A REPORT ON THE MANAGEMENT OF TAMMAR WALLABIES ON NORTH ISLAND, HOUTMAN ~~ABROHLOS~~. ABROLHOS

by

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Conserving the nature of WA

INTRODUCTION

North Island is the most northern of the Houtman Abrolhos, and lies approximately 100 km north east of Geraldton. It is approximately 170 ha in size and its physiography, vegetation and some of its vertebrate fauna has been described by Storr (1960). Fishermen have been visiting the island since the late 1920's, however more intensive use of the island by the lobster fishing industry has been underway since the late 1950's. In 1935 a wild fire burnt through vegetation on the eastern side of the island, and revegetation in this area has been slow. Currently between 130 -140 lobster fishers and their families live on the island between March and June each year. An airstrip was constructed on the island in 1979.

The tammar wallaby (*Macropus eugenii*) is a medium-sized wallaby that formerly ranged from the mid-west coast of Western Australia, through much of the southwest WA to the Eyre and Yorke Peninsulas in South Australia (Smith and Hinds 1995). It also occurred on nine islands off the mid-west and south coasts of WA and the south coast of SA (Abbott and Burbidge 1995). It is now known from only seven islands and some scattered loctions on the mainland in the south west of WA. Until 1998, It was regarded as a threatened species in WA under the *Wildlife Conservation Act 1950*. It was de-listed following increases in abundance because of broadscale fox control in the south west under the Western Shield fauna recovery program (Morris *et al.* 1998). In the last 50 years the tammar wallaby has been introduced to four islands, including North Island.

There has been concern that the tammar wallabies are overgrazing / ringbarking the vegetation on North Island, particularly in the area burnt in 1935, and residents requested assistance from the Department of Conservation and Land Management in assessing the problem and providing advice on how the issue could be managed and revegetation of the burnt area enhanced. In April and May 2003, CALM staff visited North Island to examine the issue and to initiate some vegetation exclosure trials that would asist in determining whether tammar wallabies are overgrazing the vegetation. This report provides the details of this work and examines the management options available for reducing the impact of tammar wallabies. As this island has been infrequently visited by naturalists, additional observations on the fauna were also included (Appendix 2).

HISTORY OF TAMMAR WALLABIES ON NORTH ISLAND

There was no reference to tammar wallabies on North Island when Stokes visited and named North Island in 1840. In fact, he made explicit reference to its absence (Stokes 1846 in Storr 1960). Similarly, there was no reference to tammar wallabies in 1913 when the Percy Sladen Trust Expedition visited the island (Alexander 1922). Early fishers reported tammar wallabies in 1928-30, however visits by the naturalists D.L Serventy and G.C Barker in 1945 failed to report them. In 1959, Storr (1960) found numerous tammar wallaby remains (mostly mandibles) in the bottom of blowouts, but did not record live animals.

In 1985, five tammar wallabies were taken from the nearby Wallabi Islands and released onto North Island by fishers (John Fitzharding *pers comm.*). They are now numerous, particularly in the south-west corner of the island. In April 2003, 37 tammar wallabies were seen in 40 minutes on a spotlight transect running from the settlement, along the walk track to the airstrip and returning to the settlement via the tractor track. In May 2003, 30 tammar wallabies were seen along the same transect. Most (43% in April, 97% in May) were seen grazing on vegetation along the side of the airstrip.

It would appear that tammar wallabies did not naturally occur on North Island and there have been at least two introductions of this species, one in the 1920's and the other in 1985.

VEGETATION AND QUADRATS

North Island was surveyed for vegetation and flora by Harvey *et al.* (2001). They recorded 77 (26 weeds) species of vascular plants for the island, considerably less than the other high limestone islands of the group; East Wallabi with 124 species and West Wallabi with 97 species. This is probably due to the lower habitat diversity of North Island.

The vegetation of North Island was mapped predominantly as dwarf scrub on consolidated dunes with an isolated grove of trees.

A brief reconnaissance of the island in April 2003 indicated that most tammar wallaby activity occurred in the area between the airstrip and settlement, on the south-west part of North Island. During the day the wallabies shelter under *Myoporum* shrubs and at night feed along the airstrip and on vegetation in the burnt area. During spotlight transects in April and May, wallabies were seen feeding on *Scaevola*, *Acanthocarpus* and *Atriplex* shrubs. There was also significant evidence that the wallabies were chewing the bark of *Myoporum* shrubs in the dunes between the airstip and settlement.

