STATUS AND ECOLOGY OF THE DIBBLER (*PARANTECHINUS APICALIS*) IN WESTERN AUSTRALIA

1995 ANNUAL REPORT

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SUMMARY

Since the commencement of the project in January 1995, fifteen field surveys have been conducted to cover all known dibbler capture sites. During these surveys only one population of dibblers was detected on the mainland (in the Fitzgerald River National Park) after more than 17, 000 trap nights. Despite this large effort there remain many other areas (particularly along the south coast) which need to be surveyed for dibblers; these are being targeted in the summer/autumn of 1996.

The dibbler populations on Boullanger and Whitlock Islands were visited four times throughout the year, and this work produced some surprising results. The males on both islands at the end of the 1995 breeding season did not experience the complete and synchronous die-off which had been recorded in past years by Dr C.R. Dickman. A short paper detailing our findings is currently being drafted. Our trapping results also indicate that the overall population numbers on Boullanger are much lower than the estimates determined in the late 1980s by Dr. Dickman.

These results indicate that the current status of dibblers should remain as endangered, and in the light of more data from the mainland, be revised at a later date.

INTRODUCTION

This report addresses the actions specified in the initial dibbler research plan which commenced in January 1995. All scope items have been addressed during the year and completed ones have been removed from the updated version of the research plan for 1996.

Overall it has been a very busy year with a heavy field component characterising most of the work. There has been considerable frustration at the lack of dibbler captures in former known sites. However the capture of 13 very healthy animals in Fitzgerald River National Park (FRNP) provided a major positive boost to the project, and provided much-needed information on the species habitat preferences, and a refocussing of the scope items which need to be addressed in future work (see later).

PROJECT OBJECTIVES

(a) To ascertain the distribution and conservation status of the Dibbler in Western Australia.

(b) Through the use of BIOCLIM and GIS use existing information in a predictive manner to locate new populations and examine other habitats.

(c) To examine the species population dynamics and habitat relationships (initially on the known island populations) through regular monitoring using traps and radio-tracking.

(d) To document the species ecology in relation to potential threats, particularly fire and plant pathogens.

(e) To assemble this information and prepare a draft Recovery Plan for *Parantechinus apicalis*, and prepare scientific publications detailing the conservation status and ecology of the species.

PROGRESS ON SCOPE ITEMS

1. Resurvey known sites; ascertain details of preferred habitat

All areas in which dibblers have been caught since their rediscovery in 1967 have been resurveyed at least once during the year. Some sites were able to be looked at twice. Many sites have experienced considerable change as a result of fire and/or plant pathogens.

In October 1994 a large proportion (83 %) of the known dibbler capture sites in the FRNP were affected by a wildfire which burnt 5 000 ha of the central Wilderness Area. This area was trapped in May 1995 without success. The dibbler capture sites at Cheynes Beach have also undergone considerable change over the last 10 years as a result of aerial cankers (*Cryptodiaporthe* spp), *Phytophthora cinnamomi* infection and road development.

Details on preferred habitat are still unclear at this stage. Vegetation data are gradually being compiled as past and recent capture sites are assessed. From the data gathered to date it appears that dibblers on the mainland prefer long-unburnt areas of mallee-heath vegetation with highly variable deep sand to duplex soil types, high plant species diversity and significant flowering

potential. These details need to be compared with other dibbler sites along the coast, particularly in areas with different floristics.

2. Initiate media coverage to gather further distribution records

Several interviews have been given to regional radio stations about the research program and its findings. GWN in Albany is also planning a short story for the beginning of 1996. Local interest groups have been approached and information distributed. One short talk has already been presented and more are planned in 1996. A poster was submitted to the Ecological Society of Australia Conference in Tasmania, detailing the project and its aims. Colour pictures and dibbler identification details have been distributed to all appropriate national parks, shire offices, Land Conservation Districts and Amateur Naturalist groups.

All available information on dibblers has been collected and collated from literature searches, CALM files, the Western Australian Museum and overseas museums. Other people who have been involved with dibblers at some stage in the past have been contacted to gather further information which may not have been covered in the above exercises, as well as familiarising them with the scope of this project.

Owing to their elusive nature, small size and similar appearance to other common species, seeking public information on dibbler sightings has proved to be unproductive. Instead, articles in local papers and the involvement of local volunteers is being sought as it seems to generate far more general public interest. It is hoped that through these methods public awareness of the local environment will be bolstered; continued trapping and successful captures of dibblers can only help this aim.

3. Use BIOCLIM and GIS databases to predict location of other populations

A BIOCLIM prediction has been generated based upon all available data by Dr C.R. Dickman. The map shows clearly that the predicted sites fall within all known capture sites since 1967. This scope item has been removed from the current research plan.

