INTERIM WILDLIFE MANAGEMENT GUIDELINES NO. 2

FOR

THE LANCELIN ISLAND SKINK (*CTENOTUS LANCELINI*)

by

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June 1993

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1. INTRODUCTION

1.1 Taxonomy and relationships

The Lancelin Island Skink, *Ctenotus lancelini*, known only from the 7.6 ha Lancelin Island, was described by Ford (1969), as a subspecies of the more widespread *C. labillardieri*. Storr (1973) raised it to a full species. As its original taxonomic designation suggests, it is closely related to *C. labillardieri,* which occurs from near Perth southwards and eastwards to near Esperance and has a total geographic range in the millions of hectares.

1.2 Discovery and status

The Lancelin Island Skink was first collected by Julian Ford between 1959 and 1961, during biogeographic research on islands between Lancelin and Dongara (Ford 1963). There has been no systematic research to establish its abundance; however, Rolfe (1993) has tabulated available information on attempts to observe and/or capture it since its discovery (Table 1).

Table 1. Capture rates of *Ctenotus lancelini* (from Rolfe 1993)

Year	No. observed	Person-hours
1963	`not uncommon'	unknown
1981	10+	unknown
1983	10+	unknown
1987	3-4	1.5
1991	0	10
1992	1	8

For five days during each of November 1992 and March 1993, Rolfe and colleagues attempted to capture Lancelin Island Skinks with pitfall and Elliott traps and, during the November trip, by lifting limestone rocks. Only one skink was captured, in a pitfall trap, during the November visit.

These data suggest that the Lancelin Island Skink has declined in abundance and may be extremely rare and critically threatened.

The Lancelin Island Skink is declared "threatened" under Section 14(2)(ba) of the Wildlife Conservation Act. It is listed as 'Vulnerable' in the ANZECC list of Australian

Endangered Vertebrates. Current data suggest that it should be listed by ANZECC as 'Endangered" and that it meets draft IUCN criteria for the new category of 'Critical' (Mace and Lande 1991, Mace *et al*. 1992). CALM has requested the ANZECC Threatened Fauna Network to recommend this change to ANZECC.

1.3 Habitat and ecological relationships

Up until 1992, all skinks captured were located under limestone slabs. There are three small areas of limestone on the island, in all totalling about 20% of the island, ie, about 1.5 ha. These areas are vegetated with a herbfield with low emergent shrubs (Keighery and Alford, in prep.), while most of the remainder of the island is covered with an open heath (*Nitraria billardieri*, *Scaevola crassifolia*, *Acacia cyclops*, *Helichrysum cordatum* and *Atriplex isatidea*). The 1992 specimen was captured in a pitfall trap located in the ecotone between the northern limestone area and the adjacent heath.

Nothing is known about the ecology of the Lancelin Island Skink. It is a member of the *Ctenotus labillardieri* group and is closely related to *C. labillardieri*. This species occurs in heathlands and forests of the south-west and is particularly common around granite rock outcrops. It excavates shallow burrows beneath slabs of rock and logs. In its feeding behaviour it ventures into the open more than most other *Ctenotus* spp. and is often relatively easy to approach (Wilson and Knowles 1988).

Five other lizard species occur on Lancelin Island: *Ctenotus fallens, Cyclodomorphus branchialis, Egernia bos, Morethia obscura* and *Diplodactylus spinigerus* (and possibly *Morethia lineoocellata*). There is no evidence to suggest that any of these have become rarer over the past few decades, but there are no quantitative abundance data on any species.

Limiting factors and causes of threatened status

Because of the lack of information it is only possible to speculate about limiting factors and the reasons for the species current status. Possible reasons for its decline are:

1. **Weed invasion**. Almost all open areas of the island are now covered by dense stands of an exotic grass (mainly Rye Grass *Lolium rigidum* and Wild Oats *Avena barbata*). As *C. lancelini* probably feeds by darting out from cover into open areas, the reduction in such areas may have affected its ability to feed and hence to reproduce and recruit. Thermoregulation may also be affected by a reduction in basking sites.

