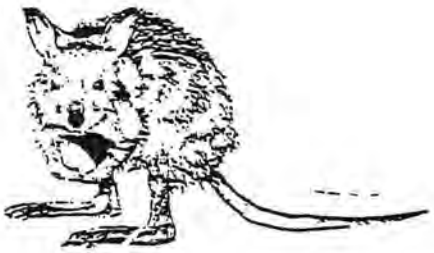
MALA RECOVERY PLAN

TRIMOUILLE and NORTH WEST ISLAND - Montebello Group WA

Translocation Assessment



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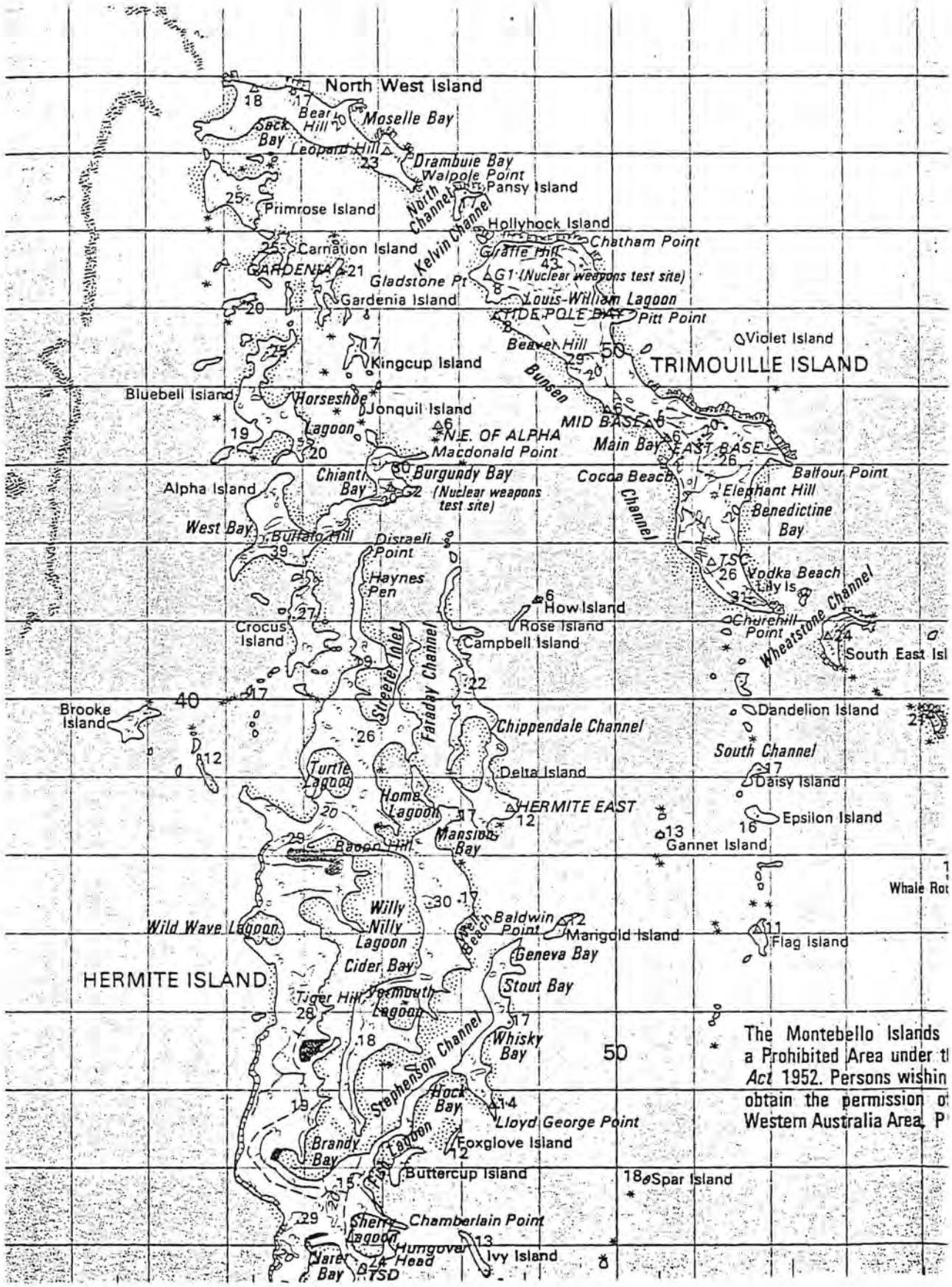
October 1997


