### NORTHERN RIVERS REGION

To NESFHAB representatives:

1) Georgia Beyer and Daniel Hall

2) Russ Ainley

From	Mark Carron, Harvesting Advisory Board Coordinator				
Date	22 June 1998	•			
Subject	FLORA and FAUNA SURVEY REPORTS				



Attached please find a copy of the Threatened Species Protocol Pre-Logging and Pre-Roading Survey Report for:

Tenterfield Management Area Boorook S.F. Compartments 95 and 96.

Regards

Mark Carron



# STATE FORESTS of NSW. THREATENED SPECIES PROTOCOL PRE-LOGGING AND PRE-ROADING SURVEY REPORT - 1998.

Region	Northern Rivers	Management Area	Tenterfield
State Forest	Boorook	Compartments	95, 96

### PART A. DESKTOP REVIEW

Date of Review:

13/5/98

Undertaken by:

К. МсСгау

1. Previous Surveys undertaken within 2 km or 5 km.

Notes:

None Known. Tenterfield EIS (1995) targeted small mammal survey site F in

Boonoo S.F. (100 trap nights) within several kilometres of compartments only.

2. Results of Database Search - Species recorded within 2 km or 5 km.

Species Name	AMG East	AMGNorth	Source
Glasson blasta Garden			
Glossy-black Cockatoo	419100	6808100	NPWS WinERMS & SFNSW Incidental Database
Greater Broad-nosed Bat	419200	6808100	NPWS WinERMS & SFNSW Incidental Database
Glossy-black Cockatoo	421200	6807200	NPWS WinERMS & SFNSW Incidental Database
Sooty Owl	421600	6806700	NPWS WinERMS & SFNSW Incidental Database
Koala	424800	6801400	NPWS WinERMS & SFNSW Incidental Database
Rufous Bettong	428200	6801200	NPWS WinERMS & SFNSW Incidental Database
Rufous Bettong	428200	6801000	NPWS WinERMS & SFNSW Incidental Database
Yellow-bellied Glider	420200	6800100	NPWS WinERMS & SFNSW Incidental Database
Common Bent-wing Bat	420200	6800100	NPWS WinERMS & SFNSW Incidental Database
Powerful Owi	420200	6800100	NPWS WinERMS & SFNSW Incidental Database
Eastern Falsistrelle	420200	6800100	NPWS WinERMS & SFNSW Incidental Database
Albert's Lyrebird	420000	6800000	NPWS WinERMS & SFNSW Incidental Database
Glossy-black Cockatoo	419100	6800200	NPWS WinERMS & SFNSW Incidental Database
Koala	422400	6801100	NPWS WinERMS & SFNSW Incidental Database
New England Tree Frog			NPWS WinERMS
Common Bent-wing Bat			NPWS WinERMS

NPWS Atlas Date:

Accessed 18/5/98

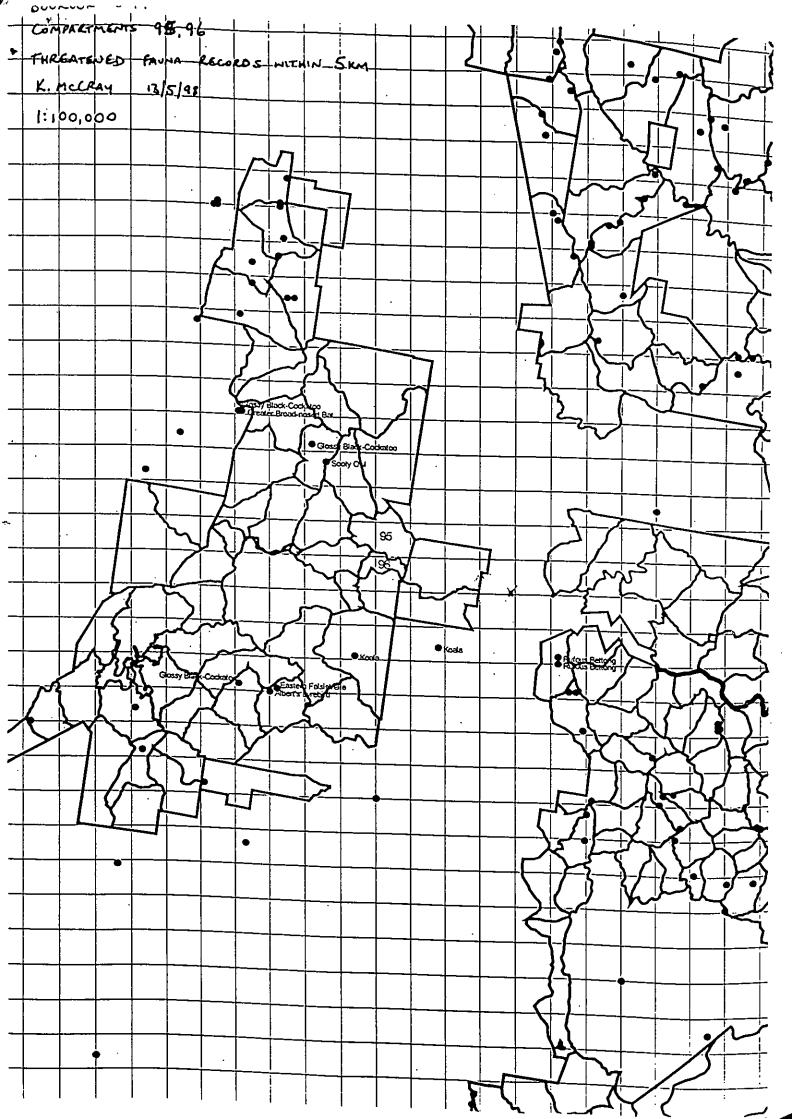
SF Fauna Records Updated to:

