REVIEW OF ESP PROJECT 183 - CHUDITCH RECOVERY PLAN

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INTRODUCTION

At the time of European settlement, the Chuditch *Dasyurus geoffroii* occurred throughout most of Australia in every mainland State and the Northern Territory. Settlers and naturalists recorded it as being widespread and abundant, and a pest in some areas. However over the past 150 years, its range has been drastically reduced through competition and predation by exotic predators, loss of suitable refuge sites and a reduction in abundance of prey biodiversity associated with changed fire regimes and introduced herbivores. By the 1960s it was known only from the south west of Western Australia, primarily in the Jarrah forest and adjacent woodlands and shrublands of the semi arid wheatbelt.

In 1983, in recognition of it's drastically reduced range, the Chuditch was declared a rare species in WA under the *Wildlife Conservation Act 1950*. Between 1985 and 1988 a considerable amount of information on its biology and requirements in the Jarrah forest was obtained and a wildlife management program prepared (Serena *et al* 1991). In 1991 the Chuditch was included in the Commonwealth's List of Endangered Fauna (ANZECC 1991). The *Endangered Species Protection Act 1992* provided the opportunity to prepare a Recovery Plan for the Chuditch and to seek funding for its implementation. With financial assistance from the ANCA Endangered Species Program, a 10 year Chuditch Recovery Plan was prepared (Orell and Morris 1994) and implementation commenced in early 1992.

The implementation of the recovery plan has produced beneficial results for Chuditch conservation, particularly in the Jarrah forest. The demonstration that fox control is beneficial, rather than detrimental to the carnivorous Chuditch has allowed broadscale fox control to be implemented in the Jarrah forest. A trial translocation to Julimar has resulted in an additional population of Chuditch being established and provided useful information for translocations to more remote sites. Translocations would not be possible without the successful captive breeding program at the Perth Zoo. For the first time, research has commenced into the impact of forest management operations on Chuditch and other forest fauna. Through the wheatbelt surveys over the last four years it is now clear that Chuditch populations in this area are probably still declining and a considerable amount of work is still required before two of the recovery plans objectives can be met.

In 1993, 11 months after implementation, the recovery team considered that some minor changes were required to the recovery criteria and duration of one of the recovery actions. Initially the recovery criteria ignored the maintenance of at least one population in the semi arid. This was included in the revised recovery plan. In recognition that Chuditch

translocations had previously not been undertaken, it was considered appropriate to undertake a trial translocation to a readily accessible site (Julimar) before attempting one to a remote site in the wheatbelt. This necessitated an extension of the captive breeding program for another four years to 2000 and an increase in ESP financial support from $780 400 to $895 800 over 10 years.

ACTIONS

Action 1 - Habitat management.

Research into the impacts of **timber harvesting** on Chuditch and other medium sized mammals commenced in 1994 at the Kingston block near Manjimup. This experiment is based on the Before/After/Control/Impact design and is comparing mammal abundance and movement patterns in three treatments (gaps with habitat trees left, gaps without habitat trees, and shelterwood) with unlogged controls. Because of their large movement areas, Chuditch are also being studied using an extensive (40 km) road trap network which runs through both logged and unlogged areas. Logging commenced in February 1995. Comparison of trap success rates before logging commenced with the results from the 12 months post logging shows that abundance has fluctuated between 0.5 % and 2.0 % trap success with no sustained decrease or increase obvious at this stage. Other species (Woylie, Quenda and Brushtail Possum) have increased in abundance significantly and overall trap success rates are approaching 70 %. This is a response to the fox control which has been in place since 1993. It is possible that the high trap success rate of other species means that sufficient empty traps are not available for Chuditch and this is reflected in low trap success rates.

The impact of **prescribed burning regimes** on Chuditch is being examined at Batalling forest block, near Collie. The fate of Chuditch during a cool and very patchy burn in spring 1994 was monitored through radiotracking and trapping. There has been no detrimental impact on Chuditch with the population continuing to expand in this fox baited area. Females had dependent young at this time, however no known den logs were consumed. The increase in Chuditch abundance as a result of fox control since 1990 (see *Action 2*) has been maintained and condition has not changed. A hotter autumn burn is planned for April 1996 and Chuditch will similarly be monitored.