To determine whether grazing by tammar wallabies was having a detrimental impact on the vegetation, four paired quadrats (each 20m x 20m) were established in April / May 2003. Each pair consisted of a fenced (to exclude tammar wallabies) and unfenced (control) quadrat. Two paired quadrats (1A and 1B, 2A and 2B) were located in unburnt dune vegetation between the airstrip and the fishers huts, and another two paired quadrats (3A and 3B, 4A and 4B) in a swale in the area burnt in 1935. The quadrats were marked with plastic star pickets 900 mm high. The fenced quadrats were were surrounded by galvanized wire netting (Figure 1 and 2).

Figure 1 Vegetation quadrat # 3 A on North Island

Figure 2 Vegetation quadrat # 1 A on North Island

The dominant vegetation type within the survey area consists of Dwarf Scrub on Consolidated Dunes with *Exocarpos aphyllus*, *Myoporum insulare*, *Pimelea microcephala, Olearia axillaries, Rhagodia sp., Scaevola crassifolia* and *Threlkeldia diffusa*; small sections of the survey area consist of Heath with *Olearia axillaris* and *Scaevola crassifolia*; sparse dwarf scrub with *Scaevola crassifolia*; and Open Dwarf Scrub with *Olearia crassifolia* and *Scavola crassifolia*. (Harvey *el al*, 2001).

The flora and vegetation in all eight quadrats was surveyed on 22 May 2003 following the procedures described in Keighery (1994) – see Appendix 1. In addition to the nine species of plant recorded on the quadrats (Table 2), another five species (*Carpobrotus virescens, Pimelea microcephala* subsp *microcephala, Atriplex bunburyana, Frankenia* sp and *Atriplex cinerea*) were recorded on the sand dunes and six species (*Halosarcia halocnemoides, Halosarcia doleiformis, Muellerolimon salicorniaceum, Frankenia* sp, *Nitraria billardierei,* and *Sporobolus virginicus*) on the saline flats near the airstrip. *Myoporum* shrubs in quadrats 1 A, 1 B, 2 A and 2 B showed signs of extensive ringbarking. *Scaevola* also showed evidence of grazing in these quadrats. Outside the quadrats *Pimelea* and *Atriplex* showed signs of grazing by wallabies.

Quadrat #	1 A	1 B	2 A	2 B	3 A	3 B	4 A	4 B
Myoporum insulare	X	X	X	X				
Scaevola crassifolia		X		X	X	X	X	X
Rhagodia priessii	X	X	X					
Thelkeldia diffusa	X							
Nitraria billardieri	X		X					
Acanthocarpus priessii				X	X	X		
Olearia axillaris			X	X	X	X	X	X
Ficinia nodosa					X	X		X
Spinifex longifolius					X			
Exocarpus sparteus						X	X	X

Table 1. Plant species recorded on North Island quadrats – May 2003

MANAGEMENT OPTIONS

Given that tammar wallabies have been introduced to North Island it is likely that they will have a detrimental impact on the vegetation, particularly over the drier summer months. Tammar wallabies have previously been reported as "pests" when they ringbarked young pine plants in the 1920s (Forests Department 1929). In 1921, it was proposed "that wallabies and tammars be declared vermin in certain districts..." (Glauert 1921) because of their apparent increase in numbers with the decline of the dingo in the south west (foxes had not yet arrived), and their consumption of vegetables, potatoes and bark. They have been introduced to three islands in South Australia (Greenly, Granite and Boston) and have caused major vegetation changes to these and are now considered a problem (Robinson 1989).

Several management options are available.

1. Do nothing and allow the tammar wallaby population to continue unchecked. It is possible that the earlier introduction in 1928-30 failed because the population overgrazed North Island and the population declined to extinction because of lack

of suitable food and shelter. However, at that time there were no permanent camps on the island. There are now 30-40 huts on the island, and although they are not occupied throughout the year, they do provide additional shelter, food and water for the wallabies. During the period of occupation from March to June (perhaps the harshest time on the island) water and food is provided to the tammar wallabies, either deliberately or via dripping taps and hoses etc. Introduced shrubs and trees around the huts provide additional shelter. The airstrip also appears to provide additional food for the Tammar wallabies. At night the highest density of wallabies was seen along the airstrip. A brief survey of the island suggest that the density of tammar wallabies is greatest in the south-west part of the island where the huts are located. Evidence of grazing and ring barking declines as you proceed north away from the huts / airstrip.

