RETURN OF THE CHUDITCH

In Australia, the chuditch is found only in the jarrah forest and parts of the southern Wheatbelt in the south-west of Western Australia, about two per cent of its former range.

Keith Morris tells us of an ambitious recovery plan that is well under way to maintain existing populations and return the chuditch to the areas where they used to live.

BY KEITH MORRIS

Until recently, the chuditch, like many of our small native mammals, was heading towards extinction. Now, armed with more knowledge of this intriguing marsupial, scientists and managers from the Department of Conservation and Land Management (CALM) are in a position to help it recover.

In her article 'The chuditch: a spot-on marsupial' (*LANDSCOPE*, Winter 1987), Melody Serena described her findings on the biology and requirements of the chuditch. Her study was needed because this species had declined drastically in the last 100 years or so and something had to be done urgently to ensure its survival. Her discoveries form the foundation for management and we can now act to help the chuditch.

The chuditch (*Dasyurus geoffroii*) is one of four species of so-called native cats, or quolls, found in Australia. The term 'cat' is not appropriate. Misleadingly, it suggests some link with feline cats that wreak havoc on many small native animals. However, chuditch are dasyurid marsupials and related to kangaroos, bandicoots and possums rather than cats. The name quoll is more appropriate than cat but it is derived from an east coast Aboriginal word for this group of animals, *je quoll*. Chuditch is also an Aboriginal word that refers specifically to this species in the south-west of Western Australia. It is a Nyoongar name which mimics the guttural call the animal makes when it is disturbed.

Previous pages
The chuditch is WA's largest native mammalian predator.
Photo - Wade Hughes/Lochman Transparencies

Twenty-three chuditch were reintroduced to Julimar forest in September 1992.
Photo - Gerhardt Saueracker/Lochman Transparencies

All quolls have declined in range since European settlement, but the chuditch has declined the most. Early naturalists recorded it as being widespread and abundant. They found it in every mainland State and Territory. Today it has survived only in the jarrah forest and parts of the southern Wheatbelt of south-west Western Australia, about two per cent of its former range. If it disappears from Western Australia it is gone forever.

The chuditch needs suitable den sites for refuge and raising young.
Photo - Jiri Lochman

Most of the scant information we have on the biology of the chuditch in central Australia comes from Aboriginal informants. It was well known, by many different names, to Aboriginal groups throughout southern and central Australia who held it in high regard as a food source and totem animal. It also features in 'Dreaming' stories of Western Desert people where the ancestral chuditch started their journeys in South Australia and travelled north to occupy central Australia. The Adnyamathanha people from around the Flinders Ranges tell how the goanna and quoll eloped. When the elders caught up with them the quoll was speared all over and this caused her to be spotted ever after.

RESCUING THE CHUDITCH

Being the State's largest native mammalian predator, the chuditch is at the top of the food chain and occupies a special place in the ecosystem. The importance of predators in maintaining balance in populations of other species as well as biodiversity is discussed by Jack Kinnear in another article, 'Masterly Marauders: the Cat and the Fox', in this issue of *LANDSCOPE*. The chuditch can also be regarded as an indicator of environmental well-being as its survival, to a certain extent, relies on the rest of the food chain also being intact.

Chuditch require large areas (between 900 and 1 500 hectares for each animal) of suitable habitat in which to live. Each home range must contain several suitable den and refuge sites and sufficient prey. In the jarrah forest suitable den sites include hollow logs (of certain dimensions) and burrows. Chuditch eat large invertebrates, reptiles, birds and small mammals. Activities which reduce either of these resources are a threat to them and have probably played a part in its decline. Some examples are land clearing and competition for food from foxes and feral cats. Predation of young chuditch by foxes has probably also affected populations. Many chuditch have also been killed by road traffic, poisoning, and trapping. Their liking for poultry led to many chuditch being killed by poultry farmers in the past.

