

The distribution of terrestrial vertebrate fauna in the Montebello Islands

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Abstract

We present the current knowledge of the distribution of the native terrestrial fauna of the Montebello Islands by comparing previous work and our own observations. We found no new species for the archipelago but report on 15 new records of species on islands, including observations of three islands with no previous fauna records.

INTRODUCTION

The Montebello Islands, off the Pilbara coast, is an archipelago of approximately 180 islands, islets and rocks. For background information, history, reserve status and a map of the islands see Burbidge *et al.* 2000. This paper also summarized the present understanding of the terrestrial vertebrates on some of the islands. They presented historical knowledge of fauna as well as results of their own trapping data from 1994. In that year they established pit-fall traps on nine islands (Ah Chong, Alpha, Bluebell, Brooke, Crocus, Delta, Hermite, North-West and Primrose), actively searched for reptiles, recorded signs (e.g. mouse and varanid tracks) on these and other islands (Campbell and Trimouille) and collated a list of birds and their breeding records. They also collated opportunistic records from later years.

During August 2000, while on the islands searching for the presence of black rats (*Rattus rattus*) (see Burbidge and Morris 2002) we searched for reptiles and recorded birds when time allowed. We also collected data on islands that were not part of the 1994 survey.

In this paper, we present the contemporary understanding of the distribution of terrestrial vertebrates on the Montebello Islands by combining the data from Burbidge *et al.* (2000) and our own. We interpret these results in the context of seasonal variation, the feral animal control program on the islands (Burbidge and Morris 2002) and some comments made in Burbidge *et al.* (2000).

Data Collection and Presentation

As the primary aim of the visit was to search for signs of black rats and feral cats, searching for other vertebrates and their signs was conducted when time allowed. Our observations were made between 15 and 31 August 2000. Specimens were collected by actively searching, recording signs of reptiles and mammals and bird watching. Actively searching entailed rolling rocks and

debris and dismantling termite mounds. Spotlighting was undertaken on Hermite Island but did not add additional species to our records. Thirteen islands (Ah Chong, Alpha, Bluebell, Brooke, Buttercup, Crocus, Delta, Gardenia, Hermite, North West, Primrose, Renewal and Trimouille) were visited.

The only bird data presented here are those records that add to the presence, breeding records or (in one case) density within the archipelago compared to Burbidge *et al.* (2000).

RESULTS AND DISCUSSION

Table 1 presents the current understanding of the distribution of terrestrial reptiles and mammals, excluding translocated and non-native species from Burbidge *et al.* (2000) and our data.

We report 15 new records of species on islands from which they had not been recorded before, eight of these are from islands that were part of the 1994 survey and seven are from islands that were not. We also found varanid tracks on two islands from where they had not been previously recorded: Crocus which was surveyed in 1994 and Gardenia, which was not.

Reptiles

We did not locate seven of the 21 terrestrial reptile species previously recorded on the archipelago: the gecko *Strophurus jeanae*, *Lerista elegans* and *Lerista sp.* (formerly part of the *Lerista muelleri* complex but now in review), the pygopod *Lialis burtonis*, the varanid *Varanus gouldii* (although we saw large varanid tracks on several islands) and the elapid snakes *Demansia rufescens* and *Furina ornata*.

One interesting record was of *Delma nasuta*, a species that has not been recorded since 1970. Our record of a live animal came from underneath corrugated iron at the Hermite Island ruins. This animal was retained for the collections of the Western Australian Museum.

TABLE 1

The distribution of terrestrial mammals (excluding translocations) and reptiles in the Montebello archipelago from Burbidge *et al.* (2000) and our data. Taxonomy follows Western Australian Museum checklists.

SPECIES BY CLASS OR FAMILY	ISLAND													
	Ah Chong	Alpha	Bluebell	Brooke	Crocus	Delta	Hermite	North-West	Primrose	Buttercup	Campbell	Gardenia	Renewal	Trimouille
MAMMALS														
<i>Mus musculus</i> ¹							B							B
Small mammal tracks	n	n	n	n	n	n	n	* ²	n	n		n	n	n
GEKKONIDAE														
<i>Gehyra pilbara</i>		*			*	*	B*							*
<i>Gehyra punctata</i>														A
<i>Heteronotia binoei</i>	B	B		B*	B	*	B*		B					B*
<i>Strophurus jeanae</i> ³							B							
PYGOPODIDAE														
<i>Aprasia rostrata rostrata</i>							P							
<i>Delma borea</i>							A							
<i>Delma nasuta</i>							A*							
<i>Lialis burtonis</i>		B					B							
AGAMIDAE														
<i>Lophognathus gilberti gilberti</i> ⁴	B	*		*			B*					*	*	*
VARANIDAE														
<i>Varanus acanthurus</i>							B*							
<i>Varanus gouldii</i>		B	B			B	B	B	B		B			B
varanid tracks	n	*	*	n	*	ns	*	*	*	ns	B	*	ns	*
SCINCIDAE														
<i>Ctenotus saxatilis</i>	B	B	B	B*	B	B*	B*	B*	B	*	B	*	*	B
<i>Glaphyromorphus isolepis</i>	B	B	B		B	B*	B*	B	*		B	*	*	B*
<i>Morethia ruficauda exquisita</i>		*					B*							
<i>Lerista bipes</i>	B	B	B	B	B	B	B*	B						B
<i>Lerista elegans</i>			B				B							
<i>Lerista sp.</i> ⁵				B			B							
TYPHLOPIDAE														
<i>Ramphotyphlops diversus ammodytes</i>							P							
BOIDAE														
<i>Antaresia stimsoni stimsoni</i>							B*							
ELAPIDAE														
<i>Furina ornata</i>							A ⁶							
<i>Demansia rufescens</i>							B							