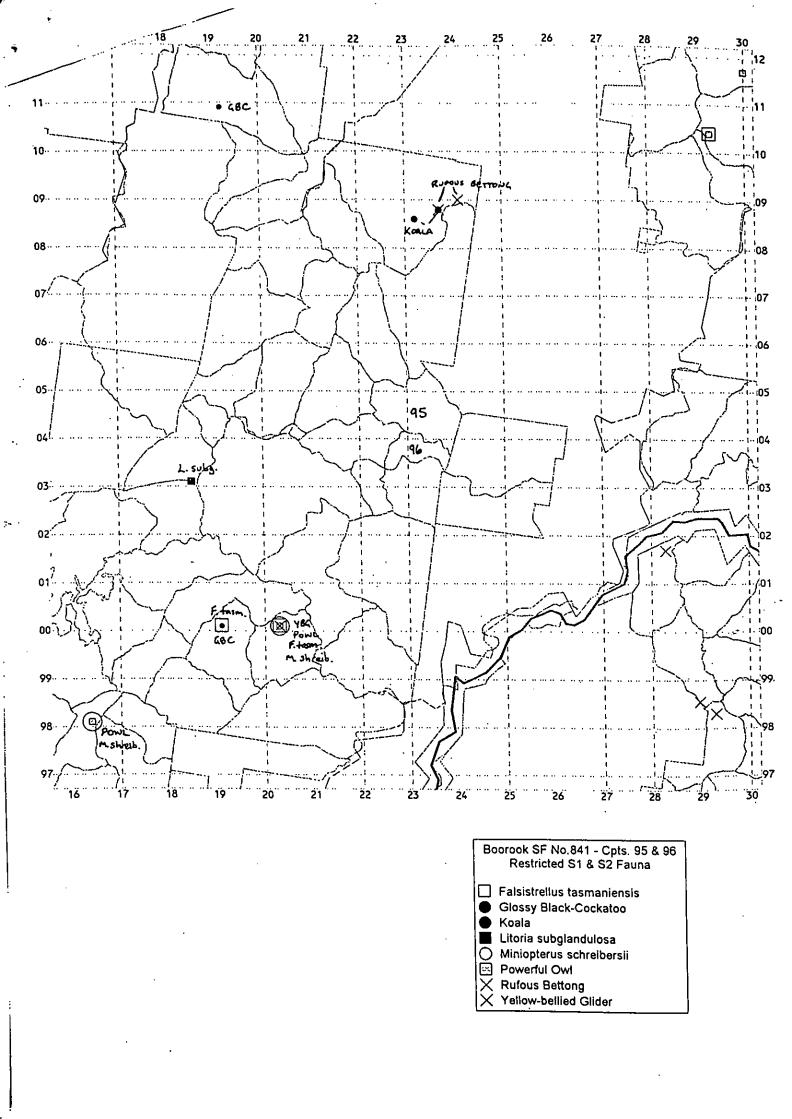
Accessed 13/5/98

Notes:

SFNSW Incidentals database and NPWS WinERMS maps

attached.





Region	Northern Rivers	Management Area	Tenterfield
State Forest	Boorook	Compartments	95, 96

### PART B. Flora and Threatened Fauna Features Traverse

Net Area:

196 Hectares

Traverse Length:

6.5+8.7

Kilometres (approximate - route of traverse on attached map)

Surveyed By:

R.Kooyman, D.Binns

Duration of Traverse:

11+8.5

Person hours

1. Conservation Protocol Appendix 1 Flora Detections

Species Name	AMG East	AMGNorth	Locality Description	Date	Observers Name	Number Observed	Count/ Estimate
Nil detected	<u> </u>	-		<u>:</u>			
	<u> </u>	<u> </u>	<u></u>				

No threatened or significant flora species were recorded.

### 2. Conservation Protocol Threatened Fauna Features Detected

Feature Type	Marked Field	 Marked Map	on
Nil detected			

Notes:

Scats (possibly Rufous Bettong) were collected and sent to B.Triggs for verification.

	Northern Rivers	Management Area	Tenterfield
State Forest	Boorook	Compartments	95, 96

### PART C: TARGETED FAUNA SURVEYS

1. Assessment of Surveys Required

Survey Type	Survey Required (Y/N/IP¹)
Spotlight	Y
Nocturnal Call Playback <sup>1</sup>	Y
Hairtubes	IP
Scat and Track	Y
Riparian Frog	IP
Non-riparian Frog	N
Micro Bats	IP
Small Mammais	N
Diurnal Birds	Y
Reptiles	N
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<sup>&</sup>lt;sup>1</sup>IP = implement prescription without survey

Notes:

Seasonal constraints preclude conducting surveys for threatened frog and bat species in these compartments.

### 2. Surveys Undertaken

Survey Type	Date Undertaken	Time Spent	Undertaken By
Call Playback (Cpt 95)	28/06/98	1:10 hr	R.Herklots, N.Douglas
	2/06/98	0:40min	R.Kooyman, N.Harvey
Call Playback (Cpt 96)	28/06/98	0:45 hr	K.Hudson, N.Harvey
	2/06/98	0:40min	R.Kooyman, N.Harvey
Spotlight traverse (walk)	28/06/98	1:10 hr	R.Herklots, N.Douglas
(Cpt 95)	2/06/98	0:55 min	R.Kooyman, N.Harvey
Spotlight traverse (walk) (Cpt 96)	28/06/98	1:10 hr	K.Hudson, N.Harvey
	2/06/98	0:45min	R.Kooyman, N.Harvey
Bat Sonar	28/06/98	0:30 min	K.Hudson, N.Harvey
Scat/Track Survey Habitat Ass. & Fauna tran.	28/06/98	0:50 min.	R.Herklots, N.Douglas
	28/06/98	0:30min	K.Hudson, N.Harvey

surveys shown on attached maps.

Diurnal bird and fauna surveys also carried out by R. Kooyman on 3-4/6/98 (Field Notes: notes and datasheets attached).

Region	Northern Rivers	Management Area	Tenterfield
State Forest	Boorook	Compartments	95,96
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### PART D. SURVEY RESULTS

Prepared By:

K. Hudson

Date:

15/06/98

### New Threatened Fauna Detections

Species Name	AMG East	AMGNorth	Date	Comp- artment	Observation Type	Observers Name	Survey/
Yellow-bellied Glider	423660	6804020	28/5/98	95	Heard	N.Harvey	Incidental
Yellow-bellied Glider	423600	6804080	28/5/98	95	Heard	K.Hudson N.Harvey K.Hudson	Incidental
Sooty Owl	423300	6805350	28/5/98	95	Heard	N.Douglas R.Herklots	Survey -
Yellow-bellied Glider	423350	6805440	28/5/98	95	Heard	N.Douglas R.Herklots	playback Survey
Glossy-black Cockatoo	423600	6803960	28/5/98	95	Heard	N.Douglas R.Herklots	Survey -
Yellow-bellied Glider	423400	6805350	2/6/98	95	Heard	R.Kooyman	scat/track Survey
Yellow-bellied Glider	423500	6805150	2/6/98	95	Heard	N.Harvey R.Kooyman	Survey
Powerful Owl	423120	6805100	2/6/98	95	Heard	N.Harvey R.Kooyman	Survey-
Sooty Owl	422750	6804500	2/6/98	96	Heard	N.Harvey R.Kooyman	playback Survey-
Parma Wallaby	422800	6803750	2/6/98	96	Sighted	N.Harvey R.Kooyman	playback Survey-
Parma Wallaby	422850	6803720	2/6/98	96	Sighted	N.Harvey R.Kooyman	spotlight Survey-
Powerful Owl	423070	6805220	2/6/98	95	Heard	N.Harvey R.Kooyman	spotlight Incidental

#### SUMMARY

#### **GENERAL**

The survey area consists of uniformly open forest on coarse, sandy soils derived from coarse-grained granite. Throughout most of the forest Eucalyptus companulata is the dominant canopy species, the main associated canopy species are E. cameronii (in areas mapped as forest type 122, some parts of type 170), E. saligna, E. brunnea and E. microcorys (these three species occur mainly on sheltered or lower slopes, often in areas mapped as forest type 55). Forest type 46 is mostly an equal mixture of E. saligna and E. companulata. Lophostemon confertus is common in gullies and on sheltered lower slopes. E. scias subsp. Apoda occurs scattered throughout the area at low density. A predominantly low shrubby understorey occurs on ridges and exposed slopes, the most common species being Podolobium ilicifolium, Acacia falciformes, Leucopogon lanceolatus, Acrotriche aggregata, Imperata cylindrica and Themeda australis. On more sheltered slopes the understorey is variously dominated by Calochlaena dubia, Poa sieberiana, Sorghum leiocladum and Blechnum cartilagineum, with patches of Acacia maidenii, A. irrorata and Trochocarpa laurina. There are small localised patches of Acmena smithii and Trochocarpa laurina in the most sheltered gullies.

Surveys were carried out on 25, 26, 28 May and 2, 3, 4 June 1998 by D. Binns (flora) and R. Kooyman, N. Douglas, R. Herklots, N. Harvey and K. Hudson. D. Binns camped in the survey area on 25 May, and R. Kooyman camped in the survey area on 2 and 3 June. Weather was mainly fine throughout the survey period, with some light rain (on 31 May and 1 June), but cool (lowest survey temperature 10°C).

