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REPORT ON A VISIT TO BOODIE ISLAND JULY 1990

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Boodie Island (470ha) is located 10km south of Barrow Island and forms part of the C Class Reserve No. 38728.

The island is covered by an exploration permit issued to WAPET.

CALM personnel G Oliver and M Hughes visited the island on 25 and 26 July 1990 to implement a programme for monitoring Pindone degradation in oats and to generally inspect the Reserve.

Pindone Monitoring Programme

INTRODUCTION

150gm samples of Pindone impregnated oats contained in heat sealed plastic bags were laid on Boodie Island by Department of CALM staff between 18-29 May 1985 in an attempt to eradicate the Black Rat *Rattus rattus* from Boodie Island.

In total 2000 baits were laid at 1200 bait stations on an approximate 50m grid pattern over the entire island.

Baits were located in both exposed and sheltered positions and on the southern limestone area, covered by plastic tubs to exclude the Burrowing Bettong *Bettongia lesueur*. Baits and tubs were removed from the island on completion of the baiting programme.

For a full account of the *Rattus rattus* eradication programme see attached report by K Morris.

In March 1989 J Short of the CSIRO located a number of baits on Boodie Island which CALM had failed to remove. On receipt of this knowledge CALM became concerned that remaining Pindone impregnated oats may contain residual toxicity and jeopardize future attempts to reintroduce the Burrowing Bettong to the Island.

Discussions with M Robinson of the APB confirmed this and a decision was made by CALM research to collect samples of the remaining oats for analysis by the APB. CALM operations Karratha were requested to obtain the samples.

The long-term objective of CALM is to reintroduce Bettongs to Boodie Island. This cannot occur until either (1) all remaining baits are removed; or (2) residual toxicity in remaining baits can be determined safe for the reintroduction of Bettongs.

OBJECTIVES OF MONITORING PROGRAMME

1. Locate intact bait stations and oat scatters on Boodie Island.

2. Mark, photograph and describe sites.

3. Collect replicate Pindone bait samples from a range of exposure conditions. Large samples >5gm should be collected, however, smaller samples will also be taken as these may be able to be analysed by UHP Gas Chromatography.

4. Forward samples, photographs and site descriptions to M Robinson of the APB for analysis and interpretation.

5. Sample sites should remain constant so that comparisons between years can be made.

6. Continue annual sampling until residual toxicities are deemed safe.

PROGRAMME IMPLEMENTATION/RESULTS

A map detailing bait stations previously located by J Short and H Butler was made available to CALM by WAPET. Section 1 of this map (Figure 1) has previously been searched on a 10m grid pattern.

Four of the six stations indicated in Figure 1 were located during the two CALM visits. Photographs and site descriptions follow:

SITE NO. 2
PHOTO NO. 3

This site is marked by a pallet and is located in a shallow depression between two parallel dunes. This location offers some protection from wind but is exposed to full sunlight. No evidence of oats were found at this site.

SITE NO. 3
PHOTO NO. 4

The bucket is shattered and marked by a survey stake. It is located on dune sands and relatively protected from wind by adjacent dunes. Early morning and late afternoon shade is provided to this site from surrounding *Spinifex longifolius*.

No evidence of oats were found at this site.

SITE NO. 4
PHOTO NO. 2

The bucket is shattered and marked with a survey stake. It is located on dune sands and relatively protected from south-east and south-west winds by the exposed southern limestone and adjacent *Spinifex longifolius*. The bucket has been exposed to full sunlight.

No evidence of oats could be found at this site.

Sites 1 and 5 were not located.

Sections 2, 3 and 4 of Boodie Island (Figure 1) were searched on an approximate 25m grid. No evidence of baits were found.

Sections 5 and 6 were not searched.

Site 6 has been the only station found to possess an intact bucket and to have provided a positive sample to the APB. Results from the February analysis are display in Figure 2.

It is possible that the 'oat husks' recorded by Butler (footnotes Figure 1) were spinifex seed. Five years of exposure to the weather and sand drifts have probably eroded traces of any exposed oats remaining from the programme.

Further discussion is required with H Butler on the nature of the oat husks.

