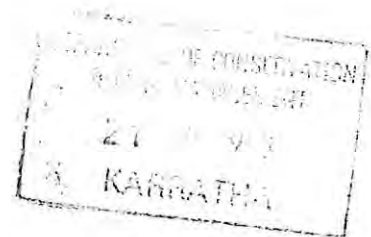


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Eradication of *Rattus rattus* on Barrow Island:
Results of a trial baiting program and
description of operational procedures.

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1. Introduction

When the introduced Black Rat, *Rattus rattus* was discovered on the south end of Barrow Island in July 1990, an eradication program was initiated. This involved two phases:

- (a) trial baiting program to determine the effectiveness of raised bait stations in killing *Rattus*. while reducing the hazard to native mammal species.
- (b) an operational program using proven baiting techniques to eradicate *Rattus* from the remainder of the south end of Barrow Island and Middle Island.

An earlier report (September 1990) describes the background to the discovery of *Rattus*. on Barrow Island and the proposed trial eradication program. This paper reports on the effectiveness of the trial baiting program (phase 1) and provides a description of operational procedures (phase 2) which should be employed for future *Rattus* eradication programs on Barrow and Middle Islands.

2. Methods

The trial baiting program involved placing 433 bait stations in an area of 170 ha between the narrow neck of Bandicoot Bay and the track to Eagle Nest beach (Figure 1). Previously it had been determined that

this was the northern distribution of *Rattus* on Barrow Island.

Each bait station consisted of a Rheem 20 litre bucket (U/V resistant) with pine ramps attached for access (Figure 2). The buckets were two-thirds filled with sand and 125g of Pindone impregnated oats placed on the sand surface. By lowering the poisoned oats in this fashion, possums were unable to stand on the lid and reach down to the baits. Each bucket was covered with a firmly fitting lid in which 4 x 40 mm holes had been drilled to provide access to *Rattus* but restricting access to other medium sized mammals. Smaller bandicoots and native rodents did have access to the baits. Bait stations were placed on a 50 m grid over the majority of the area. At this narrow neck of Bandicoot Bay the density of bait stations was increased to a 25 m grid. Bait stations were established between 28 September - 5 October and each was marked individually with an alphanumeric code. They were inspected regularly for the next 14 days to ensure

- a) that baits were being taken
- b) that baits were present at all times
- and c) what other species had access to the baits

Some minor changes to the techniques were made during this period.

Two trapping grids (Narrow Neck and Bandicoot Bay) were set in the baited areas during this time (Figure 1). Each grid consisted of 10 x 5 medium elliot traps and covered approximately 2 ha. Prebaiting trapping had previously (August 1990) been undertaken at these sites to provide a comparison of mammal abundance (Table 1). Between 19-22 November, 306 bait stations from line MMM (Figure 1) north were deactivated by removing the access planks. The 127 remaining bait stations at the

narrow neck were maintained, and will continue to be maintained until phase 2 is completed. Trapping at the same sites was again undertaken to assess the success of the baiting program. (Table 1). The cost of the trial baiting program is shown in Table 2.

3. Results and Discussion

Prebaiting trapping indicated that *Rattus* occurred throughout the south end of Barrow Island, extending at least as far north as the narrow neck and possibly as far north as the track to Eagles Nest beach. The trial baiting program which extended from the narrow neck north to the Eagles Nest track appears to have been successful in eradicating *Rattus* - none were trapped at the narrow neck following the baiting (Table 1) and no tracks were found. Trapping and searching for *Rattus* tracks are the only means of determining the success of the baiting program and it is important that these are undertaken periodically in the next 6 months to confirm the success of this program. The baiting also affected some native mammal species. The Western Chestnut Mouse was eradicated temporarily in the baited area. However in the area deactivated in November this species began to return to its former habitat within 2 weeks. The Golden Bandicoot also declined in abundance, due to mortality of smaller individuals which had access to the baits. However the bandicoot has remained in the baited area albeit at lower levels, and should return quickly to former abundance levels once the baiting has been completed. Further modifications to the baiting technique will be made to reduce the hazard to smaller bandicoots. (See Operational Procedures). All other mammal species recorded in the area prior to the baiting (Burrowing Bettong, Spectacled Hare Wallaby, Northern Brush-tailed Possum, Euro and Water Rat) persisted during and following the baiting.

4. Operational procedures for Phase 2 of the *Rattus* eradication in the remainder of the south end of Barrow Island, and Middle Island.