2. Remove the population completely. This would be a very labour intensive program and CALM does not presently need to translocate an island population of tammar wallabies for conservation purposes. Lethal culling / eradication would probably not be acceptable to the residents of North Island, or the wider public.

3. Reduce the population, either by lethal means or by removal to other sites. This would only have a temporary impact and would have to be continued as the population increased again. There would be the same issues as that mentioned in 2) above.

4. Reduce the population through use of contraceptive implants. Recent research at Macquarie University (Dr Cathy Herbert *pers comm*) has been investigating the use of slow release hormones to control fertility in female and male tammar wallabies. Implants of Suprelorin have been shown to inhibit ovulation in female tammar wallabies and reduce the size of testes in male tammar wallabies. This would lead to a humane decline in tammar wallabies to the point where the population may naturally go to extinction.

RECOMMENDATIONS

1. Continue monitoring the vegetation in the eight quadrats at least every 6 months (autumn and spring). The next survey should be undertaken in September / October 2003.

2. Develop a tammar wallaby monitoring program that provided information on relative abundance and condition. This could probably be undertaken as a University student project.

3. Explore the possibility of using hormonal implants to humanely reduce the tammar wallaby population on North Island. This would probably best be undertaken with the collaboration of the researchers currently undertaking the work at Macqaurie University. A long term wallaby monitoring program would be required.

4. Stop providing supplementary food and shelter to the tammar wallabies.

5. In conjunction with Fisheries WA, and the fishers, develop and implement a management plan for North Island which includes a strategy for reducing the tammar wallaby population and preventing further incursions by introduced plants and animals.

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APPENDIX 1

QUADRAT ASSESSMENTS - MAY 2003

QUADRAT 1 A (Fenced)

Survey date: 22 May 2003

Personnel: Alanna Chant and Chrissy Rob – CALM Geraldton

Location: North Island, Houtman Abrohlos. West side of walk track to / from airstrip, 120 m from south end of airstrip, mid slope of dune. **GPS:** 49 754 634 E 68 66381 N (NW corner of exclosure)

Quadrat comprises 20m x 20m, plastic star pickets and rabbit netting.

Photographs: A. Chant #18 & 19 (22.5.03), K. Morris # 2 from NE corner to SW # 3 from NW corner to SE (10.4.03).

Site Data

Slope: gentle **Aspect:** East

Surface soil: Dry sand **Depth to rock:** unknown, limestone pavement
Colour: White

Exposed Rock Type: none

Litter: 50 % **Depth (cm)** 0.5 cm

Bare Ground: 45 %

Vegetation Structure and Cover

Shrubs					
Life Form	Over 2 m	2 – 1.5 m	1.5 – 1 m	1 – 0.5 m	Under 0.5 m
Cover Class %			20 %	15 %	5 – 10 %
Dominant species			*Myoporum insulare*	*Myoporum insulare*	*Rhagodia preisii*
				Scaevola crassifolia	*Threlkeldia diffusa*
Life Form	**Grasses**	**Herbs**	**Sedges over 0.5 m**	**Sedges under 0.5 m**	
Cover Class %		< 5 %			
Dominant species		Seedlings of *Nitaria billardierei*			

Vegetation Condition

Ring barking evident on larger shrubs (*Myoporum insulare*). Several dead shrubs within quadrat, identity unknown Old wallaby droppings throughout. Grazing evident on foliage of *Scaevola crassifolia*

Species Present

	Field Collection #	
Myoporum insulare	NI 1	no
Rhagodia preisii subsp *obovata*	NI 2	yes
Threlkeldia diffusa	NI 3	no
Nitraria billardierei	NI 4	no

QUADRAT 1 B (Unfenced)

Survey Date: 22 May 2003

Personnel: Alanna Chant, Chrissy Rob – CALM Geraldton

Location: North Island, Houtman Abrohlos. Track to / from airstrip, north side, north west of site 1. **GPS:** 49 754 782 E 686 6537 N (NW corner of exclosure)

Quadrat comprises 20m x 20m, plastic star pickets. No rabbit netting.