OBSERVATIONS FROM BOODIE ISLAND

The majority of Boodie Island is comprised of white beach sands forming a series of dunes and swales. *Spinifex longifolius* dominates the dunes - the swales are mostly devoid of vegetation (Photo 5). The southern end of the island is comprised of limestone providing ledges, crevices and in places, shallow rocky soils (Photo 6).

Midway along the eastern flank of the island the foredune has been broached and on high tide seawater now floods into a large swale forming a shallow lagoon.

The vegetation of Boodie Island has been described by Buckley, 1980 in a report for WAPET dated 25 October 1980. This report has not been viewed.

Two unique features occur on the island, an Indonesian tree - *Cordia subcaudata* (Photo 7), and algal mats - growing in the shallow lagoon (Photo 8).

The Cordia tree is a multi-stemmed spreading plant covering an approximate area of 200 square metres.

Algal mats growing on dune sands occupy the landward margins of the Boodie Island lagoon. Juvenile fish, sharks - *Carcharhinus melanopterus, Carcharhinus sp*, and a sawfish *Pristis sp.* were observed up to 50m inland from the entrance channel to this lagoon. As a whole, however the lagoon appears biologically inert - perhaps due to the rapid absorption of water by the porous dune sand base.

Permanent water is present in an artificially dug soak on the southern end of the island (Photo 9). The soak is located in a depression and is fed by runoff from dunes and exposed limestone. *Spinifex longifolius* has responded vigorously to this increased moisture and has achieved 100% ground cover over an area of approximately 300 square metres surrounding the soak.

Singing Honeyeaters and Bar-shouldered Doves were flushed from the water's edge.

The soak was probably dug by WAPET during exploration activities in the 70's or 80's.

FAUNA OBSERVATIONS

Active Wedge-tailed Shearwater burrows were located on sands overlaying limestone on the island's south-eastern side (Figure 1). Evidence of Wedge-tailed Shearwaters was also found in burrows under limestone ledges on the northern side of the southern limestone outcrop. These ledges may have previously been occupied by Bettongs.

Three pairs of Ospreys were recorded on the island - all with active nests. Two nests were examined - one contained two chicks and one unhatched egg, the other two eggs (Photo 9).