2. **Increase in numbers of Silver Gulls**. In common with many gull colonies near human habitation, Silver Gull numbers on Lancelin Island appear to be increasing. The gulls breed almost entirely on the more open limestone areas of the island, the areas from which all records of *C. lancelini* have come. Gulls may be degrading the habitat, reducing the abundance of food or directly predating the skinks. Direct predation seems likely.

2. MANAGEMENT GUIDELINES

2.1 Aim

The aim of these Interim Guidelines is to immediately introduce weed and gull control and to carry out preliminary research into the ecology of the Lancelin Island Skink. Captive breeding will be implemented if deemed necessary and if sufficient skinks can be captured. Translocation will also be investigated and implemented if sufficient skinks are available, either from the wild or from captive breeding.

2.2 Options

Options for management include:

2.2.1 Weed control

Reduction in cover by grass could be achieved by spraying with "fusilade" (active ingredient 212 g/L fluazifop-p, manufactured by ICI), a selective grass-controlling herbicide. Research in Kings Park has shown that this herbicide is effective in controlling veldt grass (*Ehrharta calycina*) at rates of 2 to 4 litres per hectare in 300 to 400 litres of water plus wetting agent, eg, Agral 60 @ 1:1 000, and that it causes no apparent damage to native plants except native grasses. Spraying will carried out while the weed is actively growing, during winter 1993 and 1994, and will be the responsibility of CALM's Moora District staff, in consultation with relevant Science and Information staff and Safety Branch.

2.2.2 Control of gulls

Research into Silver Gull control in New South Wales (Smith and Carlile 1993) has shown that the most effective method of immediate reduction of gull numbers at breeding colonies was to cull breeding adults. Pricking or removing eggs had little effect. Habitat modification, eg mowing, can reduce breeding, but is not a consideration in this case.

To reduce gull numbers and reduce possible gull predation, all Silver Gull nests, eggs and non-flying young found on Lancelin Island will be destroyed. Limited data available suggests that, on Lancelin Island, gulls mainly breed in spring and early summer, although autumn breeding may occur. This will necessitate visits to the island weekly during the peak of breeding and every two weeks either side of this period. Culling can be achieved by baiting. The method used in NSW was to mix 10 g of alpha-chloralose in 60 g of margarine and spread the mixture on six slices of bread. Two slices were placed on each nest, to give about 100 mg per bait or 200 mg per nest. Baiting in the NSW tests was not entirely effective, so shooting adult birds with a low-powered shotgun, eg, a .410, should also be considered. Dead gulls are to be removed from the island and buried.

The Silver Gull Action Plan for the Perth Metropolitan Area (CALM, 1993) proposed control of gull numbers by landfill site management, minimising the food supply in public open space and commercial areas and an education program. It does not envisage killing gulls or destroying nests and eggs. The gull control proposed in this IWMG must be preceded by permission from the Executive Director of CALM and the Minister for the Environment, and after a public education program. Liaison with the Shire of Gingin to ensure that the gull food supply in and near Lancelin is minimised will also take place.

2.2.3 Captive breeding

As far as is known, Lancelin Island Skinks have not been kept in captivity, let alone bred in captivity. Nevertheless, because of the urgency of conservation action, captive breeding should be considered. Perth Zoo advice is that captive breeding should be relatively simple, using aquaria, heat lamps and small insect food such as meal worms. It is desirable that an analogue, non-threatened species, be tested under these conditions first - the sibling species *Ctenotus labillardieri* would be ideal.

2.2.4 Translocation

Translocation should be considered, either direct from the existing single wild population, or using animals bred in captivity.

Four islands could be considered.

1. Wedge Island.

Wedge Island is about 20 km north of Lancelin Island. The southern end of the island consists of a herbfield dominated by the introduced *Mesembryanthemum crystallinum*. As the soils deepen towards the north, an open heath of *Olearia axillaris*, *Scaevola crassifolia* and *Spyridium globulosum* develops, with creepers of *Zygophyllum billardieri* (Keighery and Alford, unpublished). A search for Lancelin Island Skinks on Wedge Island in March 1993 was not successful.

