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

Half Yearly Report

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SUMMARY

Since the commencement of the project in January 1995 twenty seven field surveys have been conducted, covering all known past dibbler captures sites, revisiting those identified by this project and investigating new possible locations. During these surveys only two mainland populations of dibblers have been detected (in the Fitzgerald River National Park) after 22,357 trap nights. There still remain many other areas (particularly along the south coast) which need to be surveyed for dibblers ; these will be priorities and targeted for the final field season starting Spring 1996 and continuing through until Autumn 1997.

Efforts to extract information about the dibblers population dynamics on the mainland have been largely thwarted due to this species being extremely difficult to work with and to date impossible to radio-track at night. The limitations of technology are such that more imaginative ways of following individuals are being investigated. These alternative methods (see later) are providing valuable data for short term investigations. Ideally more long term studies on individuals is needed, for this the possibility of radio-tracking is being worked on for use in late summer 1997. New designs are currently being devised in conjunction with the electronic company (Biotrack) who is supplying the transmitters. Information gathered to date using alternative methods to radio tracking is presented below.

The dibbler populations on Boullanger and Whitlock Islands were visited only once since the beginning of this year. Restrictions in the budget, bad weather and continual maintenance problem of the boat used to get to the islands has decreased the number of occasions we were able to access these populations. However satisfactory monitoring seems to be possible from few visits. The population seems to have experienced a greater juvenile survival rate than the previous year, as indicated by trapping results. Another trip is planned for the first week in September. The data from this trip will indicate if this year has been another without a total male die-off, and what percentage of females had bred.

INTRODUCTION

This report addresses the revised actions specified in the Annual Report of 1995 for the dibbler research plan. All the scope items are being addressed and are ongoing.

This year has brought a change in supervisor and the formation of a Recovery Team. These events have instigated a change in research priority, in that the time being spent surveying has been decreased, with that time being reallocated to studying the mainland population located in the FRNP. The Recovery Team has identified other issues of importance in the research plan and to the general survival of the species. The Recovery Team is concerned with the consolidation of the data which can been extracted from the mainland populations already found. This information is hoped to enable more accurate predictions of other populations which may still survive in Western Australia.

Since the location of dibblers in two areas of the FRNP no other populations have been found.

PROJECT OBJECTIVES

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

PROGRESS ON SCOPE ITEMS

1. Resurvey known sites; ascertain details of preferred habitat

To date all areas in which dibblers have been caught since their rediscovery in 1967 have been resurveyed at least twice since the commencement of this project in January 1995 (see Table 1). As stated in a previous report most sites have experienced drastic changes in the last 20 years, mostly a result of plant pathogens and severe wildfire. It seems that these changes may be the reason why dibblers are no longer able to be caught at old captures sites at Cheynes Beach, Torndirrup NP and the north western edge of the Wilderness area in the FRNP. A detailed vegetation analysis and further trapping of these areas will clarify this.

Fig 1. General location of trapping sites on the south coast of WA

Table 1. Trapping Data From The Mainland Survey : January 1995 - July 1996

DATE	LOCATION	NO. TRAP NIGHTS Elliots & pits	NO. ANIMALS CAUGHT Not including recaptures			
			DIBBLERS	RODENTS	OTHER MAMMALS	REPTILES
20/3 - 31/3/95	Waychinicup	2194	0	60	34	52
1/5 - 12/5/95	FRNP ~ Wilderness Area	4222	0	41	7	2
22/5 - 2/6/95	Two Peoples Bay	1105	0	40	8	3
22/5 - 2/6/95	Torndirrup NP ~ Stony Hill	1274	0	82	5	0
7/8 - 18/8/95	Ravensthorpe & East FRNP	2735	0	81	0	5
18/9 - 29/9/95	Waychinicup	1826	0	134	16	18
19/10 - 23/10/95	Gull Rock NP	260	0	28	0	5
24/10 - 29/10/95	Torndirrup NP ~ Sharp Point	1045	0	41	6	6
6/11 -	FRNP ~	2400	12 (+1) *	49	18	28