Net area is provided in part B of this report, surveys undertaken are provided in part C of this report, and new threatened fauna records within these compartments are provided in part D of this report.

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#### <u>FLORA</u>

Flora surveys were conducted in accordance with the TSSD on 25-26 May. No threatened flora were detected throughout surveys. For further details see part B of this report and report by D. Binns (attached).

#### **FAUNA**

#### TRAVERSE SURVEYS

Surveys for fauna and threatened fauna features were integrated into the compartment traverses, general activities (eg travel, habitat assessment) and surveys (eg scat/track surveys). Specific compartment traverses were undertaken by R. Kooyman on 3-4/6/98, including habitat assessments for threatened species. Glossy Black Cockatoo\* was detected on 28/5/98 during a scat/track traverse, however no Glossy Black Cockatoo feed sites were located throughout surveys. Possible Rufous Bettong\* scats were collected, these have been sent to B. Triggs for analysis and identification (results not yet available).

#### SPOTLIGHT SURVEYS

Two spotlight transects (1km each) were conducted, one in the north of compartment 95 along Colongon Road and the other in the south of compartment 96, along Lindrook Road. Species detected were: Sugar Glider, Greater Glider (7), Kookaburra (2), Parma Wallaby\*(2) and Common Brushtail Possum.

#### CALL PLAYBACK SURVEYS

Two call playback sites were conducted in the survey area. Species detected through these surveys were: Yellow-bellied Glider\* (2), Sooty Owl\* (2) and Powerful Owl\*. These records confirm the presence of Sooty Owl indicated by previous records, even in this relatively dry forest type.

#### FROG SURVEYS

No frog surveys were carried out due to seasonal constraints. During compartment traverses some potential habitat was identified for *Mixophyes* sp. (particularly *M. balbus*) and *Philoria* sp. along Flaggy Creek, these areas are protected within Hastings River Mouse habitat reservation.

#### BAT SURVEYS

One Anabat site was monitored, though no bats were detected. No harp trapping was conducted due to seasonal constraints. Protection of the riparian zones through Hastings River Mouse habitat reservation will protect the most likely flyways for threatened bat species.

#### DIURNAL BIRDS

Diurnal bird surveys were conducted on 3 and 4 June by R. Kooyman. No threatened diurnal bird species were detected throughout surveys. It is interesting to note the presence of Superb Lyrebird in this area, as there is a previous record of Albert's Lyrebird several kilometres to the south-west of the survey area. This record may be erroneous.

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#### **OTHER**

A Scat/Track Traverse was conducted and three predator scats were collected. These have been sent to B. Triggs for identification. Eastern Grey Kangaroo scats were also detected.

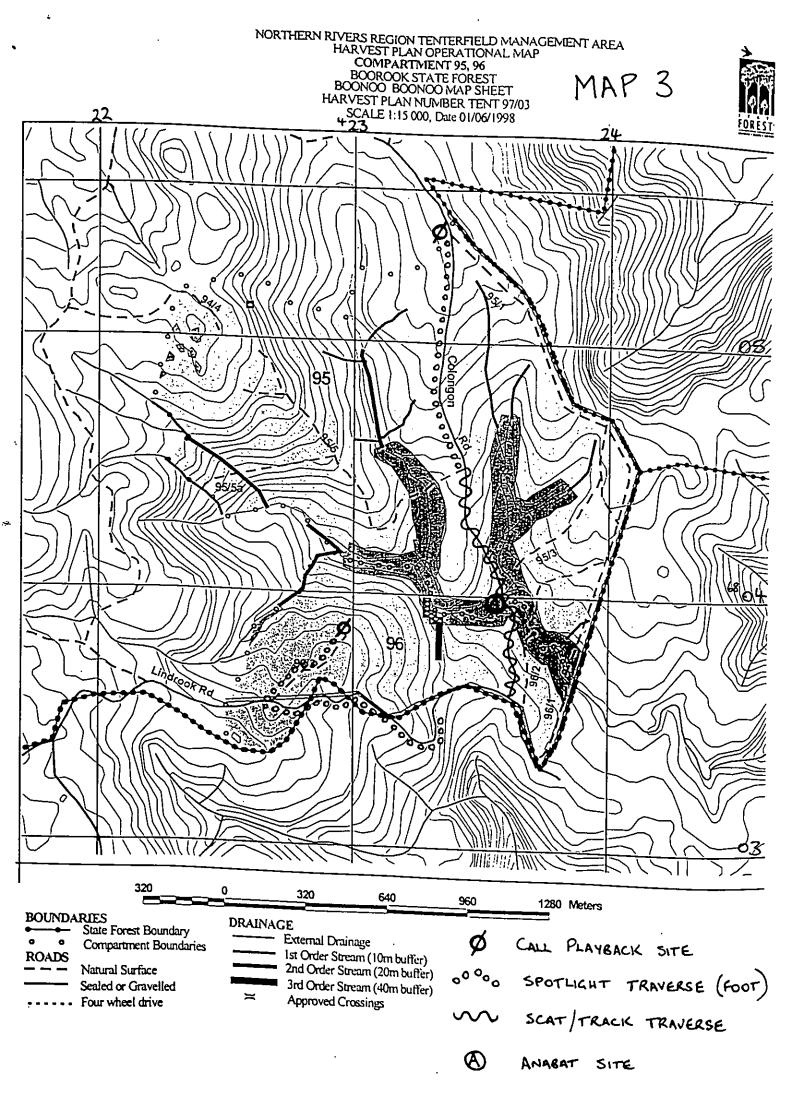
#### Brush-tailed Rock Wallaby

Brush-tailed Rock Wallaby was detected through an incidental sighting approximately 1km north of the compartments on 4/6/98 along Colongon Road by R. Kooyman. This species was not detected throughout surveys and is unlikely to occur in the survey area however, due to a lack of critical habitat components noted throughout compartment traverse surveys.

<sup>\*</sup>Indicates a threatened species or fauna feature pertaining to threatened species under the TSC act.

Attachments:	1. Map 1 showing flora survey by D. Binns (1:25000 F.T.).
	2. Map 2 showing traverses by R. Kooyman (1:15000).
	3. Map 3 showing survey locations (1:15000).
	4. Map 4 showing threatened fauna locations (1:15000).
· ·	5. Flora survey report by D. Binns.
·	6. Datasheets and field notes.