North West Island
Bear Hill
Moselle Bay
Sack Bay
Leopard Hill
Drambuie Bay
Walpole Point
Pansy Island
Primrose Island
North Channel
Kelvin Channel
Hollyhock Island
Carnation Island
Chatham Point
Giraffe Hill
GARDENIA
Gladstone Pt
G1 (Nuclear weapons test site)
Gardenia Island
Louis-William Lagoon
TIDE POLE BAY
Pitt Point
Violet Island
Beaver Hill
Kingcup Island
TRIMOUILLE ISLAND
Bunsen
Bluebell Island
Horseshoe
Jonquil Island
Lagoon
N.E. OF ALPHA
MID BASE
Main Bay
EAST BASE
Macdonald Point
Chianti Bay
Burgundy Bay
(Nuclear weapons test site)
Cocoa Beach
Balfour Point
Alpha Island
Elephant Hill
Benedictine Bay
West Bay
Buffalo Hill
Disraeli Point
Channel
Haynes Pen
Vodka Beach
Lily Is
How Island
Rose Island
Crocus Island
Campbell Island
Churchill Point
Wheatstone Channel
South East Isl
Street Inlet
Faraday Channel
Brooke Island
Dandelion Island
Chippendale Channel
South Channel
Turtle Lagoon
Delta Island
Daisy Island
Home Lagoon
HERMITE EAST
Epsilon Island
Mansion Bay
Gannet Island
Baboon Hill
Whale Rot
Willy Nilly Lagoon
Wild Wave Lagoon
Baldwin Point
Marigold Island
Flag Island
Geneva Bay
Cider Bay
HERMITE ISLAND
Stout Bay
Tiger Hill
Yesmouth Lagoon
Whisky Bay
The Montebello Islands
a Prohibited Area under t
Act 1952. Persons wishin
obtain the permission o
Western Australia Area. P
Stephenson Channel
Hock Bay
Lloyd George Point
Brandy Bay
Foxglove Island
Buttercup Island
Spar Island
Sherry Lagoon
Chamberlain Point
Hungover Head
Ivy Island
Hare Bay
TSD

Introduction

The Mala Recovery Team endorsed a proposal to visit Trimouille and North West Islands in the Montebello Group, W.A. to determine the suitability of the islands for translocation of the critically endangered Rufous Hare-wallaby (central Australian sub species) *Lagorchestes hirsutus* unnamed subsp. (Mala Recovery Team - [Minutes], Broome, 15 May, 1997. Item 4).

A visit was made to the islands by D. Langford of the Parks and Wildlife Commission of the Northern Territory (PWCNT) Alice Springs, at the invitation of the Department of Conservation and Land Management (CALM) during the week 14th - 18th July, 1997.

Background

The Montebello islands are a group of uninhabited islets and rocky outcrops approximately 80 kilometres off the Pilbara coast of Western Australia and about 20 kilometres north of Barrow Island. The main islands in the group are Trimouille (522 hectares), and Hermite (1022 hectares).

The islands consist of Pleistocene coastal limestone formations which are consolidated sand dune deposits stranded by rising sea levels 7 - 8 thousand years BP (Burbidge, 1989). The main elevated topographic features of the islands are composed of outcropping travertinised limestone ridges which, on exposed shorelines have been eroded to form cliffs and elsewhere breached to form sandy embayments. The islands are generally veneered with limey coastal sands which in the face of prevailing south easterly gales have formed low dunes against and between limestone outcrops. Loamy orange-brown sands occur in some valleys on the larger islands.

Plate 1. *Stabilised dunes on Trimouille Island*

The recorded history of the area dates from May 1622, when the English ship *Tryal* or *Trial* was wrecked on what became known as Tryal Rocks. One of the two boatloads of survivors, commanded by the mate, rowed to an island of the group and stayed there for a week. The islands were named by the French explorer Baudin during his 1802 voyage, after Marshal Lanes, whom the French Emperor Napoleon anointed "Duke of Montebello" (Anon, 1983).

Lieutenant P. P. King, on an expedition to complete the exploration of the coast of Australia surveyed the area in 1818 and 1820 (Anon, 1983).

The first natural history work conducted on the islands was that undertaken by Lort Stokes, a British naval surveyor aboard HMS *Beagle* during its voyages off the north west coast in 1840. However detailed biological survey was not carried out until 1912 when P D Montague, a scientist sponsored by the Royal Society of London, spent three months on the Montebello Islands making scientific collections for the British Museum (Montague, 1913). As well as recording numerous native animals including evidence of the golden bandicoot *(Isoodon auratus*) which had become extinct shortly before his visit and the spectacled hare-wallaby (*Lagorchestes conspicillatus*) Montague also noted the introduced black rat (*Rattus rattus*) and the feral cat (*Felis catus*). Though he assumed that the cats and rats had originated from a 1890's ship wreck the more likely explanation is that they were inadvertently introduced by careening pearling vessels which were quite common around the coast late last century. Montague predicted that the hare-wallaby would soon follow the bandicoot to extinction due to the depredations of the cats and rats - he was to be proved correct! Rakali (Water-rats) were recorded in the 1970's, but are now absent. Two bird species - the black and white fairy wren (*Malurus leucopterus leucopterus*) and the spinifex bird (*Eremiornis carteri*), recorded by Sheard (1950) on Trimouille Island are also extinct.