17/11/95	FR9/Wilderness Area					
27/11 - 1/12/95	FRNP ~ FR9/Wilderness Area	250	0	2	1	0
20/12/95 - 10/1/96	Torndirrup NP ~ Austin Rd	800	0	19	4	2
21/1 - 25/1/96	FRNP ~ Thumb Peak	636	2	49	1	0
2/2 - 6/2/96	FRNP ~ FR9/Wilderness area	530	1	43	0	1
12/2 - 15/2/95	FRNP ~ Quaalup	440	0	33	0	0
20/2 - 23/2/96	FRNP ~ Bell Trk, FR9 & Wilderness area	540	4	15	4	0
4/3 - 7/3/96	Quaranup	200	0	25	0	0
12/3 - 16/3/96	Cape Riche	750	0	32	0	0
16/4 - 19/4/96	FRNP ~ Wilderness area	300	1	10	0	0
15/5 - 19/5/96	SRNP ~ W slopes Bluff Knoll	250	0	3	0	1
27/5 - 31/5/96	FRNP ~ FR9/ Wilderness area	600	1	20	3	0
	TOTALS	22,357	22	807	107	123

* During the trip to FRNP (6-17/11/95) another researcher (Sarah Barrett) working in the south of the park caught a male dibber in a cage trap.

Key

FRNP ~ Fitzgerald River National Park

SRNP ~ Stirling Range National Park

The collation of vegetation data from all sites surveyed (whether they resulted in dibbler captures or not) is at present the main task. It is hoped that this will identify any correlations that positive dibbler sites may have. A general recreation of past vegetation from old photographs and accounts in areas which once had dibblers is also being attempted. At this stage no new evidence has been determined which details dibbler habitat preference, other than the long unburnt areas of mallee-heath vegetation with highly variable deep sand to duplex soil types, high plant species diversity and significant flowering potential, which has already been identified by other studies.

It is hoped that these details will become more apparent in the second half of this year. The collection of vegetation data is an arduous task and especially complicated on the south coast of WA by the presence of many undescribed species and hybrids. This aspect of the project will not be fully completed until the end of summer 1997, when all the site surveys have been accomplished.

2. Boullanger and Whitlock Island population monitoring and habitat preference details.

The islands have only been visited once this year. Another trip was cancelled at the last moment due to unforseen circumstances. As can be seen by Tables 2 and 3 there is little change in the trapping success on the islands. It has therefore been predicted that this year will also see a minimal to nil male die-off as a result of breeding.

Table 2. Trapping Results from Boullanger Island : Dec 1994 - March 1996

Date	Id	N/R/Rt	Sex	WT	Comments
12/7/94	1	N	M	50	
12/8/94	7	N	M	35	
12/8/94	8	N	F	32	NO TEAT/POUCH DEV
12/8/94	50	N	F	34	NO TEAT/POUCH DEV
12/8/94	6	N	M	49	COLLARED T#37810 MO 151.2250
12/8/94	5	N	M	44	COLLARED T#37812 CURLY 151.4750
12/8/94	4	N	M	45	COLLARED T#37804 LARRY 151.0234
12/8/94	3	N	F	47	3 DEV TEATS (2 RECESSED)
12/8/94	2	N	F	33	NO POUCH DEV 3+ NIPPLES
12/9/94	51	N	M	42	
12/9/94	10	N	M	50	
12/9/94	52	N	F	34	NO TEAT/POUCH DEV
12/9/94	9	N	F	40	
2/8/95	11	N	M	37	
2/8/95		N	F	42	DEAD IN TRAP ,NO POUCH/TEAT DEV
2/8/95		N	M	80	DEAD IN TRAP
2/8/95		N	M	65	DEAD IN TRAP
2/9/95	13	N	M	68	
2/9/95	12	N	F	56	8 TEATS, DEV POUCH
2/9/95	14	N	F	46	8 TEATS, NO POUCH DEV
3/8/95	2	R	F	57	DEV POUCH, 8 DEV NIPPLES
3/9/95	17	N	F	43	NO POUCH DEV, 8 NIPPLES
3/9/95	16	N	F	43	NO POUCH DEV, 8 NIPPLES
3/10/95	18	N	M	83	LARGE ADULT MALE
3/10/95	14	R	F	48	LITTLE POUCH DEV, ID LOOKS LIKE #24
4/4/95	80	N	M	50.5	
4/5/95	24	R	F	38.5	NO POUCH DEV
4/6/95	12	R	F	46	POUCH STAINING & DEV, GROWTHS ON EAR
4/7/95	4	R	M	46.5	
4/7/95	20	N	M	53	
4/7/95	24	RT	F		
4/7/95	19	N	M	50.5	swollen anus/very bony/
4/7/95	21	N	F	44	pouch staining/dev/old break in tail 2/3 from base
9/5/95	20	R	M	51	
9/5/95	25	N	F	36	1 EXTENDED NIPPLE
9/6/95	10	R	F	48	MAYBE 20? 8 ACTIVE NIPPLES
9/6/95	26	N	M	24	JUVENILE
9/8/95	20	RT	F	47	8 LACTATING NIPPLES