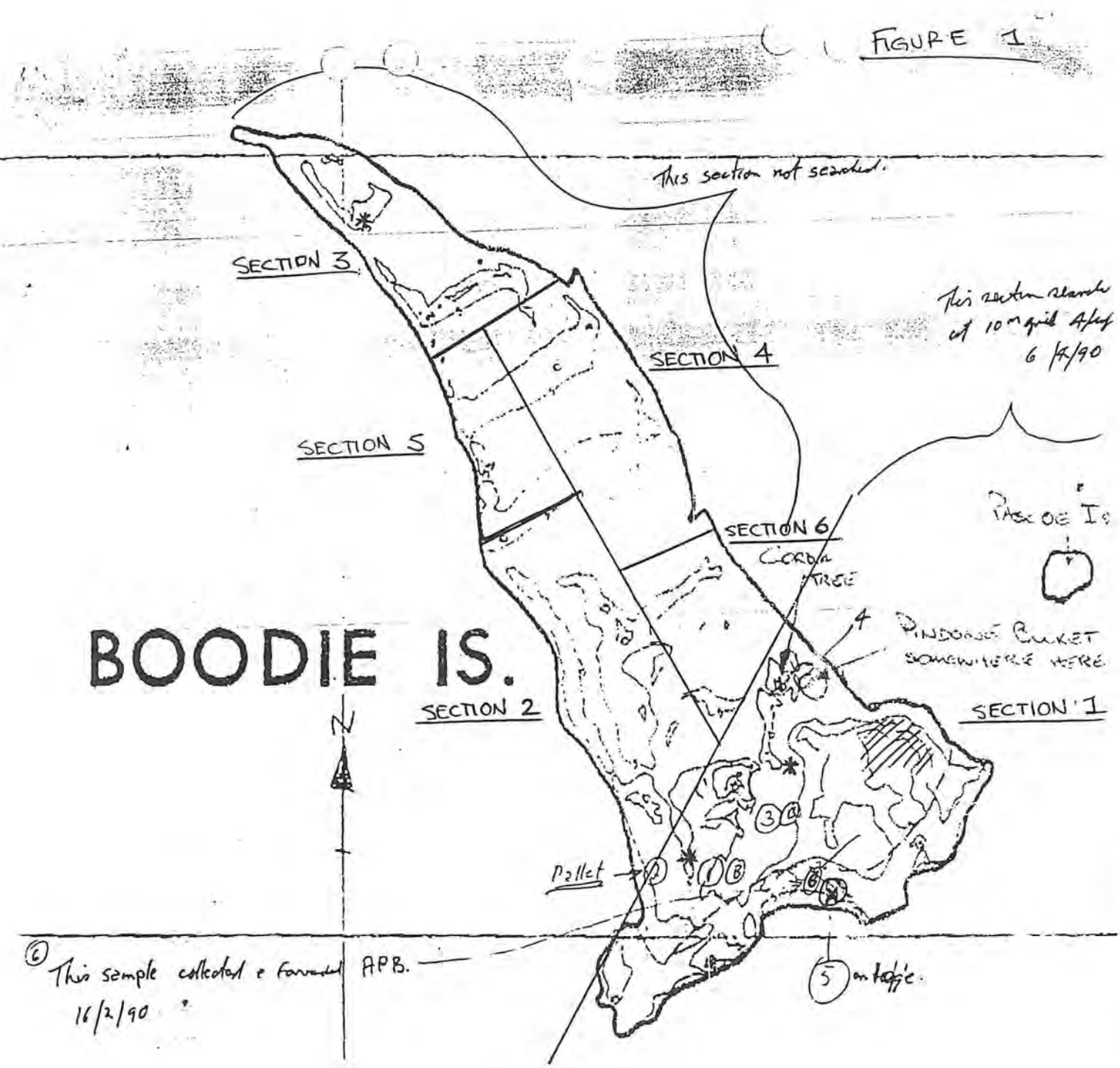
Sixteen other species of birds were recorded from Boodie Island.

Black-faced Cuckoo Shrike
Horsfields Bronze Cuckoo
Singing Honeyeater
Zebra Finch
Bar-shouldered Dove
Nankeen Kestrel
Little Falcon
Richards Pipit
Tree Martin
Sooty Oyster Catcher
Pied Oyster Catcher
Red-capped Dotterel
Bar-tailed Godwit
Silver Gull
Cormorant (?)
Welcome Swallow

SITE NO. 6
PHOTO NO. 1

The bucket is intact, though very brittle, and is marked by a survey stake. It is located on bare limestone and is fully exposed to sunlight and the prevailing south-east and south-west winds. No oats were present at this site. Oats which had previously been recorded by H Butler at this site presumably comprised the sample collected and forwarded to the APB for analysis.

FIGURE 1



① Bucket shattered no visible oats. exposed

② Pallet Few oat husks exposed to weather

③ Bucket shattered no visible oats. sand drifted.