NORTHERN RIVERS REGION TENTERFIELD MANAGEMENT AREA HARVEST PLAN OPERATIONAL MAP COMPARTMENT 95, 96 BOOROOK STATE FOREST BOONOO BOONOO MAP SHEET MAP 2 HARVEST PLAN NUMBER TENT 97/03 4 SCALE 1:15 000, Date 01/06/1998 320 640 960 1280 Meters **BOUNDARIES** DRAINAGE State Forest Boundary External Drainage Compartment Boundaries 1st Order Stream (10m buffer) THREATENED FAUNA **ROADS** 2nd Order Stream (20m buffer) Natural Surface FEATURES TRAVEASE 3rd Order Stream (40m buffer) Sealed or Gravelled Approved Crossings Four wheel drive BY R. KOOYMAN

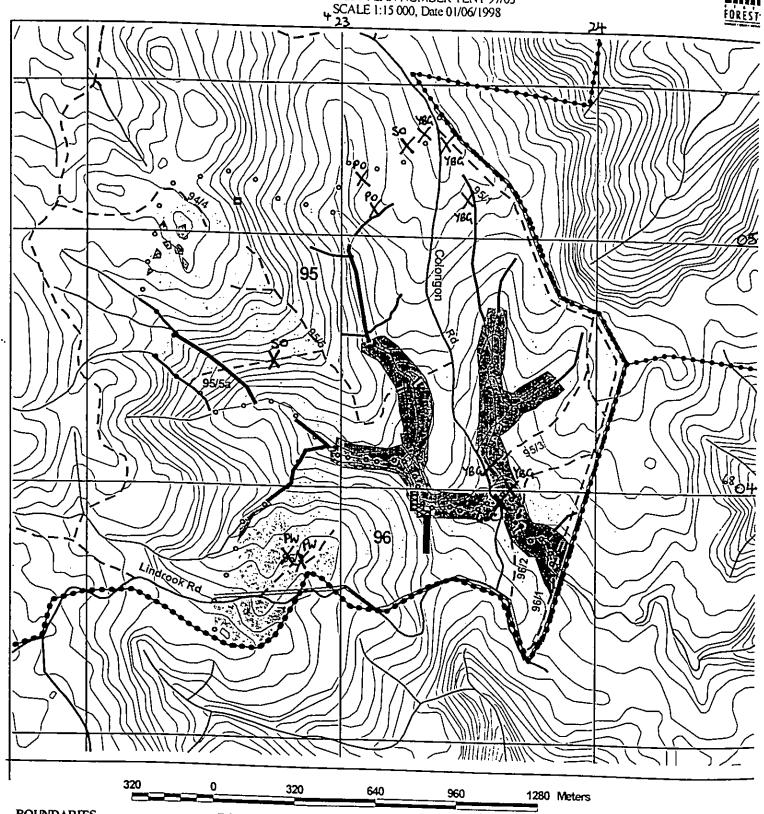


NORTHERN RIVERS REGION TENTERFIELD MANAGEMENT AREA HARVEST PLAN OPERATIONAL MAP COMPARTMENT 95, 96

BOOROOK STATE FOREST BOONOO BOONOO MAP SHEET HARVEST PLAN NUMBER TENT 97/03

MAP 4





#### **BOUNDARIES** DRAINAGE State Forest Boundary External Drainage Compartment Boundaries 1st Order Stream (10m buffer) **ROADS** XYBG 2nd Order Stream (20m buffer) Natural Surface 3rd Order Stream (40m buffer) Sealed or Gravelled X so Approved Crossings --- Four wheel drive

YELLOW-BELLIED GLIDER SOOTY OWL X PO POWERFUL OWL X PW PARMA WALLABY X ra.

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### FLORA TRAVERSE CPTS 95, 96 BOOROOK SF.

#### Methods

Flora traverses were conducted in compartments 95 and 96 in Boorook SF on 25-26 May 1998, in accordance with the current Survey Protocol. Data sheets and a map showing traverse routes are attached. A summary of traverse details is as follows:

Total traverse length:

Traverse length per 200 ha:

Net total traverse duration:

Net traverse duration per 200 ha:

7.7 hrs

#### General description

The area is uniformly open forest on coarse, sandy soils derived from coarse-grained granite. Eucalyptus campanulata is dominant throughout most of the forest. The main associated canopy species are E. cameronii (areas mapped as forest type 122, some parts of type 170), E. saligna, E. brunnea and E. microcorys. The latter three occur mainly on sheltered or lower slopes, often in areas mapped as type 55. Forest type 46 is mostly an equal mixture of E. saligna and E. campanulata. Lophostemon confertus is common in gullies and on sheltered lower slopes. E. scias subsp. apoda occurs scattered throughout the area at low density. A predominantly low shrubby understorey occurs on ridges and exposed slopes, the most common species being Podolobium ilicifolium, Acacia falciformis, Leucopogon lanceolatus, Acrotriche aggregata, Imperata cylindrica and Themeda australis. On more sheltered slopes the understorey is variously dominated by Calochlaena dubia, Poa sieberiana, Sorghum leiocladum and Blechnum cartilagineum, with patches of Acacia maidenii, A. irrorata and Trochocarpa laurina. There are small localised patches of Acmena smithii and Trochocarpa laurina in the most sheltered gullies. A partial floristic list for the area is attached.

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### Threatened or significant flora species

No threatened or significant flora species were recorded.

Doug Binns Flora Ecologist 26 May 1998



## FLORA TRAVERSE SURVEY- NATIVE FORESTS DIVISION

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## FLORA TRAVERSE SURVEY- NATIVE FORESTS DIVISION

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Bootook SF. Carte 95/96. Robert Konyman Carno Office: meeting win Bob Williams, Kente, & Farme Team. Travel Carno to Boaresh S.F. Sisopen. 6:00 pm -: Farme Survey - (wit Nicole Harvey) Planyback site 1. - P.O. - no response YBG - no response M.O. - no response S.O. - calling Coopenhale required). Playback 3+2 2 - P.O. - 30 mi after Playbook \$ P.O. Calling S. (ev).
M.O. - no response S.O. - not required \* YBG" - calling downships (several grown / new, end) Walking Spothfut Transact: 2 kms... - numerous Creater Glairs (spoundin) \* - heard YBC, Broger Greier - saw (2) commen brushful possesse \* - Parna wallaloy (2) seen clearly! END 11:00 pm - Niede drove back to Tentorfield.... P.O. calling (sw) my camp. ( Kooyun & Harvey) .... Wed. In 3th 1998. Divinal bird Survey: Listering .... (10 sch. execution) of observation. MS: Superb Lyre-bil calling.... (Albert Lyre-bil record is probably erroreour! NAVS dela? restant raisforms / most form / gramy form. Fr. 47 alig. Ft. 163 ale. Very never to non-dependence on rainforms are wrong, and do not coult the species is there scenarios.... ... of. Broder SP, Europer (NH) Sp, Borrook SF are..... \* Fame Features / Habitat Travere (8hm). Entempre quesqui (cosete area ... new matages)....
looks like yood Mizephyer ballus habitest (5yn. Girard 5.F. near ineir, Lonnaden by Bolis etc.). Drown sp. (spanes). (compan). Herostylis = p. (Notice, and ber show... Blue-gum in bud ..... letan ... critical feeding resource - YEG \* RETAIN Barkin integrifolic.

Diwrad Bird -: 5:00pm - 5:30pm. listen/observations ... no selv. specier. Thurs. June 47, 1998: Divisal Bird Sway - 7--8-Fama featres draverse -: (8-11-). 34. (su maps) Travel: \* Rock Wollday - Polesyde pericellete .... whin I km of Cays. Bombay ....? Travel to Beauty SF. Curpt. 70 need up win Bill Chapman et al.



