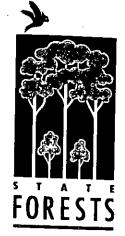
NORTHERN RIVERS REGION							
То	NESFHAB representatives:						
-	1) Georgia Beyer and Daniel Hall						
	2) Russ Ainley						
From	Mark Carron, Harvesting Advisory Board Co-ordinator						
Date	9 July 1998						
Subject	FLORA and FAUNA SURVEY REPORTS						



Attached please find a copy of pre-harvest flora and fauna surveys conducted in Glen Innes Management Area, Brother S.F., Compartments 89, 90 and 96?

Owe MASKED Regards K. Pepuensos hable ng Mark Carron DT 74a - dob.le England \a с С he scrags 20 ()() Ø (15 С cmGIMA89 MA89_90_96.doc /07/98 4:47 A7/P7

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

Prepared by: Robert Kooyman FA - Ecology 6/98

Northern Rivers REGION Glen Innes MANAGEMENT AREA STATE FOREST: **BROTHER SF** SURVEY REPORT NO:

Brothsr96 COMPARTMENT 89, 90, & 96

PART A. DESKTOP REVIEW

Date of Review: March 1998 Undertaken by: Ken McCray

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

SFNSW, application of Threatened Species Conservation Protocol Survey Design, Compartments 94 & 95, Brother SF. Report by Kooyman, 24/12/97.

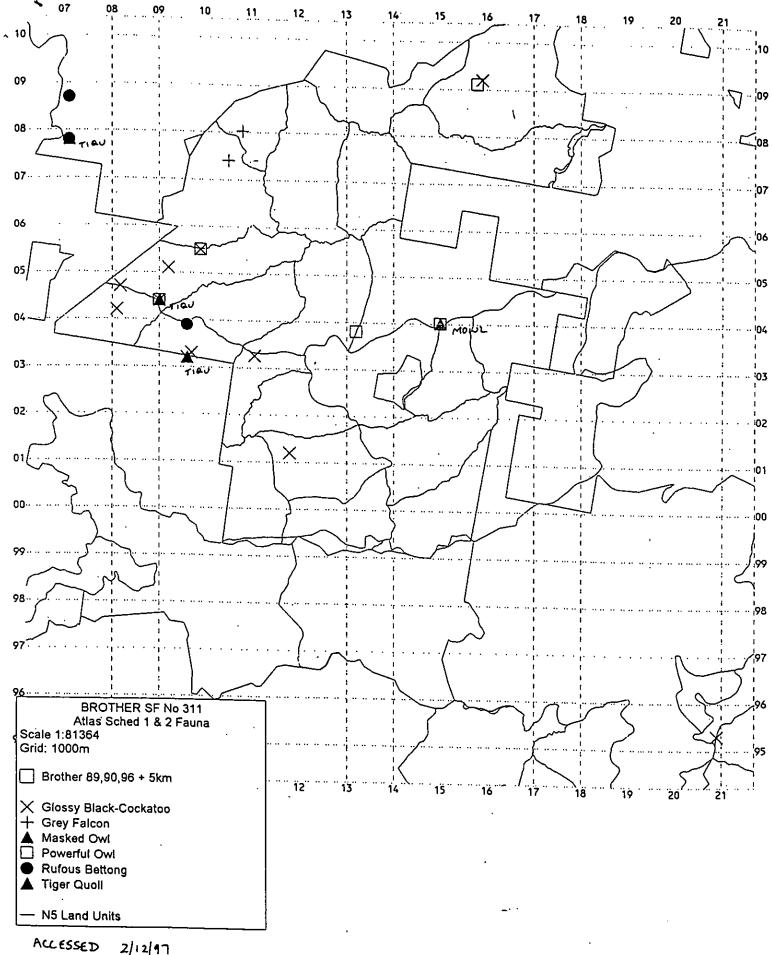
Survey Type	Source		<u> </u>	Date	Distance	Reliable
Flora	SFNSW	Cons.	Prot.	10/07		Survey
	Survey	Cons.	Prot.	12/97	Adjacent	Yes
Spotlight					(cpts 94&95)	
	SFNSW			12/97	"	Yes
Nocturnal Call Playback	SFNSW			12/97		Yes
Hairtubes	NO		<u>. </u>			res
Scat and Track	SFNSW			12/97	Adjacent	Yes
Riparian Frog	SFNSW			12/97	<u>Aujacent</u>	
Non-riparian Frog	SFNSW	· · · · · · · · · · · · · · · · · · ·			- <u> </u>	Yes
Micro Bats				12/97		Yes
	SFNSW			12/97		Yes
Small Mammals	NO					<u></u>
Diumal Birds	SFNSW			12/97	Adjacent	Var
Reptiles	SFNSW		— <u>. </u>			Yes
	L OLINO W			12/97		No

Survey results, threatened species records, maps, AMGs and species lists for the Notes: adjacent area of Brother SF are provided in the report for Brother SF, compts 94&95, by Kooyman (24/12/97). EIS survey and other incidental results are appended as sch.1&2 records from database records.