Armed with the information on the biological requirements of the chuditch, CALM prepared a management program for the species in 1991. From this a recovery plan has been developed. The plan specifies what actions are necessary to ensure the long-term survival of the

chuditch and how much these actions will cost.

Actions required over the next ten years include:

- The integration of chuditch habitat requirements and land management practices.
- The development of fox control programs (for the benefit of all fauna) that are 'chuditch safe'.
- The monitoring of representative chuditch populations and their habitat.
- Further research into chuditch distribution and habitat requirements in semi-arid areas.
- Further research into chuditch disease.
- A captive breeding program to provide animals for translocation.
- The development of techniques for translocating chuditch back into areas where they used to live.

It has been estimated that it will cost $1.2 million over ten years to recover the chuditch. Fortunately, these funds are being provided by CALM, the Australian National Parks and Wildlife Service (ANPWS), and World Wide Fund for Nature (WWF), via a grant from Alcoa of Australia Ltd. Recovery actions are now well under way.

To coordinate and supervise the implementation of these actions, a recovery team has been established. Its members represent the organisations involved in chuditch recovery and include CALM, the Perth Zoo, ANPWS, Alcoa of Australia Ltd, and the World Wide Fund for Nature.

FOX VS CHUDITCH

Progress on many of the recovery actions has been made in the last 12 months or so. One of the first actions to be tackled was determining whether fox control programs affect the chuditch. CALM scientists have demonstrated that the fox has been a major cause in the decline of several species of medium-sized mammals such as the numbat, woylie, tammar and brushtail possum (*LANDSCOPE*, Summer 1988-89; Summer 1989-90; Winter 1990). In areas of the Wheatbelt where the fox has been controlled with 1080 poison baits, populations of these native mammals have increased significantly.

Chuditch, like many of our native mammals, have a natural tolerance to the 1080 poison. Furthermore, chuditch did not appear to like eating a dried meat bait, preferring their moist natural diet. Nevertheless, because the chuditch is also a carnivore we had to check that it would not be hurt by fox control programs using 1080 poisoned meat baits. An experiment undertaken in the Batalling Forest near Collie has demonstrated that this is so. In fact, this work demonstrated that chuditch responded to fox control in a similar way to other native species - with a population increase (see Figure 1). Prior to fox control at Batalling, between one and six chuditch were caught per trapping session. Since fox control was implemented, between 10 and 14 chuditch are being caught in the same area for a similar trapping effort. In

Below left: Trapping rare species, such as chuditch, can be frustrating.
Photo - Keith Morris

Bottom left: Perth Zoo nest boxes provided some temporary shelter for chuditch reintroduced to Julimar.
Photo - Keith Morris

Below right: Occasionally, our trapping efforts are rewarded.
Photo - Keith Morris

Bottom right: When working with chuditch, it is important to handle them gently.
Photo - Keith Morris

an adjacent unbaited control area, chuditch numbers continued to be low. Chuditch numbers are generally low throughout the jarrah forest and this experiment suggests that the fox is suppressing chuditch numbers, and that fox control will benefit the chuditch as well as other species. Chuditch and foxes have a similar diet, so removal of foxes reduces competition for food and predation, particularly on young, dispersing chuditch.

Now that we are confident that fox baiting programs do not put chuditch at risk, CALM will be able to control foxes in larger areas of the forest and increase numbers of chuditch as well as other threatened mammals.

RETURN TO JULIMAR

One of the objectives of the recovery plan is to establish a chuditch population outside its present range. Rather than take animals from sparse populations in the forest to restock suitable areas, a captive breeding program was established at the Perth Zoo in 1989. Fifty-two chuditch have now been bred at the Zoo, and in September 1992, 23 were released, as a trial, into Julimar forest near Bindoon. This is just north of the present distribution of chuditch, but we know they did once occur in the area - the last record was a road-kill found in 1973. Recent trapping has failed to find any in the area. This location provided a large (24 000 hectares) area in which the chuditch could become established and is close to Perth, enabling constant monitoring of the reintroduced animals. Each animal carried a small radio transmitter on a collar so that CALM scientists could locate them and record their movements. Prior to the release, the area was baited for foxes to give the chuditch their best chance of survival. Baiting will continue every three months.