Photographs: A. Chant #4, #5. K. Morris from NW corner # 14, from NE corner #13 (22.5.03)

Topographic Position: Midslope

Site Data

Slope: gentle **Aspect:** North

Surface soil: Moist sand **Depth to rock:** unknown, limestone pavement
Colour: White

Exposed Rock Type: None

Litter: 50 % **Depth:** 1 cm

Bare Ground: 40 %

Vegetation Structure and Cover

	Trees			Mallees	
Shrubs					
Life Form	Over 2 m	2 – 1.5 m	1.5 - 1m	1 – 0.5 m	Under 0.5 m
Cover Class %				30 %	30 %
Dominant species				*Myoporum insulare*	*Myoporum insulare*
					Scaevola crassifolia
					Rhagodia priesii

Vegetation Condition

Comments
No seedlings present
Ring barking of *Myoporum insulare*
Wallaby droppings and tracks
Foliage of *Scaevola crassifolia* and *Myoporum insulare*, grazing evidence

Species Present

Shrubs	No.	Flowering
Scaevola crassifolia		
Rhagodia priesii subsp obovata		
Myoporum insulare	NI 1	No

QUADRAT 2 A (Fenced)

Survey date: 22 May 2003

Personnel: Alanna Chant, Chrissy Rob – CALM Geraldton

Location of the Quadrat

Location: North Island, Houtman Abrohlos. On the north side of the walk track to / from the airstrip, 45 m east of Quadrat #1. **GPS:** 49 754 664 E 686 6403 N (NW corner of exclosure)

Quadrat comprises 20m x 20m, plastic star pickets and rabbit netting.

Photographs: A Chant # 20 & 21 (22.5.03), K. Morris # 36 from NW corner, # 35 from NE corner (10.4.03)

Topographic Position: Midslope

Site Data

Slope: gentle **Aspect:** North

Surface soil: Dry sand **Depth to rock:** unknown, limestone pavement
Colour: White

Exposed Rock Type: None

Litter: 80 % **Depth (cm)** 0.5 cm

Bare Ground: 10 %

Vegetation Structure and Cover

Shrubs					
Life Form	Over 2 m	2 – 1.5 m	1.5 - 1m	1 – 0.5 m	Under 0.5 m
Cover Class %				40 %	10 %
Dominant species				*Myoporum insulare*	*Olearia axillaris*
					Rhagodia priesii

Life Form	**Grasses**	**Herbs**	**Sedges over 0.5 m**	**Sedges under 0.5 m**
Cover Class %		< 5 %		
Dominant species		Seedlings of *Nitraria billardierei*		

Vegetation Condition

Comments
Ring barking of *Myoporum insulare* Old Wallaby droppings throughout Several shrubs dead

Species Present

Shrubs	**No.**	**Flowering**
Olearia axillaris	Nl 6	no
Rhagodia priesii subsp obovata	Nl 5	no
Myoporum insulare		
Herbs	**No.**	**Flowering**
seedlings of *Nitraria billardierei*		no

QUADRAT 2 B (Unfenced)

Survey date: 22 May 2003

Personnel: Alanna Chant, Chrissy Rob – CALM Geraldton

Location: North Island, Houtman Abrohlos. North side of track to / from airstrip, 20 m north west of Quadrat 2 A. **GPS:** 49 754 800 E, 686 6557 N (NW corner of exclosure)

Quadrat comprises 20m x 20m, plastic star pickets. No rabbit netting.

Photographs: A Chant # 3 & 2, K. Morris #12 (from NW corner) & # 11 (from NE corner) 22.5.03

Topographic Position: Midslope (sand dune)

Site Data

Slope: gentle **Aspect:** North

Surface soil: Dry sand **Depth to rock:** unknown, limestone pavement
Colour: White

Exposed Rock Type: None

Litter: 35 % **Depth (cm)** 1 cm

Bare Ground: 30 %

Vegetation Structure and Cover

Shrubs					
Life Form	Over 2 m	2 – 1.5 m	1.5 - 1m	1 – 0.5 m	Under 0.5 m
Cover Class %				5 %	5 – 10 %
Dominant species				*Myoporum insulare*	*Scaevola crassifolia*
					Myoporum insulare
					Acanthocarpus priesii

Vegetation Condition

Comments
Dead and dying *Olearia axillaris*
Ring barking of *Myoporum insulare*
Wallaby droppings throughout
Foliage of *Scaevola crassifolia*, grazing evidence

Species Present

Shrubs	No.	Flowering
Scaevola crassifolia		no
Olearia axillaris		no
Acanthocarpus priesii		no
Myoporum insulare	NI 1	no

QUADRAT 3 A (Fenced)

Survey date: 22 May 2003

Personnel: Alanna Chant, Chrissy Rob – CALM Geraldton

Location: North Island, Houtman Abrohlos. Approximately 200 m north of fishing huts, area burnt in 1930s. **GPS:** 49 754 779 E, 686 6620 N (NW corner)