4. Regular monitoring of known populations; examine reproduction, population dynamics and habitat use in relation to fire history and occurrence of plant pathogens

Until recently (November 1995) the only known populations of dibblers were on Boullanger and Whitlock Islands. Through the trapping program set up for the islands during 1995, we have been able to demonstrate that male die-off does not necessarily happen every year; a similar strategy seems to have prevailed in the mainland population discovered at FRNP.

It is unclear what factors are involved in this aspect of the dibbler's life history, but it may be related to male stress levels, which in turn are related to the density of animals in the population. During 1995 the abundance of dibblers on Boullanger Island was considerably lower than during the time of Dr Dickman's study when male die-off was regularly recorded. We therefore hypothesise that with high population numbers (and stress levels), a complete and synchronous male die-off is likely to occur, while low population levels will enable some post-breeding males to survive. Close monitoring of the islands during the coming year will help explain some of the factors influencing this unusual breeding strategy.

On the islands, animals seem to be using all habitats. However, there seems to be some habitat preference shown on Whitlock Island where mature, heavier animals are generally captured in areas with tall, dense cover.

There is no record of plant pathogens on the islands and neither have burnt in recorded history.

5. Extensive surveying of predicted sites of occurrence with follow-up studies (as in 4. above) on positive sites.

Sites along the south coast which were predicted to harbour dibbler populations were collated and investigated as part of a preliminary field trip in February. A priority list was created based upon past capture data and logistic details (such as difficulties with access, proximity to fox baited areas and fire history). Five general areas were surveyed, within which "likely" areas were targeted. The main consideration regarding the trapping of sites is restricted access based upon the dieback hygiene requirements of the CALM District. Most areas are strictly managed to reduce the introduction and spread of the plant pathogen *Phytophthora cinnamomi*. The time of the surveys and any work in these areas is restricted to dry soil conditions only. This has meant that the field work component is limited to the summer months and must be on standby in the wetter seasons.

The following summarises the effort so far achieved in the survey of the South Coast.

Site Name	Date of Survey	No. Trap Nights	Number of dibblers caught
Cheynes Beach	20/3 - 31/3/95	2194	0
FRNP ~ Wilderness Area	1/5 - 12/5/95	4222	0
Two Peoples Bay	22/5 - 2/6/95	1105	0
Torndirrup NP ~ Stony Hill	22/5 - 2/6/95	1274	0
Ravensthorpe & FRNP ~ East Mt. Barren	7/8 - 18/8/95	2735	0
Cheynes Beach	18/9 - 29/9/95	1826	0
Gull Rock	19/10 - 23/10/95	260	0
Torndirrup NP ~ Sharp Point	24/10 - 29/10/95	1045	0
FRNP ~ FR9 & Wilderness Area	6/11 - 17/11/95	2400	12 (+1)*
FRNP ~ FR9 & Wilderness Area	27/11 - 1/12/95	250	0
Total No. Trap Nights		**17,311**	

*** During the trip to FRNP (6-17/11/95) another researcher (Sarah Barrett) was working in the south of the park and caught a male dibbler in her traps.**

The population recently found in FRNP was monitored closely for two weeks. The sites have been investigated and no evidence of plant pathogens is present; however there are many plant deaths due to drought stress. One site (FR9) is located within the Special Conservation Area of the Park, and the planned burn within this area in Autumn 1996 has been deferred until a later date. It was last burnt 30 years ago. The other site is in the Wilderness Area and was burnt about 20-25 years ago.

An attempt was made to radio-track four individuals. The results from this are not encouraging, as the animals seem to be moving distances at night which are beyond the tracking capabilities of the equipment available. Other techniques are currently being investigated.

Two areas which were on the list to be surveyed have been destroyed in wildfires during October and November 1995. One was in the Water Board Authority area adjacent to Two Peoples Bay. The other was between FRNP and Esperance in a long-unburnt coastal strip adjacent to Stokes National Park. Considering the extent and intensity of these fires, these sites have been removed from the search list.

REVISION OF SCOPE ITEMS

The research scope items for 1996 have been recently altered and submitted. As a result of the discovery of a reasonable population on the mainland, however, it is felt that the new scope item covering the establishment of a captive colony is no longer relevant. Accordingly, the scope items proposed for 1996 are:

1. Regular monitoring of known populations; examine reproduction, population dynamics and habitat use in relation to fire history and occurrence of plant pathogens.

2. Extensive surveying of predicted sites of occurrence with follow-up studies (as in 1. above) on positive sites.

CONCLUSIONS

The major achievement for the Dibbler program during its first year was the finding of 13 individual animals in FRNP in November 1995 (10 males, 3 females). Other notable observations were that the Boullanger and Whitlock Island males did not experience a synchronous and complete die-off after breeding in autumn 1995; this has not been reported in past years on the island. Also data for December 1995 showed a marked increase in juvenile capture rates on Boullanger Island compared with results from the same time in 1994.

Survey work has absorbed most of the year's effort. Field work has totalled 24 weeks since the commencement of the program in January 1995 for one person, plus the time of many volunteers and CALM District staff. Without this continual support a project of this size would not be possible.