In 1952 and again in 1956 the islands were used by the British government as an atomic weapons test site. In all, three nuclear devices were detonated on the islands or surrounding waters. The first device was exploded below the waterline in the hull of a Royal Navy frigate, HMS *Plym* (to test the effect of a ship-smuggled bomb - a matter of great concern to the British at the time) which was anchored off Main Beach, Trimouille Island. In the 1956 tests two weapons were exploded on 30 m towers, one at Gladstone Point on Trimouille Island and another near Burgundy Bay on Alpha Island (Anon, 1997).

As a consequence of the nuclear programme the Montebello Islands remained a Commonwealth prohibited area under the "Defence (Special Undertakings) Act" until July 1992 when they were returned to Western Australian control and declared a Conservation Park. They are vested in the National Parks and Nature Conservation Authority (NPNCA) and managed by the Department of Conservation and Land Management (Burbidge, 1996).

Although there is little biological or topographical evidence of the testing programme, rusting and decaying metal structures and abandoned equipment still litter many islands. There is some residual radiation on the northern half of Trimouille Island and on part of Alpha Island. In consequence CALM follow a set of safe working practices for visits to the islands and have produced a safe working procedure manual. Personnel visiting the Montebello Islands wear radiation badges which measure exposure to gamma rays. Radiation levels on Trimouille Island are around 0.75 to 1.0 microSieverts per hour. This is a low figure. For comparison, a chest X-ray has a dose of about 30 uS, a dental X-ray dose is about 140 uS and a computerised tomographic scan (CATSCAN) of the head about 1800 uS. On the present trip all badges worn by personnel working on the islands, including Trimouille, showed zero exposure to gamma rays - a result that mirrors those obtained previously.

Black rats and feral cats survived the testing programme and presented a major barrier to any attempt at reconstructing the fauna; an idea first suggested in the early nineteen seventies (Burbidge, 1971). They also precluded the possible translocation of threatened native species whose mainland survival was threatened by predators or degraded habitat.

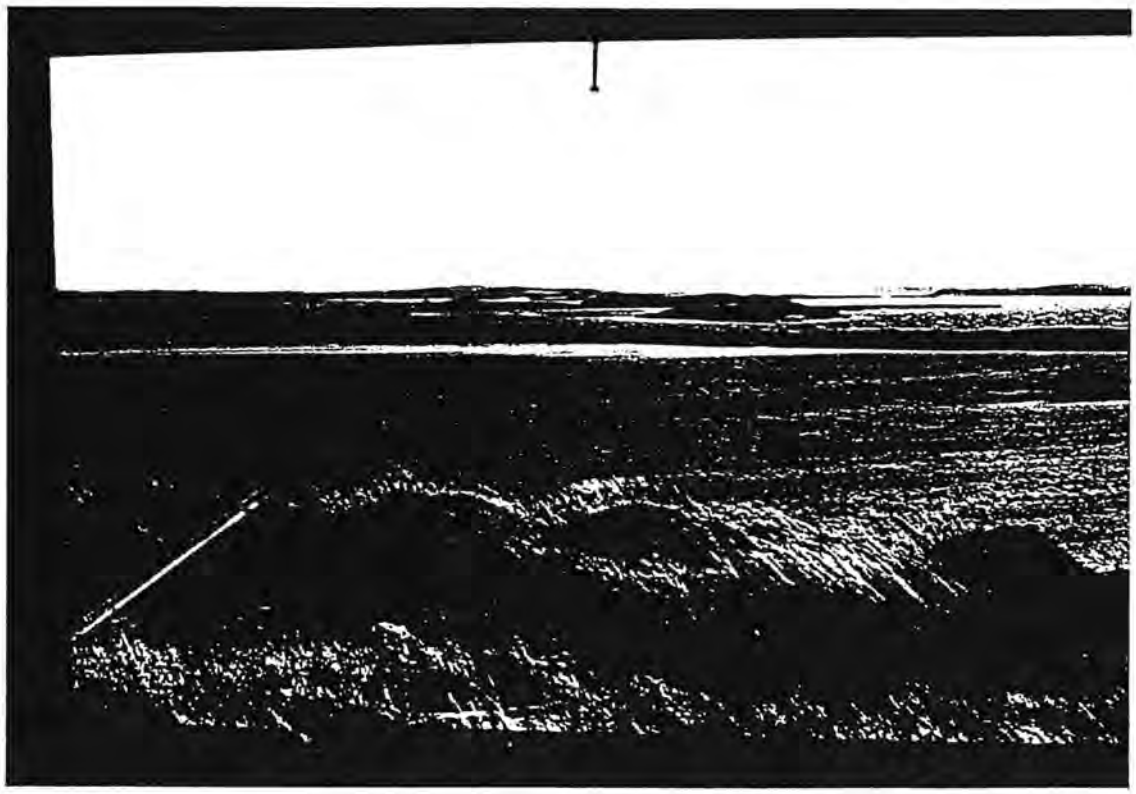


Plate 2. *Looking towards Trimouille Island from the nuclear test observation post on Hermite Island*

