REPORT ON A VISIT TO DIXON ISLAND, NICKOL BAY.

On July 7, 1974, I visited Dixon Island in Nickol Bay. I was accompanied by Mr. K. Bartley, Engineer, Public Works Department, Mr. P. Van Noort, Regional Surveyor, Department of Lands and Surveys and Mr. D. Viol, Research Officer, Department of Environmental Protection.

Dixon Island lies about 12km. west of Cape Lambert and 25 km. north east of Karratha. It has an area of about 530 ha. (1330 acres).

Geologically, the hills are composed of the Archaen Cleaverdale formation of Banded jaspilite, chert, haematite, shade, interbedded red shale and siltstone and some concordant green granulata rocks. The central valley is Pleistocene clays and gravels. A small area at the eastern of the island is of Lower Proterozoic Mt. Roe basalt. (Roebourne 1:250 000 Geological Map with explanatory notes, compiled by G. R. Ryan, 1966).

The northern edge of the island is composed largely of cliffs, facing onto Nickol Bay with one rocky beach toward the western end. Another row of hills lies just inland from the southern shore and a broad valley is located through the central portion. The southern shore and much of the bay at the south western end is lined with mangroves, mainly the White Mangrove (Avicennia marina) and the Red Mangrove (Ceriops lagal). A few White Mangroves are found on the northern shore.

The vegetation is mainly a hummock grassland of spinifex (probably Triodia pungens) with occasional shrubs, e.g. Acacia coriacea, Acacia pyrifolia, and other acacias, Tephrosia rosea, Hakea lorea and in rocky areas Ficus platypoda and Casparis spinosa. In valleys where there is sandy soil Acacia coriacea is the dominant shrub and it is found in association with Trichodesma zeylanicum, the Sturt Pea (Clianthus formosus) and the Kangaroo Grass (Themeda australis) Beaches are found adjacent to parts of the bay at the south west corner and at the eastern end of the island. Behind the beach are found beach spinifex (Spinifex longifolius), Salt-water Couch (Sporobolus virginicus) and samphine (Arthrocnemum spp.)

Fauna

a) Mammals.

1. Euro (Macropus robustus). Euros were quite plentiful on Dixon Island, some 9 individuals being observed during our visit of approximately two hours. A number of skulls were collected from caves and will be deposited in the W. A. Museum.

2. Dog - probably the Dingo (Canis familiaris dingo). Tracks of a large canid were observed on the beaches.

b) Birds.

The following species were observed:-

Osprey

Nankeen Kestrel

Bar-shouldered Dove.

cont'd...

Welcome Swallow
Willie Wagtail
Mangrove Golden Whistler
Singing Honeyeater
Little Wood-Swallow
Pied Butcher-bird
Pied Cormorant
Australian Pelican
Reef Heron
Pied Oystercatcher
Large Dotterel
Oriental Dotterel
Grey Plover
Eastern Curlew
Whimbrel
Bar-tailed Godwit
Greenshank
Knot
Grey-tailed Tattler
Terek Sandpiper
Red-necked Stint
Silver Gull
Caspian Tern

A large flock (circa 2,000) of migratory wading birds was observed at the bay at the south western end of the island. The most common species were Grey-tailed Tattler, Knot and Whimbrel.

c) Reptiles.

Lack of time precluded extensive collecting, only one species, the dragon lizard Amphibolurus candicinctus being collected. Skeletal remains of a green turtle (Chelonia mydas) were found in a mangrove area.

Comments on the fauna.

The only really notable record is that of the Euro (Macropus. robustus). This species is widespread on the mainland of Australia and is found in most of W.A. except the extreme south west corner. It is known to occur on four other islands off the western coast - Barrow, Simpson, Tent and Dolphin. On Barrow Island the euros are significantly smaller than those on the mainland and both sexes are of almost equal size whereas on the mainland the male grows very much larger. The populations on the other islands have not been studied.

There must be some doubt that the euros on Dixon Island represent a distinct population because:

a) the island is very small (530 ha.) and probably could not sustain a population large enough to prevent inbreeding and extinction over a long period. Main and Yadow (1971 Biological

cont'd...

Conservation, Vol. 3,) have suggested that a population of between 200 and 300 individuals is necessary to sustain a macropod population on an island over a long period. Ealey (1967, CSIRO Wildlife Research, Vo. 12) showed that at Woodstock the carrying capacity of similar spinifex xountry was 1 per 30 acres (12 ha.). Using this figure the population on Dixon Island would be approximately 44. This is probably an over-estimate since the carrying capacity at Woodstock was influenced by the ready availability of drinking water in stock troughs.

b) The island is very close to the mainland (approximately 0.6 km. at high tide). At low tide the distance is much reduced and there may even be a connection at times. Thus there may well be gene flow across the gap.

However, without further study the status of the Dixon Island Euro population must remain in doubt.

Other considerations.

a) Recreation.

July 7, 1974 was a Sunday and although very strong easterly winds blew most of the day one boat entered Port Robinson from the direction of Cape Lambert. The party in this boat spent the day on a beach in the bay at the south western corner of the island. In addition a number of people fished from rocks on the adjacent mainland. The island showed evidence of regular recreational use.

b) Fishing

The Port Robinson anchorage provides only a little over 2 metres of water at low tide which would be insufficient for most prawn trawlers. The protected mangrove lined waters between Dixon Island and the mainland probably provide a nursery area for prawns and other sport and commercial fish which are present in the adjacent waters. Comments on this aspect are already available on this file.

Future Development

Dixon Island is at the centre of future development in the Pilbara. I understand that planning at this stage provides for Dixon Island to be connected to the mainland and used as an industrial area and port site. The Euros would not survive such development. Furthermore I imagine that the reclamation of the protected waters between Dixon and the mainland would affect the breeding of prawns there and detract from the locality as a recreation area.

The question arises therefore as to what might be done about the Euros. I can see little that might be done to protect the population except protecting the island.

Two different pieces of work could be done before their habitat is destroyed:

1. Trap the majority of the Euros on the island and establish a breeding colony elsewhere, e.g. at the Perth Zoo, or release them on the mainland.

cont'd...

2. Commission a study of the population to see if they are indeed different from the euro on the adjacent mainland. Such a study might be carried out in conjunction with a study of the Dolphin Island population since this island may also be effected by development in the near future. If such a study showed that the Dixon Island populatioh is unique then steps could be taken to move it elsewhere as in (1) above.

A.

ANDREW A. BURBIDGE
Senior Research Officer.

July 12, 1974.