12/6/95	63	N	M	68	
12/6/95	66	N	F	35	SCAR BETWEEN EYES
12/6/95	64	N	M	48	
12/6/95	62	N	M	60	
12/6/95	67	N	F	37	NO POUCH DEV
12/6/95	60	N	M	46	
12/6/95	59	N	M	54	
12/6/95	58	N	F	37	NO POUCH DEV
12/6/95	57	N	F	34	NO POUCH DEV
12/6/95	56	N	F	34	NO POUCH DEV
12/6/95	55	N	M	57	
12/6/95	54	N	M	49	
12/6/95	53	N	M	55	
12/6/95			M	52	ESC
12/6/95	65	N	M	58	
12/7/95	63	RT	M	65	
12/7/95	21	R	F	50	tail broken 2/3 from base, no pouch activity
12/7/95	23	N	F	39	NO POUCH DEV, UNBRED
12/7/95	22	N	M	55	
12/7/95	69	N	M	53	
12/7/95	68	N	F	50	REGRESSED POUCH, 7 NIPPLES
12/7/95	67	N	M	52	LUMP ABOVE LEFT EYE/NOSE
12/7/95	70	N	F	40	
3/26/96	2	R	F	53	SWOLLEN NIPPLES, POUCH DEV
3/27/96	20	R	M	75	
3/27/96	2	RT	F	58	
3/28/96	67	R	M	70	GOOD CONDITION
3/28/96	2	RT	F	55	

* the date is written month/day/year to show seasonal differences

Table 3. Trapping results from Boullanger & Whitlock Islands March 1995/96

	March 1995		March 1996	
	No. females	No. males	No. females	No. males
Boullanger Is.	4	1	3	2
Whitlock Is.	8	8	7	8

3. Work in progress

a) Hair Tubing

After several designs, a successful one has been found. It is a ground based cone made of thin galvanised metal. It is basically the same design which has been used on the Mountain Ecology survey which has also been occurring in the district. That project is responsible for locating the population at Thumb peak in the south of FRNP. It is therefore possible to extend our survey by including the efforts of others in the likely areas, who were not necessarily targeting the species but were using techniques that have been successful in locating dibblers in this project.

The identification of dibbler hair is easily possible without the use of a microscope as all the dorsal hairs (guard and under hairs) of dibblers are tipped in brilliant white. There is no other species' in these areas which have this characteristic.

Hair tubes will be used in the dibbler grids set up to determine the level of usage the different habitats receive within the grids. This will be based upon a simple meaurement of the frequency of tubes which have hair stuck to them in the various habitat types.

b) Pigment Tracking

This technique has been used successfully in many other projects based in arid environments. If successful in this project it will show detail of the animals habitat use and possibly nesting or refuge sites. The trail of paint pigment dropped from a dusted animal is picked up using a UV light. Results of this work will be documented in the next report.

c) Spool Tracking

Tracking dibblers using cotton spools super glued to their backs has to date proven unsuccessful, as the animals manage to pull the spool off, fur and all, within a space of a few seconds. A new method of attachment has been suggested and will be trialed when access back into the Fitzgerald site is possible.

Results from this method are hoped to determine the location of nesting sites if the animals are released during the normal time of rest. If release at a period of normal activity, the cotton spool can often indicate the type of activity engaged in and any interactions that occur, as well as showing exactly how the habitat is utilised.

d) Radio-tracking

As mentioned previously radio-tracking has had very limited results. The main problem being not enough range is generated by the transmitters used. In a developmental stage now is a new transmitter which has a greater range and longer battery life. This may enable night work to be achieved on the animals in the FRNP, as well as a long term study to investigate details such as the mortality of individuals.