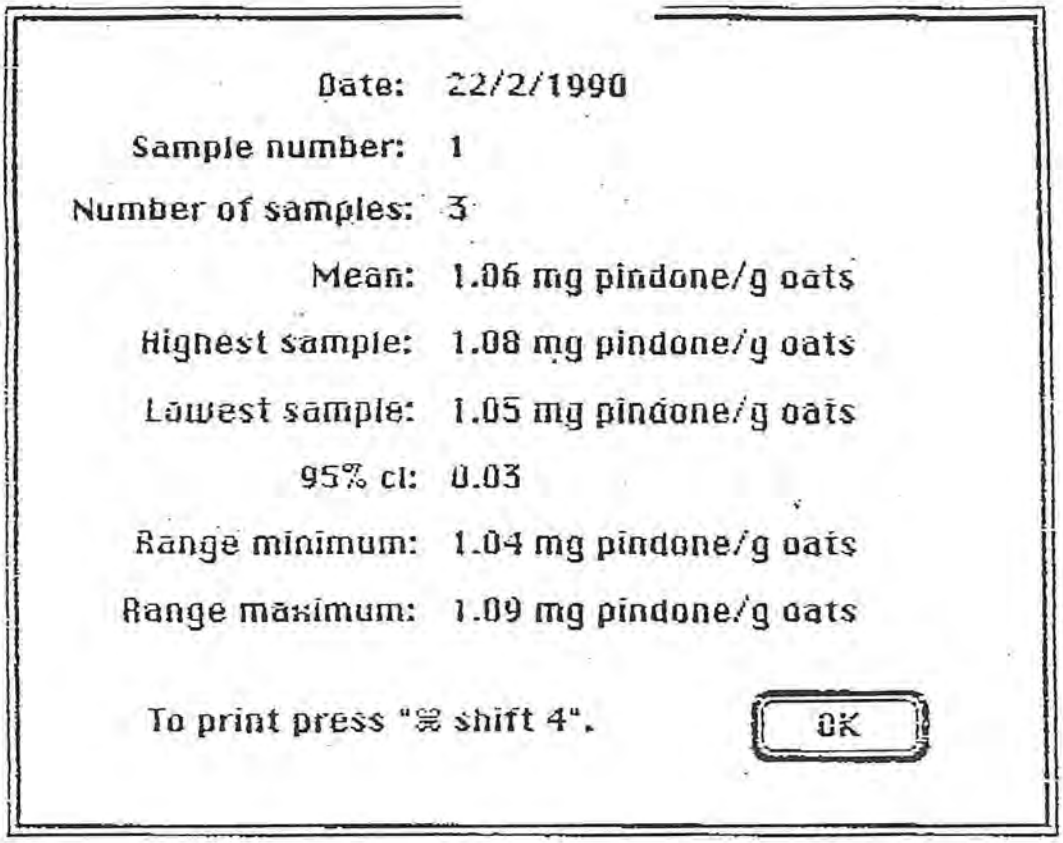
④ Bucket shattered no visible oats sand drifted - also found by J. Sluit.
also found by J Sluit