The department of CALM applied for and was granted Commonwealth funds to commence initial research for a rat eradication operation later known as "Montebello Renewal". Preliminary activities involved biological survey work to ensure eradication techniques did not affect native species. This work determined that only two species of granivorous bird - the brown quail (*Coturnix ypsilophora*) and the bar-shouldered dove (*Geopelia humeralis*) might eat poisoned grain pellets. To overcome this obstacle CALM officers developed a plastic bottle bait station that would allow the entry of rats but exclude birds. The bait station was tested on one island in August 1995. It worked well, eradicating rats but having no impact on other species (Burbidge, 1996)

In winter 1996 CALM commenced a major field baiting project enlisting the support of volunteers and industry. West Australian Petroleum Pty. Ltd (WAPET) provided a barge to transport fuel, dry food and other equipment and remove empty fuel drums, rubbish and equipment back to the mainland. They also provided seats every week, free of charge, on their charter flights between Perth and Barrow Island to enable changes of staff and volunteers.

Apache Energy, another company working in the nearby oil field, donated seats on their helicopter between Karratha and Varanus Island (20 kilometres south-east of the CALM base on Hermite Island) and also provided fresh food every fortnight. ACI Plastic Packaging provided 13800 plastic bottles (to be used as bait stations) free of charge, whilst the rodenticide manufacturer, Crop Care Australasia, supplied 3.5 tonnes of Talon G at a discounted price. Selleys Chemical company donated some of the All Clear glue used to attach bait stations to rocky areas. The Australian Customs Service assisted in the delivery of equipment and other requisites during their patrols off the Pilbara coast.

During June 1996 twenty four volunteers, recruited from CALM staff who were prepared to donate part of their annual holidays to the project, distributed 13,000 plastic bottles and over two tons of "Talon G" rodenticide across every island and islet of the group. Bait stations were placed at 50 m intervals. Sites difficult to reach by boat were baited from a helicopter as rats are good swimmers and therefore no island or rocky stack could be missed!

Four to seven days after the bait stations were put in place they were revisited to top up bait. They were visited again four to seven days later and rebaited where necessary.

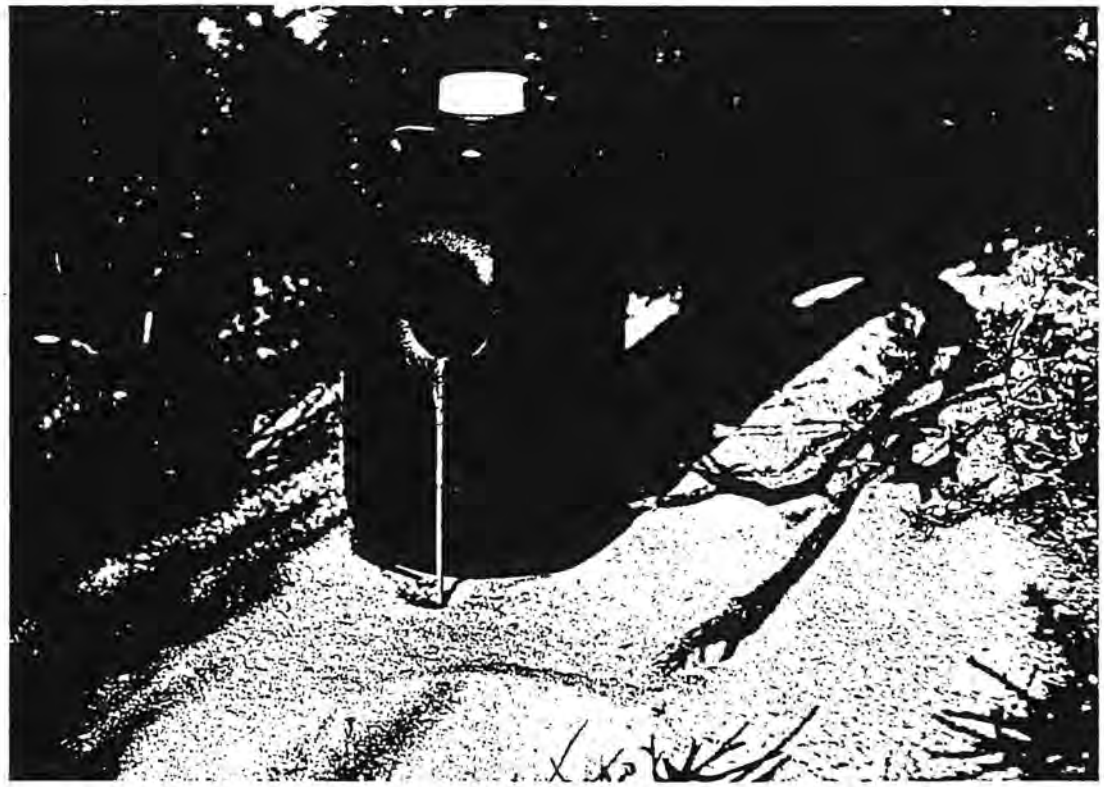


Plate 3. *Bait station - for "Talon" bait*

During June 1996 unseasonably heavy rain fell on the Montebello islands causing some of the bait to rot. This necessitated rebaiting of some of the bait stations. In July further rain from the remnants of a tropical cyclone again caused some rot but also a 'caking' of the remaining bait. Once again some of the baits were replaced if staff considered its condition would affect its palatability to rats. Some of the residual bait would have been wetted again over the 1996/97 summer. * (The reason for concern over the condition of the bait will be explained below)

On successive monitoring visits to the islands, including the most recent trip this July, rats were not detected and all evidence suggests that they have been eradicated.