Wedge Island does not appear to contain much suitable habitat for Lancelin Island Slinks at present. It has areas of limestone, but there are few limestone slabs and habitat modification would probably have to take place to make it suitable for the skinks. Reptiles known from Wedge Island are *Ctenotus fallens* and *Phyllodactylus marmoratus* (Williams 1986).There are no Silver Gull colonies.

In the recent past, Wedge Island has been joined to the mainland by a tombolo; during the past 25 years this has led to the local extinction of a colony of Wedge-tailed Shearwaters, apparently due to predation by foxes. In early summer 1992, Wedge Island was separated from the mainland by about 500 m of often rough ocean, but by June 1993 the tombolo had re-emerged. This makes Wedge Island unsuitable for translocation, because fox and cat predation would occur and there would be a significant degree of human interference.

2. Green Islets.

Green Islets are island nature reserves located about 40 km north of Lancelin Island. They comprise two separate small islands.

South Green Islet of 3.4 ha has a plateau of limestone with low dense heath with *Scaevola crassifolia*, *Atriplex cinerea*, *Rhagodia baccata*, *Frankenia pauciflora* and *Olearia axillaris*.

North Green Islet of 1.6 ha has two beaches and a central plateau of limestone, covered by sand to variable depth. It is vegetated with a mixed closed heath dominated by

combinations of *Nitraria billardieri*, *Atriplex cinerea*, *Frankenia pauciflora*, *Scaevola crassifolia* and the creeper *Zygophyllum billardieri* (Keighery and Alford, unpublished).

3. Edward Island

Edward Island of 0.16 ha is situated close to the town of Lancelin. It is small and has little vegetation and seems unsuitable as a translocation site.

4. North Cervantes Island.

The 3.2 ha North Cervantes Island, also a nature reserve, is located about 55 km north of Lancelin Island. The island has an extensive beach on the eastern side and a limestone plateau, which is covered by an open heath of variable composition depending on soil depth. Major species are *Rhagodia baccata*, *Olearia axillaris* and *Frankenia pauciflora*. There are bare rock outcrops scattered through the plateau (Keighery and Alford, unpublished).

2.2.5 Research

Research into the biology and ecology of the Lancelin Island Skink is urgent (see below).

2.3 Strategies

Options 2.2.1, 2.2.2, 2.2.3 and 2.2.5 will be pursued as soon as funds become available. Option 2.2.4 will be investigated further during research into the species.

3. RESEARCH REQUIREMENTS

Research will be carried out into aspects of the biology and ecology of the Lancelin Island Skink, concentrating on its conservation biology. This will require the employment of a scientist for at least two years, plus support for vehicle running, travelling allowances, etc. Detailed, intensive research is necessary to establish the status of the skink before animals can be taken from the wild for captive breeding or translocation, and to ensure that weed and gull control are benefiting the species.

The contract research scientist or postgraduate student should be appointed by October 1993. Technical support and assistance will be provided by CALM's Science and Information Division.

4. ESTABLISHMENT OF A RECOVERY TEAM

A Recovery Team to further develop and implement these Interim Guidelines will be appointed with membership as follows:

- CALM WATSCU: Andrew Burbidge
- CALM Moora District: David Rose
- CALM Science & Information Division: Jim Rolfe
- Perth Zoo
- Shire of Gingin

- ANCA

The Recovery Team may co-opt additional members as appropriate.

5. BUDGET FOR 1993/94

Action 2.2.1, Weed control.	
Fusilade and wetting agent	1 300
Purchase of back-pack sprayer	200
Application (vehicle running, TA)	1 000
Action 2.2.2, Control of gulls.	
Vehicle running	2 000
Boat use	200
Travelling allowance	600
Ammunition	500
Action 2.2.3 Captive breeding (initial trials with *Ctenotus labillardieri*), aquaria, heat lamps, food	5 000
Zoo staff costs (travelling to Lancelin I)	500
Action 2.2.5, Research	
Contract scientist, 6 months	15 000
administration costs	1 000
equipment	1 000
vehicle running, boat use	2 000
travelling allowances	2 900
overtime (CALM staff)	800
supervision	10 000
TOTAL BUDGET 1993/94	**44 000**

Budgets for future years will be worked out during the first half of 1994.

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