⑤ Ledge not exposed few oat husks

⑥ Bucket. not shattered collected for APB 16/2/90 photo 1

* osprey nests.
//// W.T.S

FIGURE 2

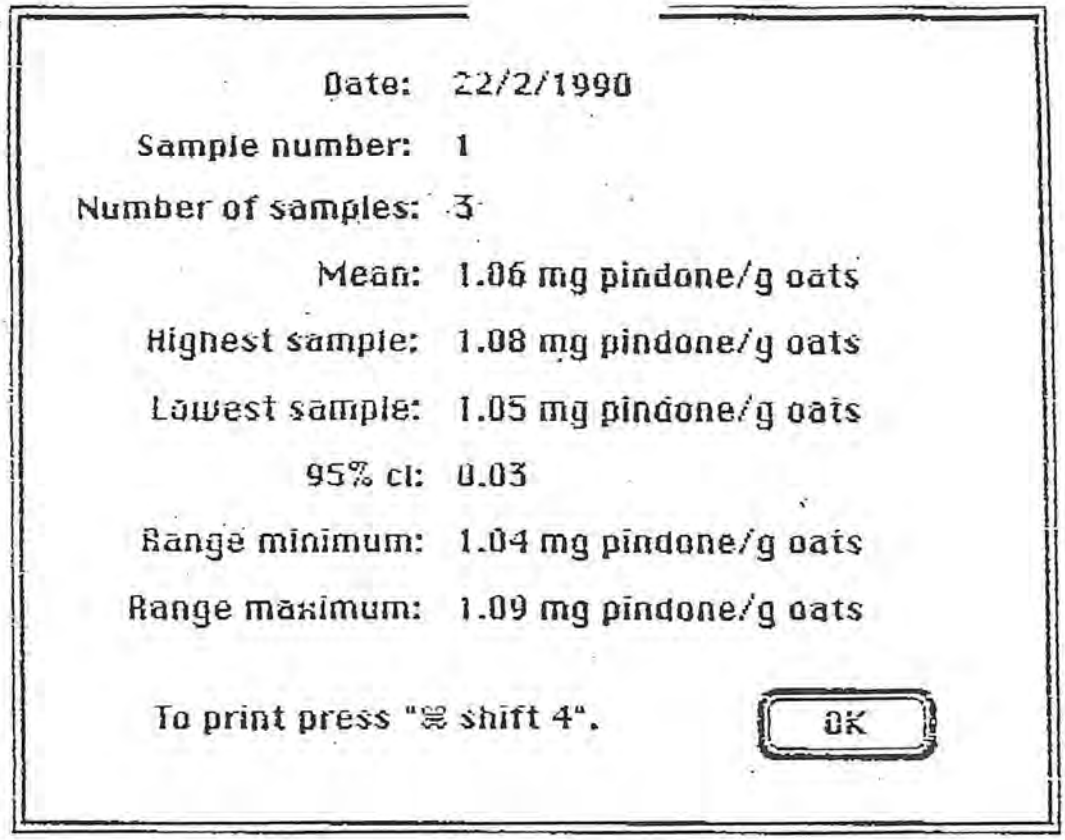


ORIGINAL LEVEL IS 2.8 mg/g OATS

THEREFORE, THEY HAVE LOST 62%

SINCE MAY 1985

FIGURE 2



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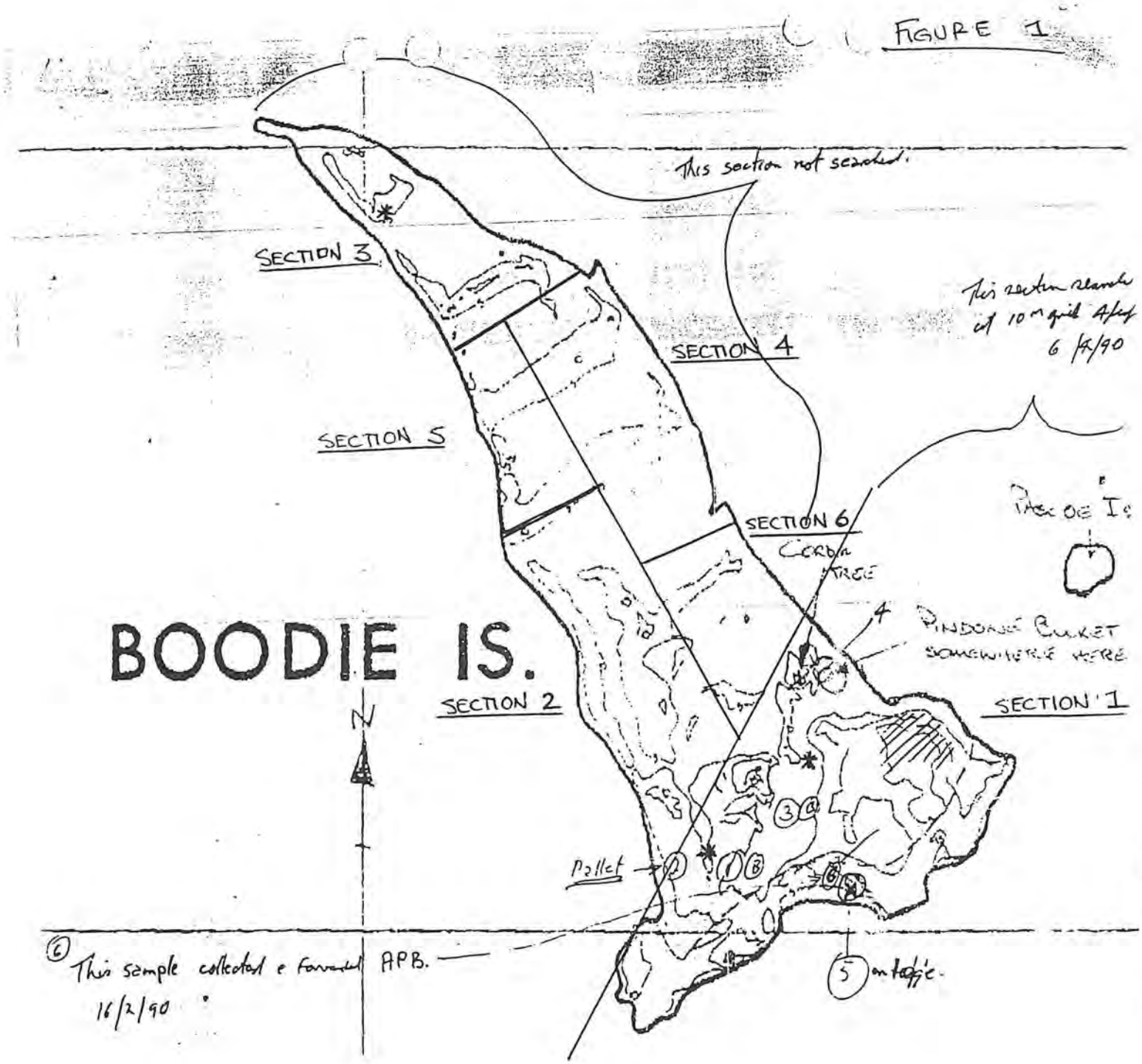