Columns are islands in the archipelago; those to the left of the double line were part of the 1994 survey and those to the right are incidental records. We visited all islands except Campbell. A represents records from Burbidge (1971); B represents records from Burbidge *et al.* (2000); P represents records prior to but not found by Burbidge (1971) or Burbidge *et al.* (2000); * represents our data; for tracks, n indicates tracks not recorded after specifically searching for them, and ns indicates that attribute not searched for on that island.

¹ *M. musculus* skull found on Hermite in 1983; seen on Trimouille in 1996 and 1998, tracks seen on the latter in 1998. No evidence found in 2000.

² Tracks on this island assumed to be the translocated Shark Bay Mouse (*Pseudomys fieldi*).

³ *Diplodactylus jeanae* in Burbidge *et al.* (2000).

⁴ *Gemmatophora gilberti gilberti* in Burbidge *et al.* (2000).

⁵ Recorded as *L. muelleri* in Burbidge *et al.* (2000), though acknowledged as part of a complex, a review of this group is soon to be published (pers com. B. Maryan, WA Museum).

⁶ Also collected by the WA Museum in 1981.

Birds

Our bird data largely agree with Burbidge *et al.* (2000), however three records are worth noting. The collared kingfisher (*Todiramphus chloris*) and sacred kingfisher (*Todiramphus sanctus*) have been recorded on the archipelago; the former has not been seen since 1955

and the latter was recorded as being uncommon. We saw a kingfisher (*Todiramphus sp.*) from mangroves in Vermouth Lagoon, Hermite Island, but were unable to allocate it to a species. Though 'hundreds' of zebra finches (*Taeniopygia guttata*) have been recorded on Hermite Island (Burbidge *et al.* 2000), only 13 were seen during our visit. These were apparently making

use of dewfall on the roof of the CALM hut on Hermite Island. The red-capped plover (*Charadrius ruficapillus*), while common throughout the archipelago (pers. obs.), has not been recorded breeding there before. We found a hatched egg on the rocky shores of Hermite Island.

Overview

Outside serendipity, the new reptile records on islands that were part of the 1994 survey may be due to several factors. Firstly, we were searching later in the year (August as opposed to May/June) so that activity may have increased. Second, there was a 'good' wet-season in 1998/1999. And, third, predation pressure from rats and cats has been reduced in the intervening years due to the feral animal control program (Burbidge *et al.* 2000; Algar *et al.* 2003).

The house mouse (*Mus musculus*) is thought to have been on both Hermite (skull found 1983) and Trimouille (sighting 1998) Islands. As house mouse numbers are known to increase in response to good seasons (Dickman *et al.* 1999; Moro and Morris 2000), Burbidge *et al.* (2000) speculated that the good seasons of 1998/1999 and a reduction in rat predation might lead to a mouse plague. Surprisingly, we found no evidence of *M. musculus* on any of the islands, but it is too early to imply that the species became locally extinct sometime between 1998 (when they were last recorded) and our visit.

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REFERENCES

- Algar D, Burbidge AA, Angus GJ (2002) Cat Eradication on Hermite Island, Montebello Islands, Western Australia. In *Turning the tide: the eradication of invasive species: proceedings of the International Conference on Eradication of Island Invasives* (eds CR Veitch, MN Clout), pp 14–18. IUCN, Gland, Switzerland.
- Burbidge AA (1971) The fauna and flora of the Montebello Islands. Department of Fisheries and Fauna, Western Australia, Report 9.
- Burbidge AA, Blyth JD, Fuller PJ, Kendrick PG, Stanley FJ, Smith LA (2000) The terrestrial vertebrate fauna of the Montebello Islands, Western Australia. *CALMScience* 3(2), 95–107.
- Burbidge AA, Morris KD (2002) Introduced mammal eradications for nature conservation on Western Australian islands: a review. In *Turning the tide: the eradication of invasive species: proceedings of the International Conference on Eradication of Island Invasives* (eds CR Veitch, MN Clout), pp. 64–70, IUCN, Gland, Switzerland.
- Dickman CR, Mahon S, Masters P, Gibson DF (1999) Long-term dynamics of rodent populations in arid Australia: the influence of rainfall. *Wildlife Research* 26, 389–403.
- Moro D, Morris K (2000) Population structure and dynamics of sympatric house mice, *Mus domesticus*, and Lakeland Downs short-tailed mice, *Leggadina lakedownensis*, on Thevenard Island, Western Australia. *Wildlife Research*. 27, 257–268.