It is envisaged that this work will recommence in mid summer when animal weights and conditions are at their peak. This will ensure that the individuals used are going to be able to compensate adequately for carrying a transmitter for several weeks and dependant young will not be at risk.

e) Monthly Trapping of Grids in the FRNP

Since the discovery of the animals in restricted sites within the FRNP, monthly trapping has occurred in these areas. Three permanent grids have been established to enable consistent sampling of the most "dibbler prolific" areas. This has given valuable data on the inhabitants of the area as well as indicating how the breeding season was progressing. By mid June one female had pouch young measuring approx 11mm (crown-rump measurement). It is assumed that other females in the area are at a similar stage in their pregnancy. This is difficult to verify owing to the extreme difficultly in catching females.

Again trapping data has shown that a total or synchronous male die-off isn't always occurring in a dibbler population (see Table 4.). Several males on the grids have been regularly caught and although they were obviously engaging breeding activities during the late summer and autumn, have maintained good health and continue to inhabit the grid areas. Only radio-tracking during this period will determine if any changes in territory have occurred or if some animals have died off.

Table 4. Dibbler Data collected from the FRNP

SITE	DATE	ID #	N/R/RT	SEX	WT	COMMENTS
TWIN FIRE BREAK	951108	1	N	M	58	COLLARED
FR9	951109	3	N	F	40	COLLARED
TWIN FIRE BREAK	951110	4	N	M	61.5	COLLARED
FR9	951110	5	N	M	63	COLLARED
TWIN FIRE BREAK	951111	6	N	M	75	
TWIN FIRE BREAK	951111	7	N	F	44	NO POUCH DEV
FR9	951112	10	N	M	77	
TWIN FIRE BREAK	951112	8	N	F	43	
TWIN FIRE BREAK	951112	0	N	0	0	ESCAPED
FR9	951112	9	N	M	94	
FR9	951113	3	RT	F	42	COLLAR TIGHTENED
TWIN FIRE BREAK	951113	11	N	M	80	
TWIN FIRE BREAK	951114	4	RT	M	58	OLD INJURY ON BACK OF SKULL
THUMB PEAK	951115	12	N	M	70	CAUGHT IN CAGE BY S. BARRETT ON TWIN BAYS TRACK
TWIN FIRE BREAK	951115	1	RT	M	60	
FR9	951115	13	N	F	62	ELONGATED NIPPLES (8)
FR9	951115	5	RT	M	75	COLLAR REMOVED
TWIN FIRE BREAK	951117	8	RT	F	45	

THUMB PEAK	960122	1	N	M	104	
THUMB PEAK	960125	2	N	M	105	CAUGHT NEAR LOCATION OF NO. 11
FR9	960205	3	R	F	66	COLLAR RETRIVED. NO POUCH DEV
TWIN FIRE BREAK	960205	16	N	M	118	
TWIN FIRE BREAK	960222	17	N	F	68	CLOACA SWOLLEN, NIPPLES RECESSED, FAINT POUCH STAINING
TWIN FIRE BREAK	960222	8	R	F	65	NIPPLES RECESSED, NO POUCH STAINING, CLOACA SWOLLEN
TWIN FIRE BREAK	960222	16	R	M	125	
TWIN FIRE BREAK	960223	16	RT	M	120	MOVED 600m IN 20 MIN
TWIN FIRE BREAK	960223	16	RT	M	115	
TWIN FIRE BREAK	960223	18	N	M	91	RIGHT CANINE WORN
TWIN FIRE BREAK	960223	19	N	M	117	
TWIN FIRE BREAK	960223	20	N	M	121	CLOACA SWOLLEN, R FLANK WOUNDED, COVERED IN SMALL TICKS
TWIN FIRE BREAK	960417	19	RT	M	94	IN EXCELLENT CONDITION
TWIN FIRE BREAK	960418	21	N	F	71	POUCH DEV NIPPLES RECESSED
TWIN FIRE BREAK	960418	6	R	M	84	
TWIN FIRE BREAK	960528	16	R	M	105	ORANGE EAR MITES AT BASE OF EAR
TWIN FIRE BREAK	960529	16	RT	M	108	
TWIN FIRE BREAK	960530	16	RT	M	108	
TWIN FIRE BREAK	960530	16	RT	M	113	MAY HAVE BEEN No. 6
TWIN FIRE BREAK	960530	25	N	F	85	8 PY CR 11.5 CAUGHT LATE PM (1700HRS)

f) Vegetation Data

One aspect of the project which has been continuing alongside the survey work is the detailed collection of habitat data. This data has been made compatible with the majority of other survey work which has been done in the past by other projects. This will enable comparison with areas not covered in this project, but may well be good dibbler habitat. As mentioned previously it is a long term part of the project and will not be completed until the end of the final field season. A part of this process is dealing with the myriad of undescribed species and the many hybrids which occur regularly on the south coast. Despite being a slow process the results will give a valuable insight into the range of habitats used by dibblers past and present.

g) Draft paper on the findings on Boullanger and Whitlock Islands Winter 1995.

