NUMBAT RECOVERY TEAM

ANNUAL REPORT

1993

by Tony Friend

for The Numbat Recovery Team

ion and Land Management
ildlife Research Centre
neroo, WA 6065

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Summary

A Numbat Recovery Team was established in 1993 to oversee the writing and implementation of a recovery plan for the numbat. The writing of the recovery plan is well under way, and will be finished early in 1994. The numbat is now limited to two surviving populations (Dryandra and Perup) and five re-introduced populations in various stages of establishment. The Dryandra numbat population has undergone a decline but densities still exceed those found in the early stages of the translocation program. Dryandra was again used as a source for translocation in 1993. The Perup population was surveyed for the first time in 1993, and sighting reports indicate that it is expanding. Research will be carried out in 1994 to establish the cause of this decline. The re-introduced Boyagin population appears now to be self-sustaining, and sighting rates there are now of the same order as those at Dryandra. Numbats were translocated to Karroun Hill, Batalling and Yookamurra (S.A.) in 1993. These translocation projects are still at the stage where success can only be measured by the survival of radio-collared animals. Research into the genetics of the two surviving populations has commenced. Captive breeding at Perth Zoo has been successful this year for the first time and has bolstered the colony there.

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1. Introduction

Research and management to promote the recovery of the Numbat has been in progress in Western Australia since 1980. In fact it had already reached a largely operational stage by 1990, when the recovery process for threatened species in Australia was formalised and recovery plans and recovery teams were established following the commencement of the Endangered Species Program.

The Numbat Recovery Team was established in 1993 after the award of an ANCA Endangered Species contract for the writing of a recovery plan for the numbat. This is the first annual report of the Numbat Recovery Team.

The Numbat was at very low population numbers when research aimed at its conservation commenced in 1980, and even since then a number of small populations have become extinct. Total population numbers are still below 1500, and a very substantial increase in population numbers is required before the numbat can be regarded as secure. The preparation of a recovery plan will play an important part in orchestrating the continued increase in the number of populations and total numbat numbers.

Only two original populations have survived, at Dryandra Woodland and Perup Nature Reserve in the south-west of Western Australia. A re-introduced population, at Boyagin Nature Reserve, 40 k north of Dryandra, is now self-sustaining. Further numbat populations are being established through translocation to areas of former occurrence at Tutanning Nature Reserve, 40 km north-east of Dryandra, Karroun Hill Nature Reserve, 300 km north-north-east of Dryandra, Batalling area in the Central Forest Region 50 km south-west of Dryandra and at Yookamurra Sanctuary in the Murray mallee district of South Australia.

1.1 Membership

The initial Numbat Recovery Team was finalised in mid-1993. Its membership was as follows:

Tony Friend (Chair)	CALM Division of Science and Information
Paul Brown	CALM Swan Region
Rob Brazell	CALM Collie District, Central Forest Region
Andrew Burbidge	CALM WA Threatened Species and Communities Unit
Bob Hagen	CALM Southern Forest Region
Darryl Miller or Graham Hall	Perth Zoo
David Mitchell	CALM Wheatbelt Region
Ray Nias	World Wide Fund for Nature Australia

Sally Stephens	Australian Nature Conservation Agency, Endangered Species Program

In August 1993, Graham Hall was nominated as the Perth Zoo member. At the December meeting, it was agreed that as numbats had been re-introduced to South Australia, the South Australian Department of Conservation and Natural Resources would be invited to join the team. Peter Copley attended that meeting, but David Armstrong would probably attend future meetings in Western Australia if they were held in the same week as Woylie recovery meetings.

1.2 Meetings

The Recovery Team met twice during 1993.

Meeting 1 was held at CALM's WA Wildlife Research Centre at Woodvale in Western Australia on 27 July 1993.

Meeting 2 was held at CALM's Batalling Field Study Centre near Darkan, Western Australia. The latest numbat translocation site is in forest near this centre. On the morning of the meeting, five numbats were released in the presence of recovery team members.

Observers at Meeting 1 were John Skillen (CALM Central Forest Region) and Gordon Wyre (CALM Wildlife Branch). At Meeting 2, David Armstrong (SADCNR), Christina McDonald (Adelaide Zoo) and Neil Thomas (CALM Science and Information Division) were present as observers.

