THEVENARD ISLAND MOUSE

RECOVERY TEAM

ANNUAL REPORT

1994

by

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for

The Thevenard Island Mouse Recovery Team

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SUMMARY

This report documents the first year of implementation of the Interim Wildlife Management Guidelines for the Thevenard Island Mouse (TIM). The population of *Leggadina* on Thevenard Island exhibits gigantism compared with mainland populations and the recent introduction of the House Mouse to the island was considered a threat to this population. The IWMG were prepared to ensure the conservation of this island population through five actions: 1) assessment of taxonomic status, 2) assessment of current population status of TIM and House Mouse on Thevenard Island, 3) translocation to another island, 4) development of techniques to control or eradicate the House Mouse, and 5) prepare a recovery plan if required. A Recovery Team was established to oversee the implementation of these actions and this met once during 1994. Good progress has been made on the taxonomic study and it is likely that the TIM warrants sub specific status. Assessment of population parameters has shown that numbers of both species fluctuate significantly, and that the TIM continues to persist in the presence of, at times, plague numbers of *Mus*. An assessment of Serrurier Island was made as a potential translocation site. Some investigation into the possibility of using murine herpes virus to sterilise *Mus* was also undertaken.

1. INTRODUCTION

The short-tailed mouse known from Thevenard Island nature reserve was initially referred to as *Leggadina forresti* (Kitchener and Vicker 1981), however electrophoretic analyses indicated that it was more closely linked to *L. lakedownensis* (Mark Adams pers comm). In addition the form on Thevenard Island was nearly twice the size of mainland populations (Morris1989). Concern for its long term conservation arose when the House Mouse was introduced to the island in 1985/6, particularly when the *Mus* commenced their characteristic plague cycle following summer rainfall. The perceived biological similarities of both species, and the known success of *Mus* in colonising many types of habitats suggested a serious need to control or eradicate house mice from Thevenard Island before they have a detrimental effect on the native mouse population. In 1993 Interim Wildlife Management Guidelines were prepared for the conservation of the Thevenard Island Mouse (TIM) (Morris 1993). Five actions were considered necessary:

1) Determine the taxonomic status of the Thevenard Island Mouse.
2) Assess the current status of *Leggadina* and *Mus* populations on Thevenard island.
3) Translocate *Leggadina* to another island.
4) Develop a technique to control or eradicate *Mus* from Thevenard island.
5) Prepare a recovery plan if necessary.

The Thevenard Island Mouse has been listed in the Rodent Action Plan (Lee 1995) as Endangered.

In 1994 this program was supported by ANCA's Endangered Species Program, West Australian Petroleum (WAPET) and CALM, and in March, Mr Dorian Moro commenced the project as his Ph.D. at the University of Western Australia.

2. RECOVERY TEAM

A Recovery Team was established to oversee and coordinate the implementation if the IWMG. This comprises:

Dr Peter Kendrick	(Chair)	CALM Karratha
Mr Keith Morris		CALM Woodvale
Dr Andrew Burbidge		CALM WATSCU
Ms Sally Stephens		ANCA
Mr Dorian Moro		UWA
Prof Don Bradshaw		UWA
Ms Marilyn White		WAPET

The team met once in 1994, on 27 July at CALM Wildlife Research Centre, Woodvale.

3. PROJECT STATUS AND FUNDING

This project commenced in March 1994 and is expected to be completed in mid-1997. Financial support for this project was obtained from ANCA's Endangered Species Program. In kind support (transport to and from Thevenard Island, barge transport and accommodation) has been provided by WAPET. CALM provides support through a portion of a research scientsists salary and some travel costs. The University of Western Australia provide laboratory space and some financial support.

The funding proposal to ANCA for this project initially requested a salary equivalent to a Post Graduate scholarship for Mr Moro. However, Mr Moro received a Commonwealth Post Graduate Scholarship for his PhD and funding from ANCA was reduced by a corresponding amount.