Photographs: A Chant # 12 &11 (22.5.03), K. Morris # 34 (from NW corner) & # 33 (from NE corner) (11.4.03)

Topographic Position: in swale

Site Data

Slope: gentle **Aspect:** North

Surface soil: Moist sand **Depth to rock:** unknown, limestone pavement
Colour: White

Exposed Rock Type: none

Litter: 1 % **Depth (cm):** 0.2 cm

Bare Ground: 80 %

Vegetation Structure and Cover

Shrubs					
Life Form	Over 2 m	2 – 1.5 m	1.5 - 1m	1 – 0.5 m	Under 0.5 m
Cover Class %					10 %
Dominant species					*Scavola crassifolia*
					Olearia axillaris

Life Form	**Grasses**	**Herbs**	**Sedges over 0.5 m**	**Sedges under 0.5 m**
Cover Class %				5 – 10 %
Dominant species				*Ficinia nodosa*
				Spinifex longifolius

Vegetation Condition

Comments
Burnt in 1935
No grazing evidence on shrubs
No seedlings present

Species Present

Shrubs	**No.**	**Flowering**
Scaevola crassifolia	NI 10	no
Olearia axillaris		yes
Acanthocarpus priesii	NI 7	no
Sedges	**No.**	**Flowering**
Ficinia nodosa	NI 9	yes
Spinifex longifolius	NI 8	no

QUADRAT 3 B (Unfenced)

Survey date: 22 May 2003

Personnel: Alanna Chant, Chrissy Rob – CALM Geraldton

Location: North Island, Houtman Abrohlos. Approximately 200 m north of fishing huts, area burnt in 1935. 10 m north of Quadrat # 3A. **GPS:** 49 754 939 E, 686 6780 N (NW corner)

Photographs: A Chant # 13 &14 (22.5.03), K. Morris # 19 (from NW corner) & # 20 (from NE corner) (22.5.03)

Topographic Position: in swale

Site Data

Slope: gentle **Aspect:** North East

Surface soil: Moist sand **Depth to rock:** unknown, limestone pavement
Colour: White

Exposed Rock Type: none

Litter: <5 % **Depth (cm)** <0.5 cm

Bare Ground: 75 %

Vegetation Structure and Cover

Shrubs					
Life Form	Over 2 m	2 – 1.5 m	1.5 - 1m	1 – 0.5 m	Under 0.5 m
Cover Class %					15 %
Dominant species					*Scavola crassifolia*
					Olearia axillaris
					Acanthocarpus priesii

Life Form	**Grasses**	**Herbs**	**Sedges over 0.5 m**	**Sedges under 0.5 m**
Cover Class %				10 %
Dominant species				*Ficinia nodosa*

Vegetation Condition

Comments
Burnt 1935
No grazing evidence on shrubs
No seedlings present
A few Wallaby dropping

Species Present

Shrubs	**No.**	**Flowering**
Scavola crassifolia	NI 10	no
Olearia axillaris		no
Acanthocarpus priesii	NI 7	no
Exocarpos sparteus	NI 11	no
Sedges	*No.*	*Flowering*
Ficinia nodosa	NI 9	yes

QUADRAT 4 A (Fenced)

Survey date: 22 May 2003

Personnel: Alanna Chant, Chrissy Rob – CALM Geraldton

Location: North Island, Houtman Abrohlos. Approximately 200 m north of fishing huts, area burnt in 1935. 25 m north of Quadrat # 3A. **GPS:** 49 754 909 E, 686 6796 N (NW corner)

Photographs: A Chant # 8 & 9 (22.5.03), K. Morris # 21 (from NW corner) & # 22 (from NE corner) (22.5.03)

Topographic Position: in swale

Site Data

Slope: gentle **Aspect:** North East

Surface soil: Moist sand **Depth to rock:** unknown, limestone pavement
Colour: White

Exposed Rock Type: none

Litter: <5 % **Depth (cm)** 0.5 cm

Bare Ground: 70 %

Vegetation Structure and Cover

Shrubs					
Life Form	Over 2 m	2 – 1.5 m	1.5 - 1m	1 – 0.5 m	Under 0.5 m
Cover Class %					30 %
Dominant species					*Scavola crassifolia*
					Olearia axillaris