Assessment Trip 14th - 18th July 1997

The object of this trip was to assess two of the Montebello Group - Trimouille Island and North West Island, as possible Mala translocation sites following their recommendation by Andrew Burbidge, Director of CALM'S WA Threatened Species and Communities Unit.

CALM has a base on Hermite Island and it is from this base that exploration and research activities within the islands are undertaken by small boat. Unfortunately windy weather for the first three days of our stay on the island limited boat travel to protected waters and delayed planned visits to Trimouille and North West Islands. However the wind eventually did drop allowing visits to both islands. Although tide and sea conditions limited time spent on the islands, an assessment was carried out. Of the two islands Trimouille was regarded as having the greatest potential for a successful translocation of Mala. The following assessment relates specifically to that island.

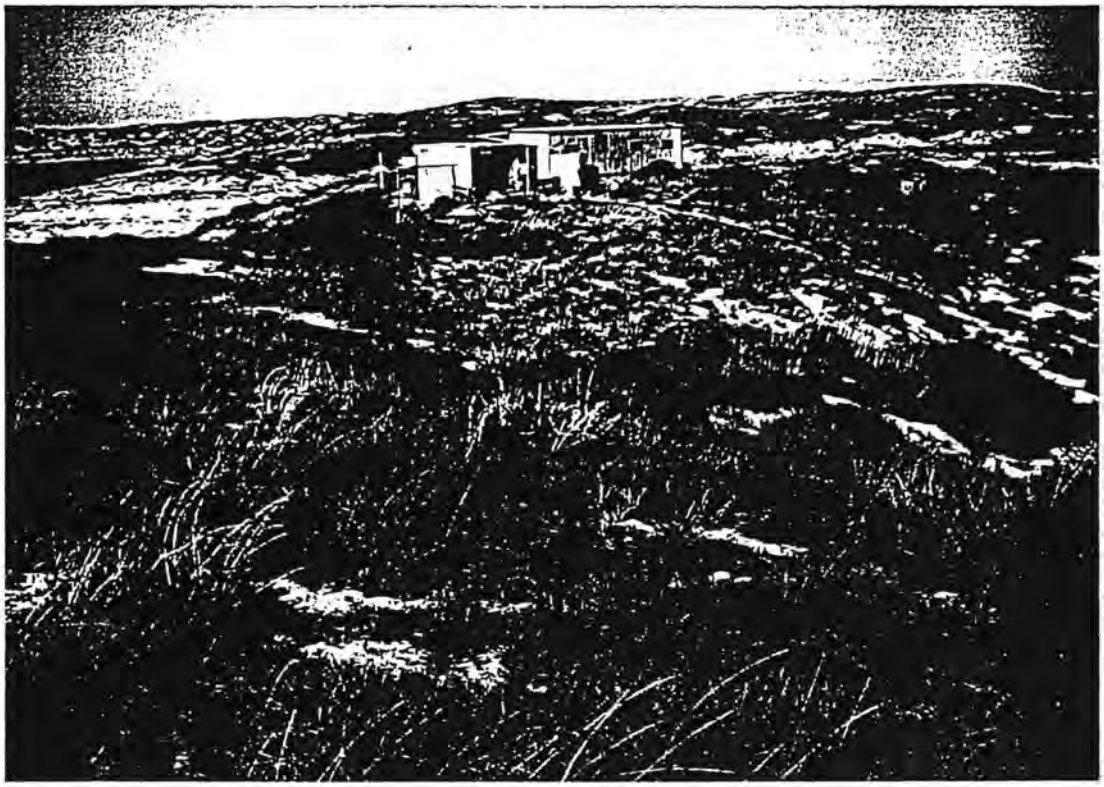


Plate 4. *The CALM base on Hermite Island*

Site assessment criteria

Assessment of site suitability for translocation requires examination of a range of environmental, strategic and economic factors (Short *et. al.* 1992):

- **Habitat suitability**

  - available shelter sites
  - available food plants
  - other species competing for resources

- **Potential threats**

  - frequency of fire and current protection
  - potential for predation by feral predators
  - residual "Talon" baits

- **Infrastructure in place to facilitate release**

  - personnel and funding available to ensure the short and long-term monitoring of the release population
  - local facilities (shelter, transport, food, communications)

- **Long term security of the site**

Habitat suitability

Shelter sites:

The vegetation on Trimouille provides good cover for Mala, comparing favourably with the structure of the vegetation in the Tanami Desert. As well as a number of clumping grasses such as Coastal Spinifex *Spinifex longifolius,* Silky Browntop *Eulalia aurae,* Plume Sorghum *Sorghum plumosum*, there also a number of thicket forming shrubs including saltbush *Rhagodia latifolia* and Buckbush *Salsola kali*. Small clumped subshrubs are also present, the most common being Desert Spurge *Euphorbia eremophila*. The shrub over-storey contains shady thickets of Dogwood *Acacia coriacea* and two other acacias *A.gregorii* and *A.bivenosa*.