4. PROGRESS ON ACTIONS

Action 1: Determine the taxonomic status of the Thevenard Island Mouse.

A comparison of the mitochondrial DNA (mtDNA) between the Thevenard Island Mouse and conspecifics on the mainland (*Leggadina lakedownensis, L. forresti*) has commenced under the supervision of Peter Baverstock at the Southern Cross University, Lismore, NSW. Preliminary results suggest significant differences in the mt DNA between TIM and mainland *Leggadina lakedownensis*. There is also very little genetic variation within the TIM population, confirming that the colonisation of Thevenard Island by *Leggadina* was a single event. The clarification of taxonomic status of the population of *Leggadina* on Thevenard Island is expected, based upon completion of the results from mtDNA sequencing and skull morphometrics, in early 1995. A formal taxonomic identification and conservation listing of the Thevenard Island Mouse can then be determined.

Action 2: Assess the current status of *Leggadina* and *Mus* populations on Thevenard Island.

Monitoring of the Leggadina and *Mus* populations commenced in April and is continuing every two months. Live trapping grids and line transects are being used to provide information on seasonal population parameters. Dietary information is also being obtained for both species. Radiotracking is being used to determine movement areas and refuge sites. *Leggadina* appear to be seasonal breeders irrespective of rainfall, whereas *Mus* respond more to rainfall events. Subsequently trap success rates and *Leggadina : Mus* ratios vary considerably. It also appears that while the TIM uses burrows as day time refuges, *Mus* shelter under dense shrubs such as *Sarcostemma*. Radio isotopes of water and sodium are being used to estimate food and water requirements of both species. It is hoped that this information, together with other ecological information, will assist in determining a method of selectively controlling *Mus* on the island.

Action 3: Translocate *Leggadina* to another island.

It is proposed to translocate and establish TIM on another island with suitable habitat to provide an additional population should some catastrophic event eliminate the population on Thevenard Island. The recovery team has yet to finalise an island for translocation. A reconnaissance trip to Serrurier Island, 40 km south west of Thevenard Island, was undertaken in August. This island is floristically and structurally similar to Thevenard Island, but does support a large population of breeding wedge-tailed shearwaters (burrowing species). The potential impact of these two species on each other is unknown. Delambre Island, in the Dampier Archipelago is also a possibility for translocation.

Action 4: Develop a technique to eradicate or control *Mus* on Thevenard Island.

The potential of a murine herpes virus (MCMV) to sterilise *Mus* is being considered as a means of selectively controlling or eradicating introduced mice with little or no impact on native mice. Preliminary negotiations to begin collaborative work with Professor Geoff Shellam (Department of Microbiology, The University of Western Australia) and Dr Abigail Smith (Yale University, USA) are underway.

The use of traditional poison baiting techniques requires a knowledge of the ecology of both target and non target species and this study aims to provide that information.

Action 5: Prepare a Recovery Plan if required.

This has not yet been considered by the Recovery Team.

5. PUBLICITY

An information sheet describing the TIM project has been circulated to the WAPET facilities on Thevenard Island, as well as to those at the Mackerel Islands Tourist Resort (also located on Thevenard Island). A radio interview with ABC Radio (Pilbara) was also undertaken.

6. BUDGET

ANCA's Endangered Species Program contributed $21 250 to this project in 1994. In kind support amounting to approximately $10 000 was provided by WAPET. CALM contributed $ 7 000 in salaries and travel contributions. Dorian Moro's salary of $14 000 was provided by the Commonwealth Post Graduate Scholarship scheme, and UWA provided $ 2 500 in operating support.

7. CONCLUSIONS

This project is proceeding well and according to the timetable set. The taxonomic and ecological aspects of the study should be completed by the end of 1995. Translocation will be undertaken in late 1995/early 1996. Control measures for *Mus* will be developed in 1996 and it is hoped that these will also be able to be applied to other island reserves where *Mus* have been introduced.

8. REFERENCES

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