Both these actions are ongoing and will not be completed during the current phase of funding. As stated in the recovery plan, at least six years post logging monitoring and four years post fire monitoring of the Chuditch populations is required. This work is important in being able to demonstrate the sustainability, or otherwise, of timber harvesting and prescribed burning and is presently well supported by CALM for both salaries and operating costs. ESP costs are primarily for radiotracking, which for Chuditch has to be done from the air. This could not continue if ESP funds were not available. From 1999, the salary for a Technical Officer is associated with this action. Very little progress would be made on Chuditch recovery if this position was not funded by ESP.

Action 2 - Effect of fox and fox control.

Research into the effects of fox and fox control on Chuditch was completed in 1992 and no further funding for this action is required. Monitoring of Chuditch and other mammals at Batalling continues as part of Action 3 and management programs for other species, such as the Woylie. This work has shown that while Chuditch may take dried meat fox baits, they do not consume lethal doses or sufficient to affect breeding. Since fox control was implemented at Batalling, Chuditch abundance has increased from 0.5 % trap success to 5 - 10 % trap success. Broadscale fox control, covering 400 000 ha. has now been implemented by CALM (with support from Alcoa) in the northern Jarrah forest and this will significantly contribute to the conservation of Chuditch in this area.

Action 3 - Population monitoring.

Chuditch populations are monitored by CALM staff at several sites throughout the Jarrah forest. These include the research sites at Kingston and Batalling, the translocated population at Julimar and the Hills Forest (Mundaring) area. As part of Operation Foxglove 43 fauna monitoring sites have been established throughout the northern Jarrah forest (not part of this recovery plan, with ANCA/CRC funding) and Chuditch have been recorded from 21 of these. A monitoring site in the semi arid has not yet been established as no suitable population has been found (see *Action 4*).

This action will not be completed by the end of the current phase of funding. It is scheduled to continue until 2001 and this is important so that the success in achieving the recovery plan objectives can be determined. Monitoring could not be continued without ESP support.

Action 4 - Distribution and requirements in the semi arid.

From confirmed sighting and road kill records over the last 15 years, Chuditch are known to persist in the wheatbelt and semi arid parts of the south west of WA. However despite surveys involving nearly 20 000 trapnights since 1990, only three Chuditch have been trapped. Large conservation areas such as Frank Hann NP and Lake Magenta NR, where Chuditch were known to persist in 1990/91 have been retrapped in 1994/5 without success. This suggests that Chuditch may still be declining in these areas, and this is of considerable concern. We still have no information on the biology and requirements of Chuditch in these semi arid areas.

This action is scheduled to continue beyond the current phase of funding. Recovery plan objectives require that at least one population in the semi arid is maintained. Survey work is still required along the south coast (Fitzgerald River NP to Cape Arid NP). The biology and requirements of Chuditch will now be determined by studying the population to be established at Lake Magenta NR through reintroduction (see *Action 6*).

Action 5 - Captive breeding.

Because Chuditch occur at low densities in the Jarrah forest, any translocation program was going to be dependent on having captive bred animals available. Since 1989, 114 Chuditch have been born in captivity at Perth Zoo. Forty three have been released at Julimar as part of the trial translocation in 1992. Another 40 will be translocated to Lake Magenta in October 1996. A health management program has also been established by Perth Zoo veterinarians. This has examined the incidence of disease and parasites in captive bred and wild caught Chuditch and whether this influences the success of translocations.

This action was initially planned to cease after 1997, however was extended to 2000 after it was realised that a trial translocation would be required before a remote area translocation was contemplated. This action is scheduled to continue beyond the current phase of funding and is an integral part of future translocation programs. Even with an anticipated increase in Chuditch abundance in the Jarrah forest as a result of fox control, sufficient wild caught numbers could not be obtained to support translocations to Lake Magenta and Peron Peninsula.

Action 6 - Translocation.

A trial translocation to Julimar Conservation Park was undertaken in September 1992, and this has been successful. Another Chuditch population has been established as a result of this and information on translocation and monitoring techniques obtained that will be useful for remote area translocations. The fox control program at Julimar has been expanded to include another 10 000ha of military training area adjacent to Julimar. This has been funded by the Department of Defence and provides a significantly larger area for Chuditch to disperse into.

In October 1996 it is proposed to reintroduce Chuditch to Lake Magenta NR in the southern wheatbelt. Providing this is successful this action will satisfy the second recovery criteria of maintaining a population in at least one semi arid site. A translocation to Peron Peninsula in 2000 is also proposed and if successful this will satisfy the third recovery criteria of establishing at least one population outside current range. Funding for this has not been included in the recovery plan, but will come from within CALM as part of Project Eden.