Following the success of the trial baiting program it is possible to propose procedures to ensure the eradication of *Rattus* from the remainder of the south end of Barrow Island and Middle Island.

Rattus eradication in the presence of native mammal species can be achieved by placing pindone impregnated oats on a raised platform and providing access for *Rattus* via pine planks (Figure 2). Rheem 20 litre buckets (U/V resistant) provide a platform 40 cm in height. The poisoned oats (125g oats, 0.17 mg pindone/oat) are placed on sand inside the bucket. The sand is at a level of approximately 15 cm from the top of the bucket. A tightly fitting lid drilled with 2-4 x 40 mm diameter holes is placed onto the bucket to allow access to the baits by *Rattus* but preventing access by larger mammals. Holes smaller than 40 mm diameter will also restrict *Rattus* access. A wooden ramp 20-25 cm long is placed inside the bucket to enable the *Rattus* to climb down to and away from the poisoned oats inside the bucket. Two timber (pine) ramps 0.9-1.0 m long and 5 cm wide connect from the lid to the ground and provide access for the *Rattus*. These boards are notched to allow them to fit into the handles of the Rheem buckets providing stability to the bait station. Further stability is provided by burying the ground end of the ramps slightly. This also increases the angle of the ramps and reduces the access of the bait station to bandicoots.

Bait stations should be set on a grid of 50 m spacings. In more densely vegetated areas this spacing can be reduced to 25 m (ie a more dense grid pattern). Each bait station is marked so that they can be accounted

for at a later stage. Bait stations should also be placed in a location protected from the wind if possible, to prevent wind erosion around the base of the bucket and subsequent instability.

Based on a grid of 50 m spacings, it has been determined that 665 bait stations will be required to complete the baiting of the south end (from the Narrow Neck, south). To cover Middle Island with the same bait spacings, 1 521 bait stations will be required. The estimated requirements and cost of materials to undertake phase 2 is shown in Appendices 2 and 3.

Pindone acts cumulatively and takes 4-7 days to kill *Rattus*. Bait stations need to be checked regularly (once a day/once every 2 days) to ensure that bait is still available to the *Rattus*. Bait checking can be lengthened (once/week) after this period. Grid trapping should be undertaken during the baiting program to monitor the decline of *Rattus* and provide some indication as to when baiting may be ceased. Bait stations should be left active for at least 1 month.

Trapping and track searches should continue for at least 6 months after the baiting to confirm the success, or otherwise of the baiting program.

Table 1. Trap success rates (%) for *Rattus* and native mammals at the south end of Barrow Island

Narrow neck

	August (pre-baiting)	October (during baiting)	November (during baiting)
<i>Isoodon auratus</i>	22.0	33.5	7.0
<i>Pseudomys nanus</i>	19.5	1.3	0
<i>Rattus rattus</i>	1.5	0	0

Bandicoot Bay

	August (pre-baiting)	October (during baiting)	November (post-baiting)
<i>Isoodon auratus</i>	30.0	35.3	9.5
<i>Pseudomys nanus</i>	8.4	0.7*	1.0
<i>Rattus rattus</i>	0	0	0

*This is an average trap success rate. After 5 nights of baiting, no *P. nanus* were trapped in this area.

Table 2. Cost of the trial baiting program to eradicate *Rattus* from Barrow Island (phase 1)

20 litre Rheem buckets	\$ 3 732.95
288 kg Pindone oats	3 456.00
Salary for Leigh Whisson	2 500.00
1 500 pine planks	1 125.00
Vehicle running	1 100.00
Vehicle fuel	592.00
Regional staff overtime	205.34
Nesting Boxes	100.00
PVC tubes	100.00
Peanut Paste	78.95
Koagulon antidote	48.00
Holesaw 41 mm	15.80
Syringes and needles	<u>10.00</u>
TOTAL	<u>\$13 064.04</u>

Appendix 1. Materials, suppliers and cost of materials
required for *Rattus* eradication

Materials	Suppliers	Cost
1. 20 litre buckets (u/v resistant) and lids	Rheem Australia 144 Carrington St Fremantle 6160 (09) 337 3411	\$933/pallett of 192 buckets = \$4.86 each
2. Pinewood planks 1.2 m long, 50 mm wide 10 mm thick	Western Case & Joinery 11 Howe St Osborne Park 6017 (09) 446 3139	\$0.75 each
3. Pindone impregnated oats (0.17 mg/oat) (125g oats/bait)	Agriculture Protection Board Bougainvillea Ave Forrestfield (09) 359 9300	\$12.00/kg