2. Recovery plan status and funding

In early 1993, CALM received funding from ANCA to write a recovery plan for the Numbat. This will be submitted as a funding proposal in the round of applications in mid-1994.

A draft of the first section of the recovery plan (Background) was circulated to team members before Meeting 1. The second part of the plan (Recovery) was drafted for Meeting 2 and the Recovery Criteria and Actions circulated for comment. These were discussed at Meeting 2 and some changes and reorganisation decided upon. The Plan is due to be finished and submitted to ANCA by the end of February.

The Recovery Actions proposed comprise the following:

1. Management of existing populations
   - Exotic predator control
   - Monitoring of existing populations
   - Research into suitability of existing prescriptions for

hazard reduction burning
silviculture
firewood collecting

Implementation of suitable prescriptions in potential numbat habitat

2. Translocation
    - Selection of suitable areas
    - Exotic predator control
    - Monitoring
3. Genetic research
4. Disease monitoring
5. Captive breeding
6. Research on numbat ecology and conservation
7. Public awareness and sponsorship programs

3. Recovery in progress

The progress of numbat conservation projects initiated before the recovery plan was commenced is also relevant to this report.

3.1 Research

3.3.1 Predation on numbats at Karroun Hill

This project is funded by the ANCA Feral Pests Program. In order to determine the relative effect of fox and cat predation at Karroun Hill Nature Reserve, aerial baiting for foxes was commenced in 1991 after good data on the level of predation by mammals (foxes and cats) was collected. Twice yearly, aerial baiting for foxes is carried out over 40 000 ha surrounding the numbat release area. The effectiveness of this baiting in controlling foxes is monitored by a cyanide bait transect method. Following aerial baiting in October 1993, no foxes were killed on the cyanide transects, indicating that a negligible density of foxes remained in the area. Four cats were seen in daylight during a two-day field trip, however. Field trips in February and March will reveal the predation level by cats on young numbats collared at Karroun Hill in October and others translocated to the reserve in December.

3.3.2 Genetic studies

Funds have been provided by ANCA ESP to investigate genetic differences between Perup and Dryandra populations. To this end, small pieces of ear tissue have been collected from numbats in both populations and gene amplification trials have been run on mitochondrial DNA from the samples at the Centre for Conservation Biology at Queensland University. Sequences were produced using existing primers on the cytochrome b region and the "control" region. The techniques employed thus show promise, and further samples will be sent over so the inter- and intra-population variation can be assessed.

3.3.3 Diet workshop

A proposed workshop on the formulation of a new diet for captive numbats has been postponed while Perth Zoo staff trial two formulations.

3.2 Population monitoring

3.2.1 Dryandra

Driven surveys are conducted in November each year. In 1986 there were 2.7 sightings/100km. Between 1986 and 1992, the sighting rate

rose each year. During the 1992 survey, 11 sightings/100km were made. In 1993, however, the rate was only 5.5 sightings/100km.

Two possible explanations are advanced for this apparent drop in numbers. Cats are not effectively controlled by the dried meat baits used for fox control at Dryandra. Information has been received from Dryandra neighbours that cat numbers have risen recently in surrounding farmland. Increased predation by cats may be the explanation for this drop in numbers. Research supported by ANCA Feral Pests Program is currently being carried out by CALM to develop effective 1080 baits to control cats. These baits should be available for use in early 1995.

Alternatively, there is evidence that infection by an acanthocephalan parasite in the Dryandra numbat population causes death in some individuals. Infection rates within the population will be monitored during 1995, and individuals captured for translocation will be wormed by injection before release.

3.2.2 Perup

A driven survey of the Perup numbat population was carried out for the first time in 1993, resulting in a sighting rate of 0.95 sightings/100km. The density of the undergrowth at Perup compared with Dryandra makes comparison between sighting rates difficult, and the small number of sightings prevents the use of line transect methods determine a numbat density for comparison with other areas. Surveys will be extended at Perup in 1995 in order to establish a regular monitoring program. Reported sightings from Perup and the adjacent Kingston area indicate that the population there is healthy and expanding.