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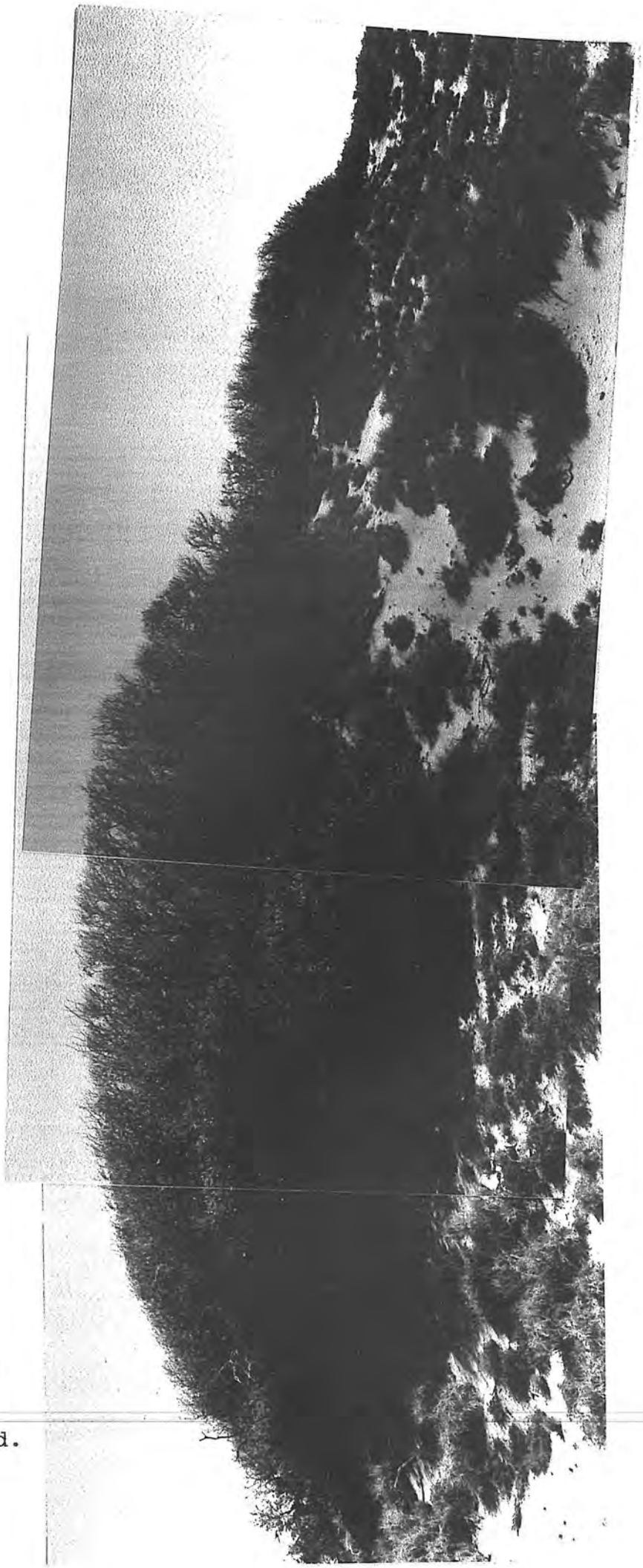
PHOTO NO. 5

Vegetated dunes and swales on Boodie Island. Pascoe Island can be seen in the background.

