

ATOLL RESEARCH BULLETIN

NO. 338

**FERAL CAT ERADICATION
ON A BARRIER REEF ISLAND, AUSTRALIA
BY
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**ISSUED BY
NATIONAL MUSEUM OF NATURAL HISTORY
SMITHSONIAN INSTITUTION
WASHINGTON, D.C., U.S.A.
January 1990**

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INTRODUCTION

North West Island (23 42'S, 151 17'E) is a densely vegetated sand cay located 30 nautical miles northeast from Cape Capricorn in central Queensland. At 105 ha this is the largest island in the Capricornia Section

Great Barrier Reef Marine Park and the most important nesting site for the wedge-tailed shearwater (*Puffinus pacificus*) on the Barrier Reef. Feral cats (*Felix catus*) on the island probably originated from domestic cats that escaped during either guano mining in the late 1800s or during a turtle soup processing operation in the early 1900s.

Shearwaters are present on the island for approximately six months of the years from October to about April, nesting in burrows dug in the sand and have no defense against cats. With an estimated population of 724,560 shearwaters (Hulsman, 1984) visiting North West Island each year a large number were killed by feral cats. Evidence of this predation was obvious in the abundance of dead shearwaters found throughout the island.

The feral cat occurs over much of mainland Australia where it preys upon the native fauna, in some cases seriously reducing native animals. On islands however, it has played a major role in the eradication of native birds. In New Zealand alone, these predators are implicated in the extinction of at least 6 endemic species and over 70 localized subspecies (Rauzon, 1985). The Queensland National Parks and Wildlife Service has a policy aimed towards the eradication or control of feral animals on national parks. In keeping with this policy and because a high level of predation by a feral animal on nesting sea birds was not acceptable, it was decided to eradicate the feral cats on North West Island.

METHOD

Three eradication methods were used:

- . shooting (12 gauge shotgun)
- . trapping (wire cage traps)
- . poisoning (1080 poison on fish bait)

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Trapping was undertaken using wire cage traps (600 mm x 600 mm x 400 mm) using a variety of baits including fish, cat food, and tinned tuna. The traps were placed in locations known to be visited by cats. After approximately 40 trap nights this technique was abandoned. Shooting between February 1984 and February 1985 consisted of six separate trips averaging four days per trip with one or two people. Shotguns used were a double-barrel and pump-action 12 gauge with No. 3 duckshot. The cats were hunted throughout the day over the whole island by either walking marked transects or by random searching. Spotlight shooting at night along the beach was also used. When the number of cats diminished to the stage where shooting was no longer time efficient the poisoning program commenced.

The poison used was 1080 (Sodium monofluoroacetate) which is tasteless, odorless, and colourless. It is also readily biodegradable in soil, easy to handle, and more humane than alternatives (Allen 1983). Non-target fauna does not occur on the island therefore the program could proceed without constraint. Winter was chosen as the time for baiting as food is scarce for feral cats due to the absence of shearwaters and reduced numbers of other sea birds. Fifty kilograms of shark flesh was cut into 5 cm cubes and each injected with approximately 2 mls of a 0.6% 1080 solution (the same concentration is used on feral dogs). As the baits were injected, the 1080 solution would normally flow out over the surface of the bait. Smaller and thinner pieces of shark flesh were sprayed with 1080 solution and placed in heavy duty plastic bags along with large injected baits. The baits were then placed in styrofoam eskies and frozen prior to transport to North West Island. Baits were placed over the entire island in a 60 m square grid. Extra baits were placed where cats are known to forage at night. Baiting was first carried out in August 1985 and repeated using the same method September 1985. A random sample of cats shot was weighed, total length measured (head, body, tail), and the stomachs of 19 cats were removed for subsequent stomach analysis.