## INTEGRATED ASSESSMENT- SAMPLE REGION

IANAGEMENT	ROBERT KOOYMAN	DATE /	148	START TIME	5130	REGION CODE NA	
TATE FOREST	eziew.	BEARING		TRANSECT LENGTH	<b>ዩ</b> ኒ	CHANSECT	0/
:2	` <u> </u>	COMPT	***************	****************************	STING	NUMBER	, 0,
OCATION DET	LOOK S.F.  AILS SURVEY NAME Farm F	96/	95	1 1 1	RTHING	**************	
mpt. 9	Faun F	- 'a a\	<del></del>		***********************	***************************************	
A) THREATE	NED FLORA - OBSERVATION	eatures	- Cana	ects -	Cars. Sa	J. Prot	
PECIES SEAR	HED FOR:	42					
	<del></del>			<del></del>			
RANSECT	FLORA	NUMBER	R AREA		<del></del> _		
ISTANCE	SPECIES	1,0111001	SIZE	2100	SITE DESCRIPT	ION	MAP
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	non detected						
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) THREATE	NED FAUNA - SIGHTING OR FEAT		<u> </u>		•		
ANSECT S	PECIES OR FEATURE						
1	YPE	NUMBER	SITE DESCR	RIPTION			
			(MICROHAB	ITAT)			MAP NOTED?
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REATENED S	PECIES FEATURES	<u> </u>					
DIURNAL BIR	O sep.	•			<del></del>		<del></del>
TIGER GUOL	L LATRINE AND DEN SITES	<del></del>	•	DIURNAL BIRD S	pp		
OWI STRATS	S & ROOSTS OF LARGE BIRDS, (RAP	TORS &	:	DISTINCTIVE SO	S & DISUSED MIN	ES	1
O(1,CO) D(1)	& HOLLOW DEPENDENT SPECIES CK COCKATOO, ALBERTS LYREBIRD		•	BRUSH-TAILED F	ATS (TIQU, KOAL,	& .	İ
BOSH INICK	-VINEE WESTS	8	•	PERMANENT SO	AKS AND SEEPAC	ES	·
OWL PELLET	S (& WHITE WASH)		•	YEBG V-NOTCH	TREES	- <b></b>	1
<b>GENERAL</b>	COMMENTS & ARCHAES	GICAL ACT					
CORD FEATU		RATA OP SOO	EFACTS				
	BSERVATION OF	OR FUR	COLLITPE, R	CCKY OUTCROPS	ETC.		
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### INTEGRATED ASSESSMENT- SAMPLE REGION

MANAGEMEN	ROSEAT KOOYMANI ITAREA Interficial	DATE 4/6	198	START TIME	llan	REGION CODE NH. C	
0 VA-	1 entertial d	111111111111111111111111111111111111111		TRANSECT		TRANSECT	vera
STATE FORE	ST C	BEARING COMPT		LENGTH	<u> څ</u> لو	TRANSECT NUMBER	of
Book	ook SP	a-	•	START EASTIN	J	*************************	
I OCATIONI DI	ETAILS SURVEY NAME		ال، دسم	START EASTIN	NG		*************
<u>ر</u> م	יף. או העופר נ		ea me	Transect.	_	S 0	************
INI TUKEN	TENED FLORA - OBSERVATION	VS .		· II am sect.	Cane	. Swu. Prot.	
artules ser	RCHED FOR:						
TRANSECT	5,00		•				
DISTANCE	FLORA SPECIES	NUMBER	AREA	St	E DESCRIPT	ION	
	G. Coles		SIZE	&/OR EVID	ENCE OF DIS	TURBANCE	MAF
		į					NOTE
	non detected						
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<u> </u>	<u>L</u> _		-				
B) THREA	TENED FAUNA - SIGHTING OR FEA	TI IDC#	<u>:</u>	<del></del>		<del></del> _	
IVINGEOI	arecies OK FEATURE	NUMBER	SITE DECO	NOTICE .			
ISTANCE	TYPE	110111021	(MICROHAS	OPTION ITATI			MAP
	Possible Rugan Bellang Scals.		<u> </u>	······································		·	NOTE
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	infrom Compt. 97. Brown	احتلاطاله	له ساطله	Seen .			<u>:</u>
	י טי בטובט רבאו טאבא	<del></del> -		1-			
DIURNAL	BIRO spp.			DIURNAL BIRO spp	••	·	
NESTS D	OLL LATRINE AND DEN SITES		•	CAVES, TUNNELS & I	NSUSED MAN	<u> </u>	
0110010	ENS & ROOSTS OF LARGE BIRDS, (RAP LTS, & HOLLOW DEPENDENT SPECIES		•	DISTINCTIVE SCATS	TIQU KOAL	ES & √	
GLOSSY E	ILACK COCKATOO, ALBERTS I VOCIDIO	١ ٥	•	BRUSH-TAILED ROCI	WALLARY	A C	. 📞
ותו הנטם	CV-VNEE NE212	, a	•	CHANNIAGIAL 204K2	AND SEEPAC	iES	٠١٠
OWL PELL	ETS (& WHITE WASH)		•	YEBG V-NOTCH' TRE	ES		
) GENER	AL COMMENTS* & ARCHAEOLO	GICAL ART	EFACTS				
ECORO FEA	The second of th	TRATA OR FOR	EST TYPE S	OCKY OUTGOODS			
VANSECT STANCE	OBSERVATION OF		<u> , , , , , , , , , , , , , , , , , ,</u>	OUTCROPS ET			
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## CALL PLAYBACK - NORTHERN RIVERS REGION

STATE FOREST ()				·
00051115110)	SOOK SK	M.A. Glen Innes	COMPT. 95	· r
	LH	DATE FROM 28-5.48 DATE TO	REGION 11.61	<b>-</b>   ⋅
SURVEY NAME Pre-	sarvest	Part of Spotlight Transect ? YES/N	CODE 461	
DETECTION METHOD(S)	©arboreal mammals	🖸 diurnal birds	<del></del>	<b>]</b> ;
	S nocturnal birds	Coloniat olio?	□ other	٦
Species Targeted	C nocidinal dires	<del>-</del>		
OUTE(C) ALIO	Facility 1	Calls Play	ed Po, so Mo (986) (Only	Jeo . Mas
COORDINATES	Easting 423360	) Malaa		P.O. + M.O. )
BROAD HABITAT TYPE	Northing 680 <b>6 #</b> 50	<b>.</b>		
(1 only)	Rainforest	Sclerophyll	Woodland before playfour be	eyen.
	Subtropical	Wet Sclerophyll	Shrub Woodland	1
	Dry 🗆	Dry Sclerophyll	Healh Woodland	
EODEST TYPE NUMBERIA	Temperate	Swamp Sclerophyll		
FOREST TYPE NUMBER(S)	<del>-</del>	·	<del>-</del>	
LOCATION DESCRIPTION	on Colongon Rd 1	Lom before intersect	with you've Rd.	
		, - , <b>3 25</b> ,	Total C Mac.	
CENSUS 1	Start Time: 5.30 pm	Finish Time: 7 pm		_
WEATHER	Temperature 14°C	~ <del></del>	Total Travel Time / Kr 10 mins	1
Wind (1 only for all)	B∕calm	Relative Humidity 50 %	Time 6 30 81 pm	7 .
	☐ light - leaves rustle		e - moves branches	7
Rain .	☐ rain during survey	10/s I	impedes progress ince of rain in the last 24 hrs	_
Night light	evidence of rain in last 24 t	ns	ince of fain in the last 24 hrs	·
Might hight	Very dark - no moon+cloud	☐ detail se	en - moon and clear sky	-
CENSUS 2	☐ dark - quarter moon or moo	in with heavy cloud	half moon or more and no cloud	
WEATHER	Start Time: 7:20 pm.	Finish Time: 8:00 pm.	Total Travel Time . 40 min	- × 4
Wind (1 only for all)	Temperature 15.5°C	Relative Humidity 90%	Time 6:40 ±31/pm	g Kooy s
Trind (1 diny lot an)	Ø calm □ light - leaves rustle	□ moderat	e - moves branches	- ار د <u>و</u> ري
Rain	O rain during survey	🔾 stronģ -	impedės progress	) § ē
· · · · · · · · · · · · · · · · · · ·	Exercise of rain in last 24 h	□ no evide	ence of rain in the last 24 hrs	1/2/7/2
Night light	□ very dark - no moon+cloud	C Lun		1 5 26
ODCEDVATION DETAIL	☑ dark - quarter moon or moo	E decial 36	en - moon and clear sky half moon or more and no cloud	) # \$ E
DATE CENSUS SPECIES	5		Hair Moon of More and no cloud	1) of the state of
Differences of Species	OBS. COUNT	RESPONSE (ESTIMATE)	NOTES (appearance, sex, note if count	- تت
NO.	TYPE	DISTANCE REARING	an estimate, AMG of S1 or S2)	
AL	Heard	BEARING		
28.5 1 486	call 71	50m (+1) 20m 190°	Heard call in listening-time	423350 €
28.5 1 Soot	Heard		before plantacks began + other	6805440 ~
28.5 1 Scot	lowl call 1	80m(+1)20m 190°	Head derectly after	1
2-6 2 YBG	Heard >1	and 250 m	14 cd -412- 0- 0	4234205
	11	180-180	+ onwards	0404 F200 5 F34 300 5 (5023204
2-6. 2 Fourt	ul Out Cau I	400~ (+1) Som 220°	Heard after M.D	4231202
			Playback	68 051004
<u> </u>		(+/-)		1
.		(+ <i>i</i> -)		4
		(27)		
	<u>.</u>	(+/-)		-
-	<del></del>		<del></del>	
		(+1-)		1
PAGE of	. SKETCH MAP OVER	A = 0.000	<u> </u>	