Appendix 2. Estimated requirements for Phase 2 of the
 Rattus eradication on Barrow and Middle
 Islands

1. Remainder of south end, Barrow Island.

a) 665 bait stations required (50 m grid)

b) 665 buckets, 1330 planks*

*note: the 1.2 x 50 mm x 10 mm planks used for the
 trial baiting can be shortened and halved to
 provide the necessary requirements - need
 only 665 planks of these dimensions.

c) 2 500 baits

2. Middle Island

a) 1 520 bait stations (50 m grid)

b) 1 520 buckets, 3 040 planks

c) 6 000 baits

Appendix 3 Estimated cost of Phase 2 of the eradication program, taking into account materials already available from the trial baiting program

1. Buckets 550 already available
 1 000 additional required @ \$4.86 = \$5 000
2. Timber ramps 1300 already available
 - to be cut in half and shortened
 - no additional requirements
3. Baits none available
 8 500 required @ \$1.50 = \$12 750

These costings are based on the assumption that materials from baiting the remainder of the south end will also be available for baiting Middle Island, i.e. Middle Island baited following the south end, and not concurrently.

Additional costs will be incurred through

- vehicle running expenses
- overtime for staff
- salary for Leigh Whisson (if required)

WAPET will continue to meet the costs of transporting personnel and equipment to and from Barrow Island, and providing accommodation and meals on Barrow Island.

WAPET have also indicated that they would assist by purchasing some of the materials required, e.g. the additional buckets.

Figure 1 Location of trial baiting program
Barrow Island.