RESULTS

The total of cats confirmed killed were 105, comprising:

- . 8 trapped
- . 95 shot (16 at night)
- . 2 dead cats seen after baiting

Of the adult cats killed, 57.5% were males and 42.5% female. Two adult males and three adult females were trapped, and 44 adult males and 31 adult females were shot. Trapping resulted in three juvenile (unsexed) cats being caught while shooting accounted for 20 juveniles.

Trapping was found to be ineffective early in the eradication program and was abandoned in favour of shooting. Shooting was most effective in the forest during the day provided the shooter moved slowly and quietly. The cats were active throughout the day but appeared to hunt only at night. Spotlight shooting accounted for 16.8% of the cats shot, but was not considered as effective as daytime shooting.

An unknown number of cats is suspected of having died undetected following poisoning. Animals poisoned with 1080 are seldom found near the baiting site because of the time lag (up to 2 hours with dogs) before death occurs with this slow acting poison (Allen 1983). Two dead cats were found by chance after the first baiting program.

All cats were of a tabby colour (mottled dark brown and grey) with an average adult weight of 3.16 kg and an average length of 749 mm taken from front of head to end of tail. Stomach contents of 19 cats were examined. Most contained seabird remains, insect such as cockroach and centipede, the remains of what might have been a mouse, or were empty. All cats killed appeared in good physical condition.

In November 1986 a detailed survey of North West Island revealed no feral cats. The beaches were checked for tracks and the interior of the island checked for cats or dead birds which in the past were numerous. No substantiated reports of cats were received from campers on the island between October 1985 and November 1986.

DISCUSSION

A recent report on feral cats on Jarvis Island, (Rauzon, 1985) an atoll located 1300 nautical miles south of Hawaii, gives comparable data to that of North West Island as both are relatively small islands located in the tropics. The shooting success on North West compares favourably with that of Jarvis: the success rate of North West was approximately 0.5 cats per hour over the entire hunting period; that of Jarvis was initially 1.97 but dropped off to 0.19 cats per hour. The sex ratios of cats appear roughly similar for both islands with those from Jarvis Island being 52% female and 48% male (North West totals were 57% male, 42% female for shooting). The differences could be due to small sample sizes. Poisoning was also used on Jarvis Island the results of which were uncertain.

Jones and Horton, 1984 in a study of gene frequencies and body weights of feral cats from six localities including Macquarie Island record the mean weight of males and females studied at 3.82 kg. This is heavier than 3.16 kgs recorded from North West Island. This could be explained as a seasonal fluctuation in body weight reflecting food availability or perhaps over many generations of cats on North West became lighter in weight because of some genetic advantage. Except for a short while after heavy rain there is no reliable source of fresh water on North West Island. Evidently this shortage is not critical to feral cats survival, however it might account for the lighter body weight which may be an island adaptation.

Camper complaints indicate the population of mice on North West Island are increasing since eradication of the cats. This was expected. The numbers of mice can be controlled by long term baiting.

The eradication of feral cats from national parks can be difficult, expensive, or impossible. The experience on North West Island indicates that in some situations eradication of feral cats on a low cost basis is possible. This was the result of several factors:

- . small size and flat topography of North West Island
- . a lowered vigilance by the cats resulting from a long history with no natural predators and abundant food
- . type of forest lacking a grassy understory resulting in good visibility for hunting
- . absence of non-target species susceptible to the poison
- . easy accessibility to the island by national parks staff

With the eradication of feral cats on North West Island the buff-banded rail (Rallus philippensis) should return. This bird which is common on all the islands in the Capricornia Section Marine Park is absent on North West Island due to past predation by cats. Ground nesting terns which also nest on the other nearby islands may commence nesting on North West Island following the removal of cats. Regular patrols by Queensland National Parks and Wildlife Service ranger staff will monitor any changes that occur to the island fauna.

ACKNOWLEDGEMENTS

I would like to thank the Rockhampton based Queensland National Parks and Wildlife Service staff who helped us in the project both in the field and by commenting on the manuscript.

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