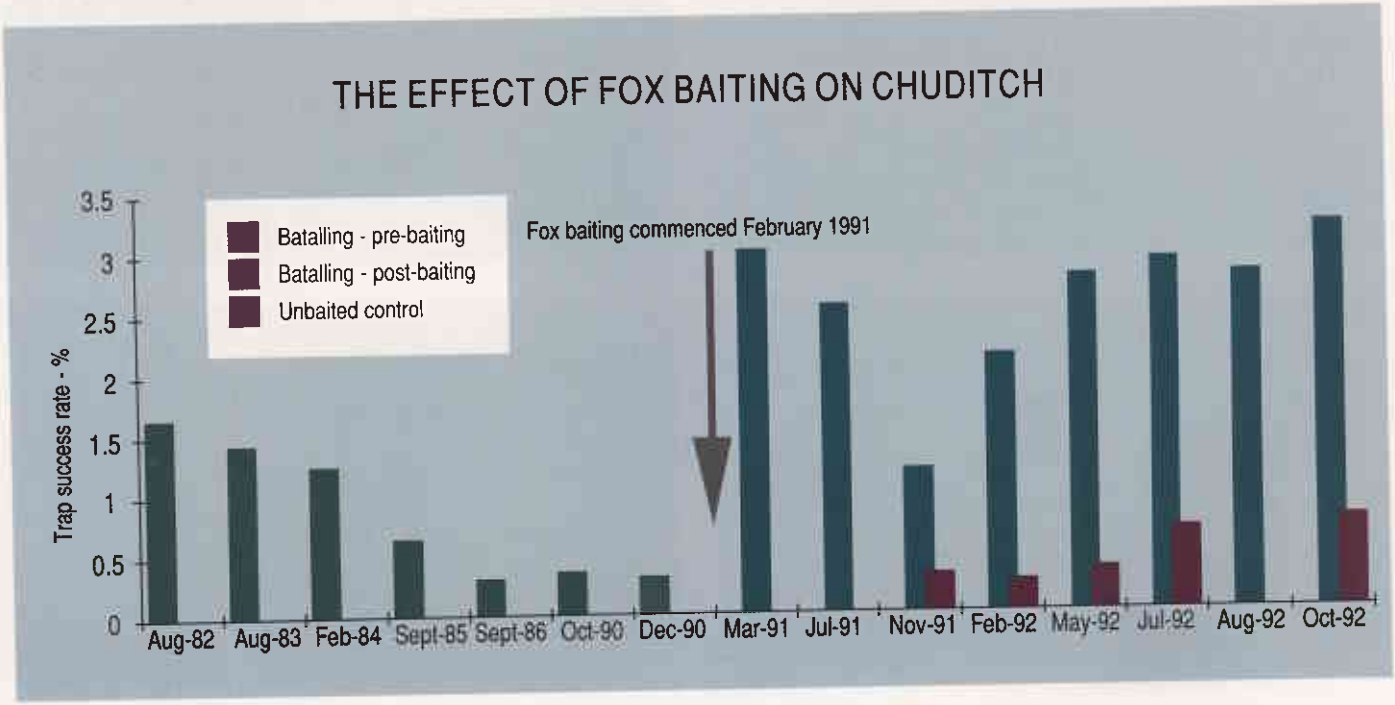
We are now reasonably confident that the chuditch will establish a viable population in the area. They have found good den sites and have established their own movement areas. None have been found dead. The true measure of success will come next autumn, when chuditch mate and breed. If this occurs and the young establish at Julimar, the reintroduction will have been successful.