Tanami Desert Mala shelter during the day in a shallow scrape or hide beneath spinifex *Triodia pungens* or low shrubs. During the hot summer months Mala may also dig a small burrow, sometimes up to 70 centimetres deep. On Trimouille Island the sandy substrate would enable Mala to dig shelters if this were required.

Summary comment: The plant cover on Trimouille Island appears to be excellent for Mala.

Plate 5. *Vegetated dunes - Trimouille Island*

Plate 6. *Good cover for Mala on Trimouille Island*

Plate 7. *Good squat digging country - Varanus gouldii excavation on Trimouille Island.*

Food plants:

Research into the diet of Tanami Desert Mala indicates that they have a highly variable, predominantly herbivorous diet (Hartley, 1990; Lundie-Jenkins *et.al.*, 1993; Pearson, 1989). A wide range of plant species are utilised by the wallabies. Mala appear to be highly selective both in terms of which plant species are utilised and which actual plants are consumed. Leaf and stem material form the staple foods in the diet. However, seeds and succulent fruits are preferred over other items during the relatively short periods when they are available. The selection of preferred food items by the hare-wallabies is thus moderated by changes in the relative palatability and availability in space and time of such items. As a consequence, there are dramatic shifts in the composition of the hare-wallabies' diet with dicot species and hardy perennial monocots such as *T. pungens* becoming increasingly important as environmental conditions deteriorate. Insects are also occasionally eaten by Mala, perhaps as a protein supplement during drier times.

In summary, the Mala's 'generalist' and opportunistic feeding strategy should enhance its ability to survive (and hopefully increase) in a variety of habitats, providing the species composition is sufficiently diverse to provide alternative foods across the seasons.

On Trimouille Island plant species composition, though different from the Tanami Desert, is sufficiently diverse to provide a range of potential food species within growth form categories found to be important in sustaining a population of Mala (Burbidge 1971). Grass species providing leaves, stems and seeds are present and include Silky Browntop *Eulalia aurea,* Plume Sorghum *Sorghum plumosum,* Sand Couch grass *Sporobolus virginicus,* Native Millet *Panicum decompositum* and an unknown *Enneapogan* species. A good range of dicot species - herbs and subshrubs - occur on Trimouille Island. In the Tanami dicots represent only a minor portion of the Mala's diet, but become more important in the diet during dry periods when monocots are less available. Under particularly dry conditions, Mala turn increasingly to coarse species including subshrubs and shrubs. Numerous herbs and subshrubs from genera utilized by Mala in Tanami Desert occur on Trimouille Island including *Goodenia, Neobassia, Ptilotus, Frankenia,* and *Indigofera* but also a variety of other shrubs, a number of which would probably be selectively eaten in harder times.

The beaches and coastal littoral on Trimouille Island offer translocated Mala an important additional habitat supporting a range of food plants and is, in a sense, synonymous with the caliche (areas sustaining salt tolerant plants) around salt lakes and channels foraged by Mala in the Tanami Desert. Hare-wallabies sighted during spotlight surveys on Bernier and Dorre Islands were often seen on the beach or on dunes (Short and Turner, 1992). They have been observed eating seaweed on the beach (pers.obs. 1990) on Dorre Island. It may be speculated, in the absence of detailed dietary studies, that the beach and coastal littoral may be an important source of food for island Hare-wallaby populations.

On the leeside of Trimouille Island there are long stretches of accessible sandy and dune flanked beaches strewn with seaweed and a coastal littoral zone with a range of salt tolerant plant species that may provide food resources for Mala.

The conclusions of Lundie-Jenkins and Bellchambers in an unpublished study of the Lander River reintroduction are worthy of note in the context of the Mala's ability to adopt new eating

habits. Wallabies either reared in the Alice Springs breeding pens or the Lander River Mala paddock regularly feed on kangaroo pellets and dry lucerne chaff, once released "learned to locate and forage on naturally occurring food plants" (Lundie-Jenkins and Bellchambers, 1996)

Lundie-Jenkin's and Bellchamber's observations on translocation management immediately post-release are also instructive:

> "The (translocation) area needs to provide adequate food resources to sustain the animals indefinitely without the need for supplemental feed. Providing supplemental food to released animals immediately following release is an option while they settle into their new environment, but the supplementary food should be withdrawn as soon as feasible so that the new animals do not become dependent upon it (Lundie-Jenkins and Bellchambers, 1996)."