At present this paper is in a draft form and with G. Friend for comments. It details the first documented instance of no male die-of on the islands. In previous years Dr. Dickman had found a total and synchronous death of males on both islands. This occurred for all three years that he studied there. It seems that the die-off may be linked to dibbler population density. It is hoped that this short article will be submitted for publishing before the end of this year.

h) Jurien Expo

Every year there is a Blessing of the Fleet and Expo based at the marina in Jurien. It is hoped that this year (the dates have not been finalised) along with other CALM exhibits, the dibbler project will be included in the display. This would help address one of the most important issues associated with this project and the islands, the necessity of raising the level of awareness within the community at Jurien about the need to protect the islands and acceptable behaviour and use of these islands. This is a large issue since there is no monitoring of the islands other than what is achieved by this project and certainly no CALM policing of illegal activities on the islands. Public liaison and education in these comminutes is a full time job, but it may be possible for Ron Shepherd (Regional Ecologist for the district) to incorporate this into his programs for the general area. He has expressed a desire to be involved and to help promote the need for conservation and education of the public about their responsibilities.

i) Scat Analysis

Because of field commitments only a preliminary evaluation has been made on the scats obtained from mainland animals. When finished the study will detail contents based upon a presence/absence basis from the islands and the mainland. At this stage the most frequently encountered item are invertebrates (usually large beetles), small lizards and mammal bones and hair have also been found. No evidence of pollen has been detected.

j) Cat Trapping

It is envisaged that a periodical cat trapping program will be run in conjunction with the fox baiting of the grids in the FRNP. Victor Soft Catch traps (modified rabbit traps) will be used along the fire breaks which run past the grids. Animals caught will be euthanased and stomach and faeces analysed. It is hoped that evidence from this will determine the importance of cats as predators of dibblers.

At this stage the correlation between the presence of cats and the historical decline of dibblers is strong. Further investigations will document the effect of cat removal on the dibbler populations.

k) Fox Baiting

As from June 1996 the immediate areas around the grids in the FRNP will be baited with 1080 eggs. Since the study in this area has increased in intensity it has been found that the activity of foxes and feral dogs along the tracks has increased. This may be due to the increased disturbance of the area by vehicles and foot traffic along the grids.

Although foxes or dogs have not been proven to regularly prey on dibblers (Woolley & Valente ,198 ?) circumstantial evidence is available for foxes. At this stage the main recognised predator of dibblers are owls, in particular the Barn Owl (*Tyto alba*). It is possible that some daytime hunters such as kites and hawks could also take dibblers.

The areas in which dibblers have been located will also be baited by the Western Shield program instigated by CALM. Aerial meat baiting is due to commence in September 1996.

l) article to local paper

The local newspaper the Albany Advertiser, has been publishing intermittent articles about the progress of the project.

4. Recovery Team and the appointment of a new project supervisor.

In April of this year a Recovery Team was appointed and the process of organising the future recovery of the dibbler has begun. This Recovery Plan will use the findings of this three year project to guide its recommendations and future actions. The team is comprised mainly of CALM personnel who are responsible for the management of land in which dibblers are known to occur.

This team will create a much needed arena in which ideas and solutions can be thought to combat the difficulties which are being experienced in determining critical factors in the dibbler population and its dynamics.

A new supervisor has been appointed to this project with the resignation of Gordon Friend. The new supervisor is Tony Start, who is also based at the Science and Information Division at Woodvale, CALM. It is envisaged that joint supervision will be negotiated with the South Coast Region and Woodvale to make the overall project management more efficient.. The main scientific supervision and advise will be referred to Tony Start at Woodvale, and the day to day support and management be handled by the Head of Conservation Group based in the South Coast Regional office.