Taking field measurements provides the information necessary for chuditch management.
Photo - Ray Smith

Within five years, the recovery team plans to reintroduce chuditch to a more semi-arid location, either in the eastern Wheatbelt, or the Goldfields region. Ultimately, it may be possible to return the chuditch to central Australia, where they would no doubt receive an enthusiastic welcome from the Aboriginal people.

FOREST MANAGEMENT

Another very important part of the recovery plan is to understand the response of chuditch to various operations in the forest. The effects of prescribed



burning, timber harvesting, and mining activities are not yet fully understood and further research is required in this area.

We know that chuditch will start using areas of forest, burnt in either spring or autumn, within six months of the fire. But we don't know how long it takes for the burnt forest to meet all the needs of breeding populations of chuditch. On present knowledge of chuditch requirements, we believe that cooler spring burns are preferable to hot summer or autumn fires because den logs are not consumed and patches of unburnt vegetation are left, particularly along streams. The recovery plan requires that we test this hypothesis.

Timber harvesting in the forest may benefit chuditch if additional logs are left on the ground and they develop hollows suitable for den sites. Current silvicultural prescriptions require den logs to be identified and protected during logging. Further experiments are planned to study these aspects of management.

A program is also being developed with Alcoa to assess the impact of bauxite mining on chuditch. Chuditch still occur in the forest around mined areas and trials are presently testing the effectiveness of den sites created as part of the mine rehabilitation process.

HALTING THE DECLINE

Other actions are also under way to ensure that chuditch decline does not continue. Regular monitoring of several chuditch populations enables the effect of land management practices on their numbers and condition to be checked. It is also providing more information on the condition, breeding biology, diet and population densities of chuditch in the jarrah forest. Populations are now being monitored in the Perup Nature Reserve, Batalling State Forest and Lane Poole Reserve. One more monitoring site will be established in the Mundaring area.

Most of our knowledge of chuditch comes from studies in the jarrah forest. Semi-arid mallee and woodland communities are different habitats and chuditch may have different requirements in these areas. If we want chuditch to recover here, we need to know what their requirements are in those areas.

With a commitment to these actions, the future looks bright for the chuditch. Several agencies have shown this commitment by providing funding to implement the recovery actions. In fact, the success of conservation management programs such as this relies on such community support and a dedicated recovery team. ▣

Chuditch will climb trees to prey on birds and invertebrates.
Photo - Babs & Bert Wells

Chuditch can use up to one hundred different burrow sites in their home range.
Photo - Keith Morris

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LANDSCOPE

VOLUME EIGHT NO. 2 SUMMER ISSUE 1992-3

Twenty-three captive-bred chuditch were recently released in the Julimar forest in an attempt to establish a new population. The story of the 'Return of the Chuditch' is on page 10.

In a remote corner of the Gibson Desert lies Lake Gregory, a birdwatcher's paradise. See page 16.

A silent workforce of volunteers assist CALM with a multitude of projects. Colin Ingram tells us more about these 'Volunteers for Nature' on page 28.

'Back in the Outback' (page 34) follows the trail of endangered mammals recently reintroduced into the Gibson Desert from Barrow Is.

The urban cat vies with its feral cousin and the fox for top spot in the predator stakes. See 'Masterly Marauders' on page 20.

FEATURES

REGULARS

COVER

*The chuditch (*Dasyurus geoffroii*) was once found in every State and Territory of mainland Australia. Now it is only found in the jarrah forest and parts of the southern wheatlbelt in the south-west of WA - about two percent of its former range.*

The illustration is by Philippa Nikulinsky.

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Illustration: Ian Dickinson, Sandra Mitchell
Cartography: CALM Land Information Branch
Colour Separation by Prepress Services
Printed in Western Australia by Lamb Print

Published by Dr S Shea, Executive Director
Department of Conservation and Land Management,
50 Hayman Road, Como, Western Australia 6152.