Summary comment: Trimouille Island has a good variety of plants capable of supporting Mala even when the vegetation is affected by periods of drought. Supplementary food and water may assist establishment directly after release.

Plate 8. *Mala food resources on Trimouille Island*

Plate 9. *Good Mala habitat - Trimouille Island*

Plate 10. *Mala food, Trimouille Island*

Plate 11. *Littoral zone, Trimouille Island (Osprey nest in foreground)*

Other species competing for resources:

There are currently no mammals on Trimouille Island.

Summary comment: There are no other species competing in any significant way, for resources on Trimouille Island.

Potential Threats

Frequency of fire and current protection:

Fire frequency on the Montebello Islands is relatively low. Fires have occurred on Hermite Island in the recent past, presumably as a result of lightning strikes. Hermite, though quite rocky in places, is well vegetated with grasslands dominated by *Triodia pungens* and *Triodia wiseana* both of which are highly flammable under the right fire conditions.

In contrast Trimouille Island has not suffered wildfires since the nuclear testing in the 1950's. This is probably a consequence of the composition of the vegetation, which does not include *Triodia* grassland, and where the more densely vegetated areas are separated by less vegetated sand blows and dunes.

If Trimouille Island suffered a prolonged drought following a good seasons, fire could potentially carry and locally threaten translocated Mala. However, a single fire is unlikely to affect all the

island at one time. Hare-wallabies have survived occasional, extensive fires on Bernier and Dorre Islands (Short and Turner ,1992). Rocky areas, cliffs, sand blows and beaches would provide refuge on Trimouille Island in the event of an extensive fire

It is worth noting in the context of burning for habitat management, Tanami Desert Mala are thought to be favoured by having access to a habitat composed of a plant assemblage of various fire ages. (Lundie-Jenkins, 1993). Mala appear to be 'ecotonal' in their use of habitat, with most activity centred on boundaries between closed spinifex cover and more open areas. In the Tanami Desert such ecotones include vegetation boundaries between *T .pungens* habitat and open caliche areas, and also fire boundaries between mature spinifex and recently burnt areas. The denser habitat provides secure cover for daytime shelters and for undetected movement within their range. The open areas provide a greater abundance and diversity of palatable food. The rapidly growing green pick of a recently burned area, judging by dung and track counts, is particularly attractive to Mala.

Rufous Hare-wallabies survive on Bernier and Dorre Islands seemingly without dependence on fire induced ecotones (Short and Turner, 1992). It could be that beaches and the coastal littoral in general provide feeding opportunities similar to fire induced ecotones on the mainland (Latz, pers comm. 1997).

Summary comment: Trimouille Island is fire protected by nature of its vegetation and landform.

Potential for predation by feral predators:

Feral cats are not found on Trimouille Island, but are found on Hermite Island. There are no other feral predators on the Montebello Islands except perhaps for sea eagles (*Haliaeetus leucogaster*) which are resident or occasional visitors to the islands. Sea eagles are reported to have been implicated in the loss of Brush-tailed bettongs reintroduced to St Francis Island in the Great Australian Bight (Nelson *et. al.*,1990) and other wallabies on islands including Bernier, Dorre, Houtman Abrolhos, and Dampier Archipelago, but don't appear to have had a significant effect on populations.

The Montebello Islands are regularly visited by tourists, especially for fishing expeditions, posing the potential for the introduction of plant and animal pests from the mainland.

Summary comment: Trimouille Island has no predators likely to impact on the establishment of translocated Mala.

Residual "Talon" baits:

During the recent "rat" survey Talon bait not eaten by the rats could still be found on the surface of the ground. Many baits previously wetted by rain had dried out and solidified into a hard cake. According to the manufacturer, Talon bait, though not water soluble, is expected to crumble and powder under 'normal' environmental conditions. However the fact that the bait has solidified within the bait bottle means that it is physically more resistant to the elements. Even though many of the bait bottles have become brittle or shattered, the bait they contained was still reasonably intact. This presents a problem for the potential translocation of Mala. The Lander

River Mala, the source population for translocation, have been feed on a grain based "kangaroo pellet" similar in shape and basic constituents (less the poison, green dye and the human taste deterrent) to Talon pellets. Mala may be tempted to eat the pellets. It will be important to determine the residual toxicity of the remaining baits before translocation plans are firmed up. To this end baits from Trimouille and other islands have been assayed for residual toxicity. The results of these tests indicate that the baits still contain enough Bromifacoum (the active ingredient in Talon) to kill Mala if they ate sufficient of the residual bait.

Summary comment: Baits still intact on the surface (July 1997) are a potential threat to Mala. An inspection of Trimouille Island will be necessary in the new year to ascertain if the baits have fully broken down. Otherwise a clean up will have to be attempted - this would be a major operation.

Infrastructure in place to facilitate release

Personnel and funding available to ensure short-term and long-term monitoring of the release population:

Funds for translocation are identified in the Recovery Plan for the Mala. Release and initial monitoring (10 days) will be undertaken by CALM and PWCNT scientists. Further monitoring will be conducted as required in consultation with CALM and supported by Environment Australia and the conservation agencies - CALM and PWCNT.