## CALL PLAYBACK - NORTHERN RIVERS REGION

STATE FOREST BOO	ROOK	MA T. I. C	
OBSERVER(S)		M.A. Tenterfield  DATE FROM 28-5-98	COMPT. 96
N. Hanicy, K. I SURVEY NAME	fludson	DATE TO 2-6-48	REGION CODE 461
	·	Part of Spotlight Transect ? ** INC	specify
DETECTION METHOD(S)	@ arboreal mammals	☐ diurnal birds	☐ other
<u></u>	Moclumal birds		
Species Targeled		Celle Dieses	80 MO SO = 300
SITE(S) - AMG Site. 2	Easting 4 22 950		PO. M.O. S.O. 738/5/48
COORDINATES Zone .	Northing 68 03 820		s.o. was resorded in the area on 28/5/48 so was
BROAD HABITAT TYPE	Rainforest	Sclerophyll	Woodland
(1 only)	Subtropical	Wel Sclerophyll	Ch-3-10. n
	Dry 🗀	Dry Scierophyli 😿	11 31 314 11 1
	Temperate	Swamp Sclerophyll	
FOREST TYPE NUMBER(S)		- want calcrophysis	I all Woodland
LOCATION DESCRIPTION	This site is local	ted at the northern er	nd of Road 96/3.
CENSUS 1	Start Time: 7:30pm	Finish Time: 8:15 P~	Total Travel T
WEATHER	Temperature 12°C	Relative Humidity	Total Travel Time 45 min.
Wind (1 only for all)	☑ calm		Time 8:10 am 1 pm
	☐ light - leaves rustle		- moves branches
Rain	O rain during survey	Ezno ovidos	npedes progress ce of rain in the last 24 hrs
Night light	evidence of rain in last 24 h	ırs	ce of fair in the last 24 MS
Might light.	very dark - no moon+cloud	C octan sec	n - moon and clear sky
CENSUS 2	Modark - quarter moon or mod	in with heavy cloud	alf moon or more and no cloud
WEATHER	Start Time: 6:00pm.	Finish Time: 6:40pm	Total Travel Time . 40 min .
	Temperature 15.5/14.5	Relative Humidity 90%	Time 6:40 29 / pm
Wind (1 only for all)	& caim		- moves branches
Rain	☐ light - leaves rustle ☐ rain during survey	🖸 strong - in	npedes progress
	E evidence of rain in last 24 h	🗆 no eviden	ce of rain in the last 24 hrs
Night light	U very dark - no moon+cloud		
	🗹 dark - quarter moon or moo	C) Acten 366	n - moon and clear sky
OBSERVATION DETAIL	<u>5</u>	B blight if	alf moon or more and no cloud
DATE CENSUS SPECIES	OBS. COUNT	RESPONSE (ESTIMATE)	NOTES (appearance, sex, note if count
NO.	TYPE	DISTANCE BEARING	an estimate, AMG of S1 or S2)
28/5   Nil Res	sponse.	(+1-)	
2/6 2 Sonly		(+1-)	4. 22 750 E 68 04 500 M
		(+/-)	
	·	(+/-)	· · · · · · · · · · · · · · · · · · ·
		(+/-)	
		(+i-)	
		(+/-)	
		1.10	
		(+/-)	

by a Kovyman + N. Harvey 2/6/48.



## SPOTLIGHT TRANSECT - NORTHERN RIVERS REGION

OBSERVER(S)	look st	M.A. Glen	logies	<del></del>	COMPT. 95 .	·		
· ND	_RH	I DATE PROM 3	8.5	48	REGION	···		
SURVEY NAME Pre	harvest	NUMBER OF TR	ANCECTO	<del></del>	CODE 461			
DETECTION METHOD(S)	O vehicular transect			1 (>	x x Nichts)			
•	1	Census No(s)		les:	0 /			
Species Targetted 011	Ø loot transect	Census No(s)/ r	ፈ.					
[7]]						·		
TRANSECT DETAILS	Location Description Qi	C 1				<del></del>		
Total Distance	Location Description Ale	تامعرت سيخرن	on Rd	, 10r	Ikm while where			
AMG Start	Easting 423 \$50	4-						
COORDINATES	2 050	***************************************	Fini	ish	Easting 423 450	5		
BROAD HABITAT TYPE	Rainforest				Northing 68044	SO		
•	☐ Subtropical	Scierophyll  Wet Scierophy	 11	*************	Woodland .	<del></del>		
	□ Dry	Gry Scierophy	li I		☐ Shrub Woodland	,		
FOREST TYPE NUMBER(S)	O Temperale	☐ Swamp Sclero	, phyli		☐ Heath Woodland ☐ Tall Woodland	,		
					- C 1 as 7700diatio	*****************		
CENSUS 1				<del></del>	·	<del></del>		
TIME	Start Time 7-20ew	Finish Time	70		I Talai Talai			
WEATHER	Temperature 13°C	Relative Humidity		<u>M</u>	Total Travel Time 1 Lr 10	inins		
Wind	C calm	Treasure Hamilton	<u> </u>	<u>b</u>	june <i>†</i> amer/pm			
<del></del>	O light - leaves rustle		U n	loderale	- moves branches			
Rain	C) rain during survey		☐ strong - impedes progress ☐ strong - impedes progress					
Night light	evidence of rain in last 24 h	rs	<u> </u>	o chacil	ce of fairf in the last 24 hrs	• 1		
· ···g····	Dery dark - no moon+cloud		Od	elail seer	n - moon and clear sky	<del></del>		
☐ dark - quarter moon or moon with CENSUS 2			D b	right - ha	alf moon or more and no cloud	·   .		
TIME	Clad Ti-	<u></u>				<del></del>		
WEATHER	Start Time 8:05 pm	Finish Time 8:	D PML.		Total Travel Time 45 mic	R. Kopyman M. Harvey		
Wind	Temperature 15.5 -C	Relative Humidity	90%		Time 6:40 am / pm	·····································		
TTILC	Y calm				- moves branches			
Rain	O light - leaves rustle O rain during survey	_ <del></del>	O si	trong - im	pedes progress	16 \$		
	evidence of rain in last 24 h	<b>.</b>	□ ne	o evidenc	ce of rain in the last 24 hrs	·		
Night light	O very dark - no moon+cloud	<u> </u>				9		
000000471040	図dark - quarter moon or moon	n with <del>heavy</del> daud	LJ di	elail seer	1 - moon and clear sky	<del></del>  }		
OBSERVATIONS DIST. TRANS. SPECIES				igit - na	alf moon or more and no cloud	//		
NO.		OBS. TYPE	DIST. from	Count	NOTES (AMGs for S1&S2 spp, count is an estimate)	note if		
(m)	1 1		TRANS		oout is all estilliate)			
COn 1 GN	enter alider	sight	10m	lι	417760			
mon I a Sugar	/\	Heard		├	423340 € 680	W D3840		
p sigar	Glider	Cail	80m	$\mid \iota \mid$				
250m 1 R Commo	n Brushtail							
	Glider		\$ 30m	2				
100m 1 8 010cm	* Ghaer	souka	30~	之	4 23 350	Ε		
BOMIR Great	ur Glider	Sighta	1 5 -		68 05 020	N		
	<del></del>	- 30.42	" 20 m.	<u> </u>	68 04 700	E		
	< Güder			1.	All GG have been	<del></del>		
300m 1 2 Greate	C. acte.	1.	1.10		- 1,.01 057	il 14.97.40		
300m 1 x Greater			₹0		NER 10 100	680465		

