many burrows on the lower north-west end of the island were water-logged with addled eggs. 20 November 1978—only one large young was found with its belly still covered with natal down. Feather development on the rest of the body was normal.

Most nests were in the centre of the island, the density declining towards the coast. The number of nests from three 100 sq.m. areas was 11, 10 and 8, although in some areas the density may be as high as one per two square metres.

Fleshy-footed Shearwater, *Puffinus carneipes*. Two chicks, possibly of this species were found on 1 May 1976 (Sokolowski, 1976). On 14 January 1979 six birds in burrows were found on partly incubated eggs. All the nests were on the south-east side of the island, generally close to the edge zone. From the number of occupied nests and the calls of birds in the burrows there were probably less than 100 nests.

Little Shearwater, *Puffinus assimilis*. A freshly dead adult was found on 20 November 1978.

White-faced Storm Petrel, *Palagodroma marina*. 14 January 1979—One pair of adult wings and a downy carcass were found of this species. Only three empty burrows, possibly of this species, were found, all were on the seaward side of the edge zone in the south-west corner of the island.

White-breasted Sea Eagle, *Haliaeetus leucogaster*. The resident pair from the adjacent mainland often use the island as a roosting site during the day.

Sooty Oystercatcher, *Haematopus fuliginosus*. Birds seen on all trips, on 20 November 1978 nine were seen, and two nests, each with two eggs, were found adjacent to rock outcrops on the seaward side of the south-west edge zone.

Silver Gull, *Larus novaehollandiae*. Commonly seen around and roosting on the island throughout the year, numbers vary from two to 100+. 20 November 1978—About forty birds and five nests with eggs on the south-east corner of the north-west end. 14 January 1979—12 adults and three fledglings were found in the nesting area.

Pacific Gull, *Larus pacificus*. Two adults were seen on all trips. 20 November 1978—One nest was found on the south-east end with a partly incubated egg.

Crested Tern, *Sterna bergii*. Not seen on trips to island, but from mainland often seen around and roosting on the island.

Brush Bronzewing Pigeon, *Phaps elegans*. Seen on all trips; maximum number, four.

Rock Parrot, *Neophema petrophila*. Four to ten birds seen on all trips.

Welcome Swallow, *Hirundo neoxena*. Four to twenty birds seen on all trips.

Silvereye, *Zosterops gouldi*. Flocks of five to twenty birds seen on all trips.

New Holland Honeyeater, *Phylidonyris novaehollandiae*. Several seen on 1 May 1976.

Red-eared Firetail, *Emblema oculata*. One seen on 1 May 1976.

#### MAMMALS

Abbott (1979) recorded both the Australian Sea Lion (*Neophoca cinerea*) and the New Zealand Fur seal (*Arctocephalus forsteri*) on a number of islands in the Albany region, but found only Fur Seals on Coffin island. He considered Sokolowski's (1976) identification of Sea Lions incorrect.

We were unable to positively identify the seals during our visits. However, the following data are suggestive of the regular presence of Sea Lions on the island. A large pale-naped seal was present at each of the three haul out localities in May 1976, similar observations have been made from the mainland on a number of occasions; seals on the island are commonly seen lying side by side, a characteristic of the Sea Lion rather than the Fur Seal (Stirling, 1972); seal tracks were found on the island and occasional sightings were made from the mainland of seals moving or resting in the vegetation, again suggestive more of the Sea Lion than the Fur Seal (Abbot, 1979).

From March to November in the period 1974-77, 54 counts of the seals were made from the mainland. Examination of the three areas where the seals haul out indicate that few if any, would be missed from the

mainland, with the exception of some that may move into the *Rhagodia* or be concealed under granite slabs.

The number of seals ranged from one to 56 (av. 27), the numbers ashore increasing from dawn to dusk. Although there is a considerable range in the numbers found in any month, there is a peak in July and August with the minimum numbers seen in November. No evidence of breeding was found.

#### ACKNOWLEDGEMENTS

The W.A. Department of Fisheries and Wildlife kindly arranged the transport for the May 1976 trip and provided the permits for Kolichis to land on the island. Terry Allen provided the transport for the other trips. R. Sokolowski kindly gave his data for the 1 May 1976 trip and Dr. N. Marchant identified the plants.

#### REFERENCES

- ABBOTT, I. 1979. The past and present distribution and status of Sea Lions and Fur Seals in Western Australia. *Rec. West. Aust. Mus.*, 7: 375-390.
- COLLIE, A. 1833. Account of an excursion to the north of King George's Sound, between 26th April and 4th May 1831. In *Journals of several expeditions made in Western Australia during the years 1829, 1830, 1831 and 1832*. J. Cross. London.
- SOKOLOWSKI, R. 1976. Flora and fauna survey—Coffin Island. *Swans*, 6 (2): 35.
- STIRLING, I. 1972. Observations on the Australian Sea Lion *Neophoca cinerea* (Peron.) *Aust. J. Zool.*, 20: 271-279.
- WHITTELL, H. M. 1946. An early note on *Pterodroma macroptera* in Western Australia. *Emu*, 45 (4): 327-328.

### NOTES ON THE BIOLOGY AND DISTRIBUTION OF TWO SPECIES OF DIADOXUS (COLEOPTERA : BUPRESTIDAE) IN WESTERN AUSTRALIA

By M. PETERSON\* and T. J. HAWKESWOOD†

#### ABSTRACT

The available literature on the general biology of two of the three species of the endemic Australian genus *Diadoxus* is briefly summarized. Additional data are supplied on their distribution, potential adult food plants and procreancy based on observations in Western Australia.

#### INTRODUCTION

The genus *Diadoxus* Thomson is a small genus of three species endemic to Australia (Carter, 1929). *Diadoxus scalaris* Laporte & Gory and *Diadoxus erythrurus* (White) are commonly known as the cypress pine jewel beetles since their larvae have been found to feed in the conductive tissues of branches and trunks of native cypress pines (*Callitris* spp.) and introduced *Cupressus* trees (both genera belong to the Cupressaceae). Attack by *D. erythrurus* on cypress pines was first recorded by Von Lendenfeld (1885) in western New South Wales. Since then, French (1911), Froggatt (1923, 1927), Pescott (1932), Zeek (1955) and Hadlington and Gardner (1959) have considered the bionomics of the two species. Saunders (1868) provided redescriptions of both buprestids. Blackburn (1899) described another species *D. jungi* from Yorke Peninsula, South Australia (he does not give a specific locality), but nothing has been recorded of its biology.

#### DISTRIBUTION

*D. scalaris*, the largest of the three species is known to occur in association with *D. erythrurus* (Hadlington and Gardner, 1959). Froggatt (1923) believed that *D. erythrurus* would be found wherever native *Callitris*

\*69 Alvah Street, St. James, 6102.

†Department of Botany, University of Western Australia, Nedlands, 6009.