PHOTO NO. 6

A section of the southern limestone outcrop. *Ficus platypoda* are common on the exposed limestone of Boodie Island.

PHOTO NO. 7



Cordia subcaudata an Indonesian tree covering a large area on Boodie Island.

PHOTO NO. 8

Algal mat growing on the landward fringe of the lagoon.

PHOTO 9

Soak containing permanent water on the southern end of Boodie Island. This soak was probably dug by WAPET in 1985.

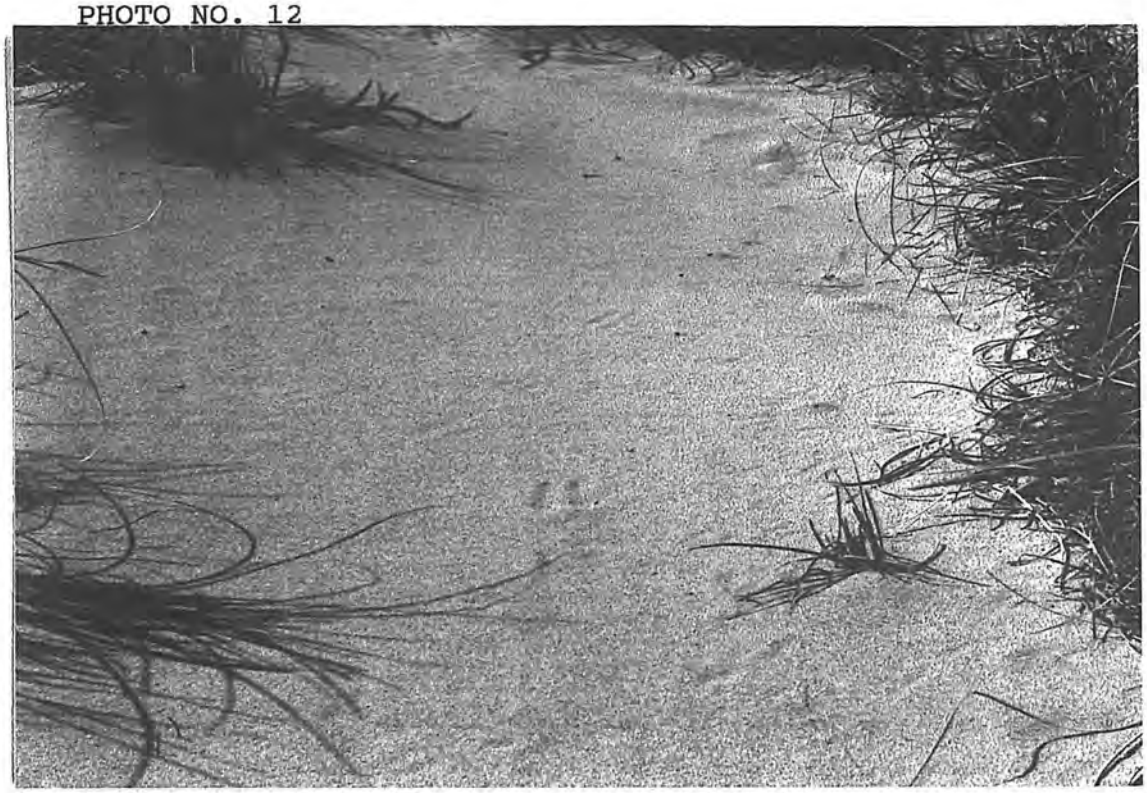
PHOTO NO. 10

Osprey chicks northern end of Boodie Island.

PHOTO NO. 11

Gemmatophora gilberti common on Boodie Island.