1000m 1 R Greater Glider

SPOTLIGHT



## SPOTLIGHT TRANSECT - NORTHERN RIVERS REGION

STATE FOREST BOO			
	ROOK	MA T	201107
OBSERVER(S) N. Havey		MA. TENTERPIELD  DATE FROM 28-5-98	COMPT. 96
SURVEY NAME	K. Hudson.	LUATE TO	REGION CODE 46/
DETECTION METHOD(S)		NUMBER OF TRANSECTS 1 (	(x2 nights).
	O vehicular transect	Census No(s) Notes:	The Cosis 2 descend
	☑ foot transect	,	the finish coordinates and
Species Targetted Ail	<del></del>		continued through to playback sit
TRANSECT DETAILS	Location Description Ale		
Total Distance 1000 ~			Lindbrook Rd from
AMG Start	Faction Flaciba		
COORDINATES	······································	Finish	Easting 4 23 250
BROAD HABITAT TYPE	Northing 68 03 82		Northing 68 03 500
	Rainforest  Subtropical	Scierophyli	Woodland
	O Dry	☐ Wet Sclerophyll	☐ Shrub Woodland
	☐ Temperate	☑Dry Scierophyll ☐ Swamp Scierophyll	☐ Heath Woodland
FOREST TYPE NUMBER(S)			☐ Tall Woodland
CENSUS 1		<u> </u>	
TIME	Start Time (15	Finish Time 7:25	
WEATHER	Start Time 6:15pm Temperature 10°C	<del></del>	Total Travel Time 1h 10 min.
Wind	© calm	Relative Humidity	Time 6:00-es / pm
·	☐ light - leaves rustle	□ moder	rale - moves branches
Rain	☐ rain during survey	~/ <del>~</del> /	- impedes progress
Night light	Devidence of rain in last 24 h	li S	dence of rain in the last 24 hrs
inga ngu	O very dark - no moon+cloud	O detail	seen - moon and clear sky
CENSUS 2	☑ dark - quarter moon or moon	n with heavy cloud	- half moon or more and no cloud
TIME	Clad 7:	<u> ·</u>	
WEATHER	Start Time 8:55pm	Finish Time 9:50 pm.	Total Travel Time 55 134.0
Wind	Temperature 15.5 °C	Relative Humidity 90%	Time 6:40 ams/pm
Tring	☑ calm □ light - leaves rustle	☐ moder	rate - moves branches
Rain	O rain during survey	🗆 strong	- impedes progress
Literit		☐ no evi	dence of rain in the last 24 hrs
	evidence of rain in last 24 h	rs	21 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Night light	evidence of rain in last 24 h		
Night light	evidence of rain in last 24 h	□ detail:	seen - moon and clear sky
	evidence of rain in last 24 h	□ detail : n with heavy cloud □ bright	
Night light	evidence of rain in last 24 h	n with heavy cloud ☐ bright  OBS. DIST.   Co	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 soo, note if
Night light  OBSERVATIONS  DIST. TRANS. SPECIES	evidence of rain in last 24 h	□ detail : n with heavy cloud □ bright	seen - moon and clear sky - half moon or more and no cloud
OBSERVATIONS DIST. TRANS. SPECIES NO.	☑ evidence of rain in last 24 h ☐ very dark - no moon+cloud ☑ dark - quarter moon or moon	OBS. DIST. Control of the street of the stre	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 spp, note if count is an estimate)
Night light  OBSERVATIONS  DIST. TRANS. SPECIES  NO. Suga	Sevidence of rain in last 24 h.  □ very dark - no moon+cloud  Sdark - quarter moon or moon  Colorer	n with heavy cloud ☐ bright  OBS. DIST. Co TYPE from TRANS	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 spp, note if count is an estimate)
Night light  OBSERVATIONS  DIST. TRANS. SPECIES  NO.  Om 1 Suga	Øevidence of rain in last 24 h. ☐ very dark - no moon+cloud Ødark - quarter moon or moon	OBS. DIST. Confirm TRANS  Heard Calling. Som. I	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 spp, note if count is an estimate)
Night light  OBSERVATIONS  DIST. TRANS. SPECIES NO.  Om 1 Suga	Sevidence of rain in last 24 h.  □ very dark - no moon+cloud  Sdark - quarter moon or moon  Collider  Her Glider	OBS. DIST. Con TRANS  Heard Calling. Som. I	seen - moon and clear sky - half moon or more and no cloud  punt NOTES (AMGs for S1&S2 spp, note if count is an estimate)
Night light  OBSERVATIONS  DIST. TRANS. SPECIES  NO.  Om 1 Suga  500m 1 Great	Sevidence of rain in last 24 h.  □ very dark - no moon+cloud  Sdark - quarter moon or moon  Colorer	OBS. DIST. TYPE from TRANS  Heard calling. Dm. 1  Observed from. 1	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 spp, note if count is an estimate)  4 23 880 E 68 03 560 N
Night light  OBSERVATIONS DIST. TRANS. SPECIES NO.  Om 1 Suga  SOOm 1 Great	Sevidence of rain in last 24 h.  very dark - no moon+cloud Sdark - quarter moon or moon  Collider  Fer Glider	OBS. DIST. Control TRANS  Heard calling. Som. I observed som. I	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 spp, note if count is an estimate)  4 23 880 E 63 03 560 N
Night light  OBSERVATIONS DIST. TRANS. SPECIES NO.  Om 1 Suga  SOOm 1 Great	Sevidence of rain in last 24 h.  very dark - no moon+cloud Sdark - quarter moon or moon  Collider  Fer Glider	OBS. DIST. Control TRANS  Heard calling. Som. I observed som. I	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 spp, note if count is an estimate)  422 880 E 63 03 560 N  Held in spotlight
Night light  OBSERVATIONS DIST. TRANS. SPECIES NO.  Om 1 Suga  SOOm 1 Great	Sevidence of rain in last 24 h.  very dark - no moon+cloud Sdark - quarter moon or moon  Collider  Fer Glider	OBS. DIST. TYPE from TRANS  Heard calling. Som. I observed som. I signified 40m. I	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 spp, note if count is an estimate)  + 22 880 E 63 03 560 N  Held in spotlight
Night light  OBSERVATIONS DIST. TRANS. SPECIES NO.  Om I Suga  SOOm I Great  SOOm I Rooka  BSCM I Parms	Sevidence of rain in last 24 h.  □ very dark - no moon+cloud  Sdark - quarter moon or moon  Collider  Her Glider	OBS. DIST. Control TRANS  Heard calling. Som. I observed som. I	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 spp, note if count is an estimate)  422 880 E 63 03 560 N  Held in spotlight
Night light  OBSERVATIONS DIST. TRANS. SPECIES NO.  Om 1 Suga  SOOm 1 Great	Sevidence of rain in last 24 h.  very dark - no moon+cloud Sdark - quarter moon or moon  Collider  Fer Glider	OBS. DIST. TYPE from TRANS  Heard calling. Som. I observed som. I signified 40m. I	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 spp, note if count is an estimate)  + 22 880 E 63 03 560 N  Held in spotlight
Night light  OBSERVATIONS DIST. TRANS. SPECIES NO.  Om I Suga  SOOm I Great  SOOm I Rooka  BSCM I Parms	Sevidence of rain in last 24 h.  very dark - no moon+cloud Sdark - quarter moon or moon  Collider  Fer Glider	OBS. DIST. TYPE from TRANS  Heard calling. Som. I observed som. I signified 40m. I	seen - moon and clear sky - half moon or more and no cloud  ount NOTES (AMGs for S1&S2 spp, note if count is an estimate)  + 22 880 E 63 03 560 N  Held in spotlight