Summary comment: Personnel and funding are available to support the short and long-term monitoring of the release.

Local facilities including shelter, transport, food, communications:

CALM have established excellent facilities on Hermite Island to facilitate work on the Montebello Renewal Project. These facilities would be available for scientists and technicians at time of release and during subsequent monitoring periods. Transport within the islands would be by dingy owned by CALM. The dingy is maintained in secure facilities at the Hermite Island base. During the rat eradication programme CALM negotiated the occasional use of a helicopter owned by a resources company working in the area. This mode of transport may be available following further negotiation. A helicopter may be of great assistance during initial monitoring of radio-collared animals.

CALM ensure excellent communication facilities are available during island based operations. These include radio, mobile phone and satellite phone links.

Summary comment: The infrastructure extant on the Montebello Islands is of a high standard. Established procedures and protocols in utilising facilities and equipment will greatly facilitate release operations.

Long term security of the site

The Montebello Islands are a declared Conservation Park, vested in the National Parks and Nature Conservation Authority (NPNCA) and managed by the Department of Conservation and Land Management (CALM).

Summary comment: Trimouille Island, as a site for translocation of Mala, has long term security, being protected by WA legislation and managed by CALM.

Conclusion

Trimouille Island in the Montebello Group is regarded as a suitable site for the translocation of the Mala. However, there is an impediment to translocation. Many Talon baits, particularly those which caked following rain, remain on the ground surface. There is a chance that translocated Mala will eat these baits, particularly as the source population for a translocation are fed kangaroo pellets similar in shape and grain based medium to Talon bait. Hopefully a good wet season in the islands will cause further deterioration or ultimate destruction of the bait. However if the bait survives the coming summer, a clean up exercise may need to be conducted - a potentially costly and difficult operation, especially as the bait station bottles and flagging tape marking bait locations have disappeared or lay shattered amidst foliage.

It will be necessary to assess the bait situation in the new year.

References

Anon. (1983). *The Australian Encyclopaedia.* 4th Edn. (Grollier Society of Australia: Sydney)

Anon. (1997). British Nuclear Testing in Australia. [web page] (http://www.file:///A|/oz.html) [Accessed 12 July 1997]

Burbidge, A.A. (1971). The Fauna and Flora of the Monte Bello Islands. Department of Fisheries and Fauna, Western Australia. Report No.9.

Burbidge, A.A. (1989). The value of Western Australian islands as biological reservoirs and the development of management priorities. Pp. 17-24 *in* Australian and New Zealand Islands: Nature Conservation Values and Management ed by A.A. Burbidge. Department of Conservation and Land Management: Perth.

Burbidge, A.A. (1996). Montebello Renewal. In Landscope Vol 12, No 2. (Summer 1996-97)

Hartley, J. F. (1990). A dietary analysis of three sympatric macropods in the Tanami Desert, NT. Unpublished Bachelor of Natural Resources thesis, University of New England, Armadale.

Lundie-Jenkins, G. (1993) Ecology of the Rufous Hare-wallaby, *Lagorchestes hirsutus* Gould (Marsupialia: Macropodidae) in the Tanami Desert, N.T. 1. Patterns of habitat use and preference. Wildlife Research 20, 457-76.

Lundie-Jenkins, G. (1993) Ecology of the Rufous Hare-wallaby, *Lagorchestes hirsutus* Gould (Marsupialia: Macropodidae) in the Tanami Desert, N.T. 11. Diet and feeding strategy. Wildlife Research 20, 477-94.

Lundie-Jenkins, G. and Bellchambers K. (1996) Reintroduction of the Rufous Hare-wallaby into aboriginal land in the Lander River region of the Tanami Desert, Northern Territory. Unpublished Report. Conservation Commission of the Northern Territory.

Montague, D. (1913). The Monte Bello Islands, *Geog. J.*, vol.42.

Nelson, L.S., Storr, R.F. and Robinson, A.C. (1992) Plan of Management for the brush-tailed bettong *Bettongia penicillata* Gray, 1837. (Marsupialia, Potoroidae) in South Australia. National Parks and Wildlife Service, Department of Environment and Planning, South Australia.

Pearson, D.J. (1989) The diet of the Rufous Hare-wallaby (Marsupialia:Macropodidae) in the Tanami Desert. Australian Wildlife Research 16, 527-37.

Sheard, K. (1950) A visit to the Monte Bello Islands. W.Aust. Nat. 2 (7) : 150 -151.

Short, J. and Turner, B. (1992) The distribution and abundance of the banded and rufous hare-wallabies, *Lagostrophus fasciolatus* and *Lagorchestes hirsutus.* Biological Conservation 60:157 -166.

Short, J., Bradshaw, S.D., Giles, J., Prince, R.I.T., and Wilson, G. R. (1992) Reintroduction of macropods (Marsupialia: Macropodoidea) in Australia - A review. Biological Conservation 62, 189-204.