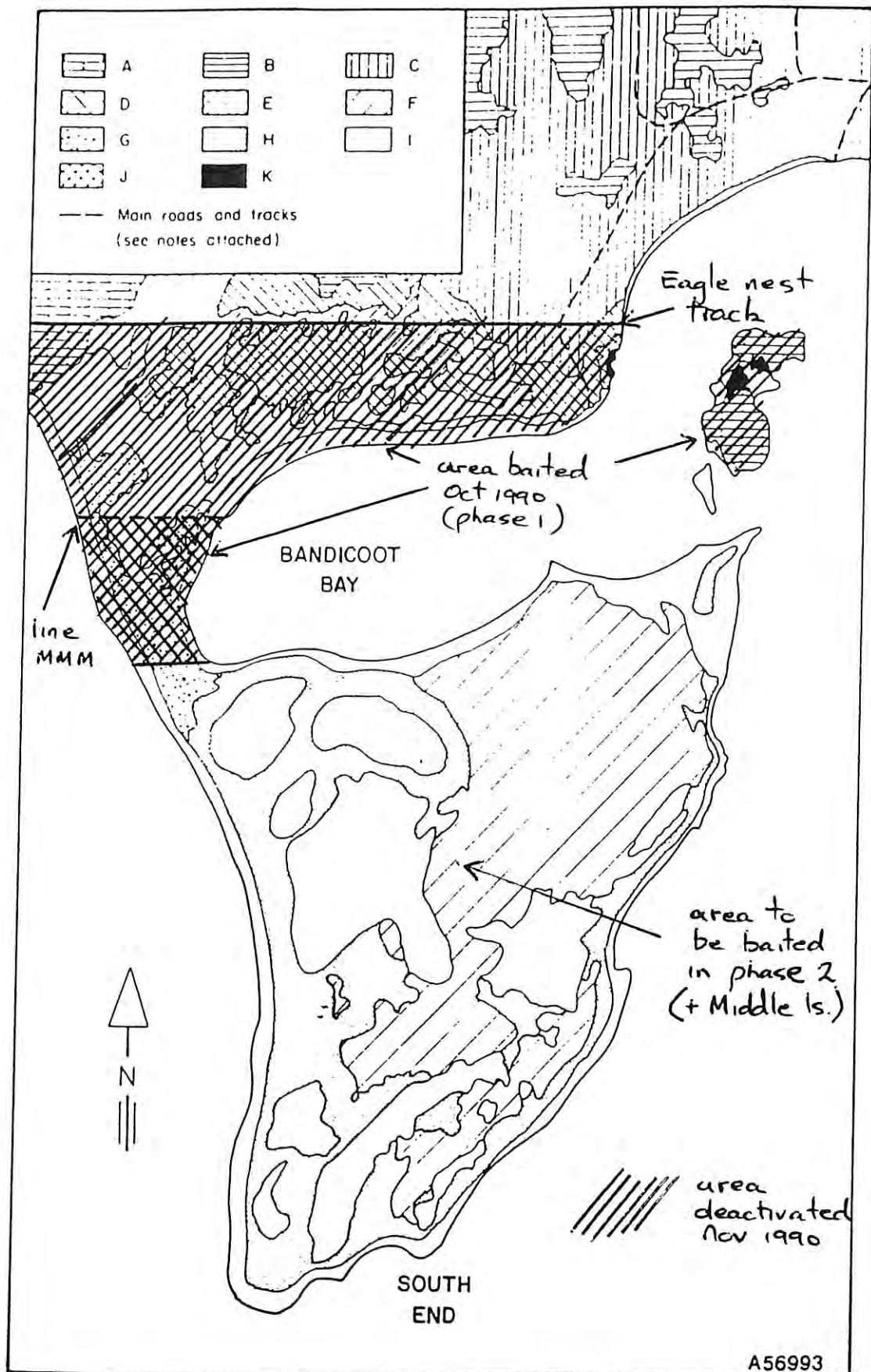
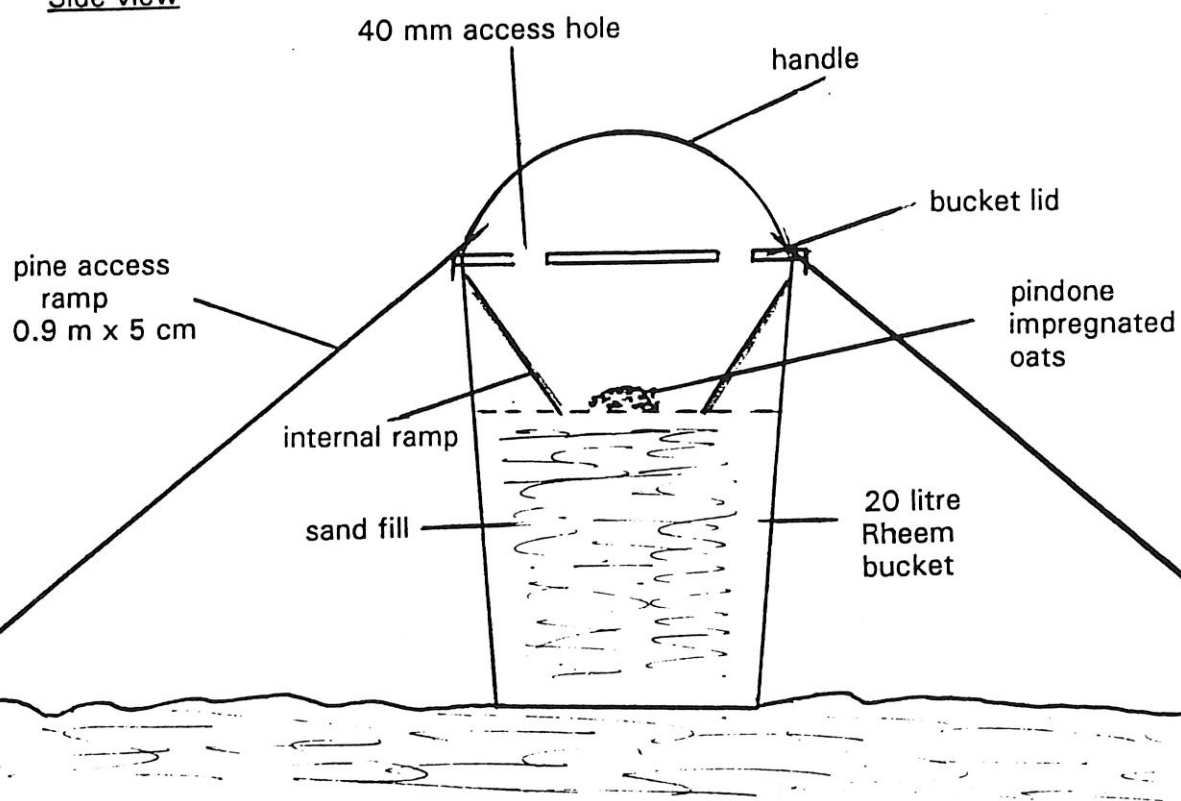


Figure 2

Diagram of bait station designed to eradicate *Rattus* while minimizing risk to native mammals.

Side view



Top view