3.2.3 Boyagin

Driven surveys at in the 2000 ha east block of Boyagin, where numbats were re-introduced during 1985-87, yielded 5.5 sightings/100km. Numbats from the east block have colonised the west block (3000 ha) across 0.5 km of farmland. Driven surveys gave a sighting rate of 0.5/100km and digging surveys revealed that numbats were spreading out through suitable habitat.

Monitoring at Karroun Hill (see 3.1) and Tutanning in 1993 has been limited to checking the progress of radio-collared animals. The Tutanning translocation has been given lower priority than Batalling, as it is a rather small area (2000 ha), and no translocations to Tutanning were carried out in 1993.

3.3 Translocations

Translocations to three areas at which fox control is being carried out were carried out in 1993. These were to Karroun Hill (funded by CALM and ANCA FPP), to Batalling block near Darkan (funded by CALM) and to Yookamurra in South Australia (funded by Earth Sanctuaries).

3.3.1 Karroun Hill

At the beginning of 1993, there were twelve radio-collared numbats at KHNR. During the year, three were found dead (one raptor, two unidentified predators responsible) and six stopped transmitting. Technical problems with transmitters or batteries have occurred in 1992 and 1993, and this factor is obscuring the picture at KHNR particularly. Five numbats were translocated from Dryandra to Karroun Hill in December 1993. In June 1993 a new adult female was captured at KHNR and radio-collared, and in October six young born to radio-collared numbats at KHNR were captured and fitted with radio-collars, in addition to the three adults already collared there. Monitoring of the survival and breeding of these animals will continue in 1994.

3.3.2 Batalling

Only five of the ten radio-collared numbats released together with four uncollared animals in December 1992 at Batalling were found in 1993, due to a combination of collar/battery failure and the loss of the tracking plane in an accident. Of the five, three were predated (one by a chuditch, two by raptors) one (a female with four young attached) was injured during recapture and brought back to Perth Zoo. The other is still alive and transmitting. The injured female raised her young at Perth Zoo.

In December 1993, fifteen radio-collared numbats were released at Batalling. Ten of these were captured in the wild at Dryandra the day before translocation, one was released from Perth Zoo after being held in the captive breeding colony since 1991, and four were the young of the injured female from Batalling.

The progress of the Batalling colony will be monitored during 1994.

3.3.3 Yookamurra Sanctuary

Fifteen numbats (five males and ten females) were translocated to Yookamurra Sanctuary, 150 km east of Adelaide, in November/December 1993. All animals were fitted with radio-collars. Dr Tony Friend of CALM spent two weeks at Yookamurra following the early establishment of the animals and setting up a monitoring program to be carried out by Yookamurra staff. At the time of writing of this report, ten radio-collared numbats were still alive. Three females (all first-year animals) had been taken by raptors since release, and the collar belonging to a fourth had been found without any marks to indicate that it had been forcibly removed by a predator. This animal may still be alive. An adult male was found dead five weeks after release. A post-mortem revealed that this animal was severely infected by a species of acanthocephalan. Many adult worms were present in the animal's gut and death was due to an intussusception (telescoping) of the gut and subsequent blockage.

All remaining animals at Yookamurra have now been wormed by injection. One of the adult males has since regained the weight that he had lost between release and treatment. The Yookamurra numbats will all be recaptured in March for transmitter battery replacement, and for assessment of reproductive success.

3.4 Captive breeding

In February and March 1993 the first numbats bred at Perth Zoo were born. Litters were produced by three females. Two of these females had been taken from the wild at Dryandra in November 1992 and one was captive-bred at Woodvale in 1988. Males involved in the breeding were all wild-caught, but all had been in captivity for between one and four years. Ten young were born, but only one litter of four and one single young survived to weaning. After the loss of several attached young in the outside breeding enclosures, the females with young were moved to heated indoors enclosures in the Animal Health hospital, and no further losses occurred. Young raised to weaning are healthy and females have entered the 1994 breeding program. There are now 15 numbats in captivity (5 adult males, two immature males and eight adult females).

The results of the captive breeding at Perth Zoo are very encouraging, and work is continuing to improve the survival of young.

4. Conclusions

1993 has been an important year for numbat recovery. The recovery team has been formed, and the recovery plan is well under way. The ere-introduced Boyagin population has been confirmed as established, the captive colony at Perth Zoo has produced young and an interstate translocation has been carried out. The year's progress has formed a strong basis for continued recovery in 1994.