#### SCATS - NORTHERN RIVERS REGION

STATE FORES		DORCOW SF		M.A. GLG		COURT		
OBSERVER(S)	<u>K</u>	NP		DATE 28.	NNIS CO	COMPT. 95/96		
SURVEY NAME		e-harvest		2,115 0 0 0	5.78	REGION CODE 461		
DETECTION M	ETHOD(	(S) 1 Km road transect per 200	) ha net loce	las are		TRANSECT LENGTH 1 km		
BROAD HABITA	AT TYPE	Rainforest	o na netiogg	Sclerophyll				
		☐ Subtropical		☐ Wet Sclerophy		Woodland		
	□ Dry			© Ory Scierophy	rii U	☐ Shrub Woodland ☐ Healh Woodland		
FOREST TYPE	FOREST TYPE NUMBER(S)				phyll	☐ Tall Woodland		
AMG	Start							
COORDINATES		CACKE 6	2	Finish Eastir	0			
Location Descri		Northing 6803	100	North	ELLOS) pri	<b>L</b>		
l	• • • • • • • • • • • • • • • • • • • •	from intersect	<u> </u>	clonend	ld + Lindra	ok ld, for Ikn		
Time Start					***************************************			
SAMPLE DE	+ PM	Time Finish 4-50	MAC	Total Travel Time	e 50 mino	Species Targeted .4		
SAMPLE DE	IAILS			· · · · · · · · · · · · · · · · · · ·				
DISTANCE S	AMPLE	SPECIES	OBS	PROBABILITY	ANALYCT	ANALYSIS ATTACHED? YES I NO		
}	ID		TYPE	STATUS	ANALYST	NOTES		
			scat or in scat	1 = definite 2 = probable	_			
<del>                                     </del>			III SCAL	3 = possible				
300m /		Enclose Co	66 1					
	$\overline{\langle}$	Eastern (new Predator	scat					
350m	1/	Predator	with by	و ا	B: Triggs			
360 m (	(a)	Predation	Scal+		793			
	_	1 course	bone scat +		& Trigos			
360~ (	3)	Tredator.	bone	. 1	RAS			
					12/11/43			
	<del></del>		11.			·		
950m.	/	GBC	Heard call:			4 23 600		
			CO-11 -			68 03 960		
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SKETCH MAP (IN	ACLUDE I	DRAINAGE BOARS 411-	<u> </u>					
NORTH		DRAINAGE, ROADS AND TRACKS	, DISTANCE	S, BEARINGS)				
[TOP]								
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## BAT SURVEY- NORTHERN RIVERS REGION

OBSERVER(S)					MA. TENTERFIELD COMPT. 95./96						
Al Harvey. K. Hudo.				1 2015 LKOW 73 - 2 - 05					REGION 95./96.		
SURVEY NAME				DATE TO " "				i lic	CODE 461		
DETECTION METHOD(S) · harp trap					NO. OF CENSUS NIGHTS /						
					a lefa Barra						
• bat sonar				- mist net				• observed			
AMG				<del></del>				- other			
COORDINATES   Easting 4 23 600   Northing 68 03 960				SPECIES TARGETED							
BROAD HABITAT TYPE	Pointing 68	03 960	_							• •	
	rainiolesi			Sclerophyll - Woodland							
	Subtropical     Dry		1	Wet Sclerophyll					- Shrub Woodland		
*		. (	Dry Sclerophyll				- H	- Heath Woodland			
FOREST TYPE NUMBER(S)				- Swamp Sclerophyll				Tall Woodland			
LOCATION DESCRIPTION	Col										
***************************************	Set up o	1 CNER	k c	105.	rina	ala		<u> </u>			
NEATUED Issues 4 : 1						7-6-61	<u> </u>	TC0110	<u> </u>	<u>Rd</u>	
WEATHER (census = 1 night	)	Census 1	Censu	ıs 2	Census 3	C	- 4				
Date		28-5-98			CE11202 2	Censu	s 4   C	ensus 5	Census 6	Census 7	
Temperature :			<del></del>	!							
Relative Humidity .		10°C	<u> </u>								
Time Measurements Taken		B									
		6:00 pm					<del>-  -</del>		<del></del>		
Wind ((1) calm (2) fight (3) moderate (4) strong		1		$\neg \dagger$		<del></del>	<del>-                                    </del>		<u> </u>		
Rain ((1) during survey (2) evide	ince of in last 24			$\dashv$		<del></del>		<u> </u>			
hrs (3) no evidence of in last 24 hrs]		3		į	•				į		
Night light ((1) very dark (2) dark (3) detail seen (4) bright]		2		<del></del>	<del></del>	<del></del>	<del></del> -	<del></del>			
			Ì								
CAPTURE / SAMPLE D DATE   SPECIES	EIAILS			<u> </u>		<u> </u>		<del></del>	<u>:</u>	-	
		· ——	Sex	·Wex		Field	Comp	ulsanı nat	22/2-1		
	<del></del>	<u> </u>	(gm:	s) Length	No.	Cinp	a1201 À 1106	es (age, bree	ding, appearance		
28-5-98 Nil bads NB Yellou	recorde	d. ·	٠.				-				
		<del></del>		╄			L.				
NB Yellou	v-Bellie	d Gi'a		1			4 2	3 660	E\	<del></del>	
		<u>Cira</u>	10/3	┼		ļ	48 ~			AMG	
calling	during	CHEVAN	1/2:	نہا	:   -/	۱, ۸	4 23	600 6	Refe	rences.	
	<del></del>	-MC-1-39	<del>(</del>	non	Victur	<u> (214</u>	68 04	080 v	<u>, )</u> '	· · · · · · · · · · · · · · · · · · ·	
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PAGE \_\_\_ of \_\_\_\_. SKETCH MAP OVERLEAF? RES / NO

Start Time = 5130pm. Finish Time = 6:00pm