Vegetation Condition

Comments
Burnt 1935
No grazing evidence on shrubs
No seedlings present
A few Wallaby droppings

Species Present

Shrubs	No.	Flowering
Scaevola crassifolia	NI 10	no
Olearia axillaris		no
Exocarpos sparteus	NI 11	no

QUADRAT 4 B (Unfenced)

Survey date: 22 May 2003

Personnel: Alanna Chant, Chrissy Rob – CALM Geraldton

Location: North Island, Houtman Abrohlos. Approximately 200 m north of fishing huts, area burnt in 1935. 10 m north east of Quadrat # 4A. **GPS:** 49 754 946 E, 686 6827 N (NW corner)

Photographs: A Chant # 6 & 7 (22.5.03), K. Morris # 17 (from NW corner) & # 18(from NE corner) (22.5.03)

Topographic Position: in swale

Site Data

Slope: gentle **Aspect:** North East

Surface soil: Moist sand **Depth to rock:** unknown, limestone pavement
Colour: White

Exposed Rock Type: none

Litter: 5 - 10 % **Depth (cm)** 1.0 cm

Bare Ground: 70 %

Vegetation Structure and Cover

Shrubs					
Life Form	Over 2 m	2 – 1.5 m	1.5 - 1m	1 – 0.5 m	Under 0.5 m
Cover Class %					25 %
Dominant species					*Scaevola crassifolia*
					Olearia axillaris
					Exocarpos sparteus
Life Form	**Grasses**	**Herbs**	**Sedges over 0.5 m**	**Sedges under 0.5 m**	
Cover Class %				5 – 10 %	
Dominant species				*Ficinia nodosa*	

Vegetation Condition

Comments
Burnt 1935
No grazing evidence on shrubs
No seedlings present
A few Wallaby droppings

Species Present

Shrubs	**No.**	**Flowering**
Scaevola crassifolia	NI 10	no
Olearia axillaris		no
Exocarpos sparteus	NI 11	no
Sedges	***No.***	***Flowering***
Ficinia nodosa		yes

APPENDIX 2
ADDITIONAL NOTES OF FAUNA ON NORTH ISLAND.
April / May 2003

Australian Sea-lion (*Neophoca cinerea*) – one seen in April and four seen basking on the beach at the north end of the island in May.

Rabbit (*Oryctolagus cuniculus*) – Introduced in 1934, Storr (1960) reports the rabbit as going extinct sometime between 1945 and 1959. However John Fitzharding recalls them on the island in the 1960s. A second introduction is possible. There was no sign of rabbits during these visits.

Feral cat (*Felis catus*) – Storr (1960) refers to cats becoming feral after 1945. John Fitzharding recalls cats on North Island in the 1970s. Cats are no longer permitted as pets on North Island and there was no evidence of feral cats seen during this visit.

Black Rat (*Rattus rattus*) and House Mouse (*Mus domesticus*) – not referred to by Storr (1960), however John Fitzharding reports occasional rats and mice being killed on the jetties, presumably brought to North Island by the crayfishing / supply boats, and the presence of mice around the settlement.

King Skink (*Egernia kingii*) – several of the smaller, white spotted variety seen, particularly around the huts.

Bearded Dragon (*Pogona minor*) – several seen, including a dead specimen in the settlement. Storr (1960) refers to the Jew Lizard (formerly *Amphibolurus barbatus*, now *Pogona minor*) as having declined or extinct on North Island. This does not appear to be so (Figure 3).

Figure 3 **Bearded Dragon (*Pogona minor*) photographed on North Island, April 2003.**

Carpet Python (*Morelia spilota*) – last seen on the island during the construction of the airstrip in 1979 (John Fitzharding *pers comm*). Also reported in the 1920s by Henrietta Thomas, wife of George Barker (early resident / fisher). Possibly introduced from the Wallabi Islands where they occur naturally.

Green Turtle (*Chelonia mydas*) – Storr (1960) reports earlier records of green turtles nesting on the north side of North Island. John Fitzharding has not seen turtles nesting on North Island but he only visits the island from March to June, outside the peak turtle nesting season. There was no sign of old nesting depressions on any beaches during this visit, and no turtles were seen in the water.

Bird List

Osprey
White-bellied Sea Eagle
Silver Gull
Pacific Gull
Crested tern
Roseate Tern
Pied Cormorant
Pied Oyster-catcher
Yellow White-eye
Ruddy Turnstone
Bar-tailed Godwit
Red-capped Dotterel
Bronzewing Pigeon