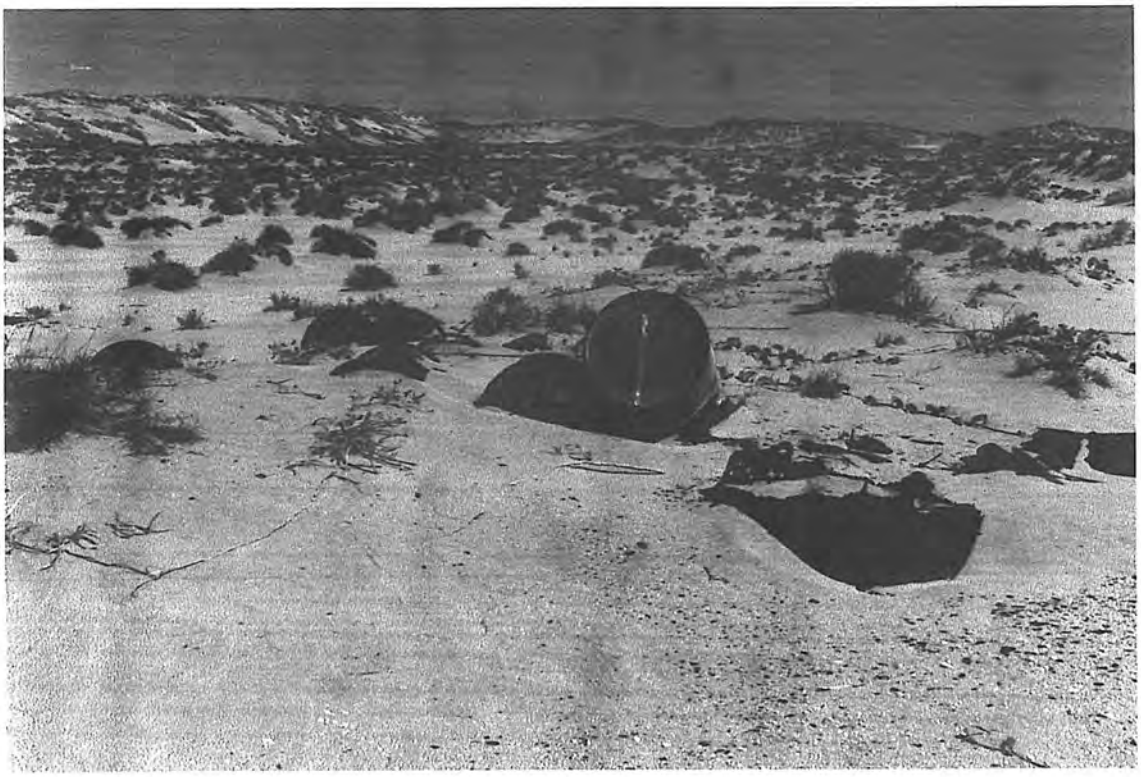
PHOTO NO. 12



Bettong tracks? These were occasionally seen on Boodie Island.

PHOTO NOS. 13 AND 14

Some of the debris present on the island.



RECOMMENDATIONS:

1. Liaise with H Butler to establish if he is aware of any remaining baits on Boodie Island.

2. CALM to conduct a further intensive search for baits in section 1 (Fig. 1) of Boodie Island, particularly under ledges, as a precursor to reintroducing *Bettongia lesueur* to the island.

3. CALM to conduct spotlight search to investigate potential boodie tracks (Photo No. 12) and verify absence of rats.

4. New outbreaks of *Cordia subcaudata* on Boodie or adjacent islands should be controlled.

5. Protection of the shallow lagoon and algal mats from disturbance should assume a high priority on Boodie Island.

6. Discussion is required with WAPET to facilitate a cleanup of debris and the rehabilitation of disturbed ground resulting from previous exploration activity.

7. The soak (Photo No. 9), if dug by WAPET, should be filled in with minimum disturbance to the surrounding vegetation.

8. Review Buckley's 1980 vegetation report to determine if Buffel grass *Cenchrus ciliaris* was present on Boodie Island prior to WAPET's activities.

9. Review WAPET quarantine procedures if information from 8 (above) warrants.