This action will not be completed by the end of the current phase of funding and is planned to continue to 2001. Continued monitoring is required at Julimar and successful translocations to Lake Magenta and Peron Peninsula are required to achieve two of the three recovery criteria, otherwise the recovery plan will not have been successfully implemented.

DISCUSSION

Objectives and criteria.

Good progress has been made towards meeting the first recovery criteria of achieving an average daily trap success rate at monitoring sites in the Jarrah forest at or above 1 %. Rates at Batalling fluctuate between 5 % and 12 %, at Kingston between 0.5 % and 2.0 %, and at Julimar average 2.5 %. Chuditch abundance appears to be increasing at Mundaring and at the other Operation Foxglove fauna monitoring sites. Monitoring needs to continue to ensure that these higher abundances are sustainabble.

The other two recovery criteria have not been met. The success of meeting both relies on the maintenance of a captive breeding program and successful translocations to Lake Magenta NR and Peron Peninsula. The translocation to Lake Magenta will commence in 1996 and this will be funded under current arrangements. However the monitoring of success is programmed to continue 1997 - 2001 and will only be possible with continued ESP funding. Translocation to Peron Peninsula will remain CALM's funding responsibility.

Knowledge and understanding of species.

A considerable amount of knowledge and understanding of the species is now available. However the impact of forestry operations is not yet known. Experimental research has commenced into the impacts of timber harvesting and prescribed burning, however post treatment monitoring has only been in progress for 12 months and needs to continue for at least another five years before any meaningful conclusions can be drawn. While CALM has increased its contribution to this work (Kingston project) continued ESP funding at the levels requested in the recovery plan are essential. The salary for a technical officcer is included in these actions and the Chuditch recovery plan could not be implemented without this position.

Conservation status.

The Chuditch has been listed as "rare or is likely to become extinct" in WA since 1983 (*Wildlife Conservation Act 1950*), and was listed as Endangered by ANZECC (1991) and the Commonwealth's *Endangered Species Act 1992*. However, using the revised IUCN Red List categories (IUCN 1994), the Chuditch has been listed as Vulnerable in the revised Australian Marsupial and Monotreme Action Plan (Maxwell *et al* 1996). This is on the basis of category Vulnerable C 1 where the total population is estimated to number less than 10 000 mature individuals and there is an estimated continuing decline of at least 10 % within 10 years. This is based on a population estimate of up to 4 400 in the Jarrah forest (Serena *et al* 1991) and perhaps another 1 500 in the wheatbelt. While Chuditch abundance will probably increase in the Jarrah forest in the near future in response to fox control, populations in the wheatbelt and semi arid areas of its present range are believed to still be declining.

The apparent improvement in status is as a result of both management actions (increased fox control, refuge requirements incorporated into silvicultural guidelines etc.) and improved knowledge of distribution, through an improvement in trapping techniques and more surveys. It is probably also as a result of the revision of the IUCN categories which allow a more precise and quantitative assessment to be undertaken.

Impact of cessation of funding.

Cessation of funding for the Chuditch recovery plan from the ESP would result in a drastic reduction in the ability to complete all of the recovery actions and would make achievement of the recovery criteria in the time frame set, practically impossible. Continued ESP support for a technical officer salary and the operating costs is crucial if the program is to continue. No work would be possible in the semi arid and the maintenance of at least one population in this area would not happen. The loss of this support would also mean that most of the research and monitoring underway in the Jarrah forest would not be continued. CALM and other agencies (eg Alcoa) are now putting more resources into Chuditch conservation than was envisaged when the recovery plan was prepared. However this is in the form of an expanded fox control program, provision of a community involvement coordinator and Project Eden which will asssist Chuditch conservation but not directly support the recovery actions, most of which have a significant research component.

ESP funding required

The following amounts are required 1997-2001 to succesfully complete the Chuditch recovery plan (Orell and Morris 1994).

1997	$ 110 200
1998	$ 104 000
1999	$ 98 100
2000	$ 99 200
2001	$ 73 800
TOTAL	**$ 485 300**

REFERENCES

ANZECC (1991). List of Endangered vertebrate fauna. ANCA, Canberra.

IUCN (1994). IUCN Red List Categories. IUCN Species Survival Commission, Gland, Switzerland.

Maxwell S., Burbidge A.A. and Morris K.D (1996). The Action Plan for Australian Marsupials and Monotremes. IUCN/SSC Australasian Marsupial and Monotreme Specialist Group. Unpublished report to ANCA Endangered Species Unit, Canberra.