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

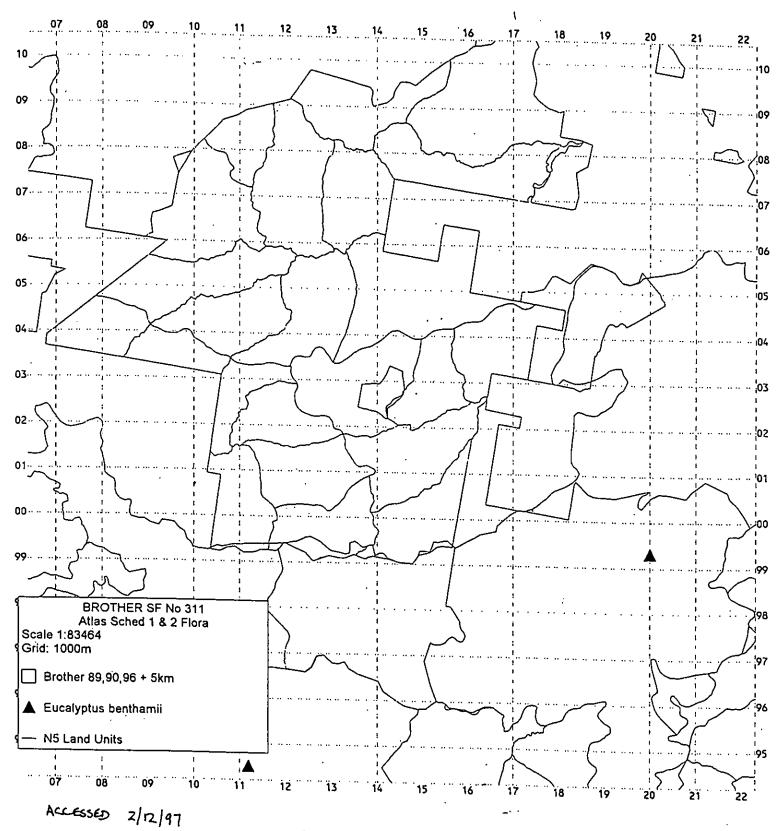
Species Name	AMGNorth	AMGEast	Date	Observation Type		Source
See below			·		Name	

Refer to appended database records and report for compartments 94/95 Brother SF. Please note the records supplied for Grey Falcon are not consistent with the EIS report by Smith et al. (1992) and may be erroneous.



2/12/97

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Fauna Data - Schedule 1 and 2 Sightings (AMGEAST >= 407000) AND (AMGEAST <=421500) AND (AMGNORTH >= 6694100) AND (AMGNORTH <= 6710500)

AMG Coordinates

FPE Environmental Database

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				Amg C	oorumate	5						•			
Source Ref	_		z	lone Ea	sting Nort	thing	Fore	st C	ot. Recorder Nam	e Scientific Name	Common Name	Location		Type Dist	tr Ref.
NP_ATLAS	SPXEID			6 40710			-	0		Aspyprymnus rufascans	Rufous Bellong	Narrow Pass Fire Trail		x	
NP_ATLAS	SPXEIOC		5				-	0		Aepyprymnus rufescens	Rufous Bettong	Narrow Pass Fire Trail		x	
NP_ATLAS	61204-H		5				-	0		Dasyurus maculatus	Tiger Quot	Mann River Nature Reserve, half way up Narrow Pass	; fire trail to (0	
NP_ATLAS	SPXERO		50					0		Dasyurus maculatus	Tiger Quoli	Narrow Pass Fire Trail		Ĥ	
NP_ATLAS	SPXEIOO		56				-	0		Dasyurus meculatus	Tiger Quoti	1.1 km south along Lands End Fire Trail from Lands Er	nd Rdilori I	н	
NP_ATLAS	SPXEIOO		56					0		Dasyurus maculatus	Tiger Quell	Narrow Pass Fire Trail			
NP_ATLAS	SPXE/00		56					0		Dasyurus maculatus	Tiger Quali	Narrow Pass Fire Trail	1	r	
NP_ATLAS	SPXE100	49581	56	5 40960	0 6703200	0 0)	0		Calyptorhynchus lathami	Glossy Black-Cockatoo	1.1 km south along Lands End Fire Trail from Lands Er	nd Rd((pri (0	
Compart	ment ID	0			Total			ł	Β ,						
Forest ID	0				Total			i	3	· · · · · · · · · · · · · · · · · · ·					
NP_ATLAS	SPXEI004		56				09	126		Falsistrellus lasmaniensis	Eastern Falsistrelle	0.4 km north along London Bridge Rd from London Brid	dae SF(boT	•	6
NP_ATLAS	SPXEIOO	68793	56	i 420900	6695300) 30	09	126		Calyptorhynchus lathami	Glossy Black-Cockatoo	FIRE DAM LONDON BRIDGE ROAD	W		Ċ
Compart	nent ID	126			Total			2	2	······································					
Forest ID	309				Total			2		· · · · · · · · · ·					
GLEEIS91	7644-8		56	410800	6708025	31	1		SMITH, Dr Andrew	Faico hypoteucos	Grey Felcon		0		2
LEEIS91	7531-8		56	415900	6709200	31	1		SMITH, Dr Andrew	Calyplorhynchus lathami	Glossy Black-Cockatoo		0		
LEEIS91	7779-8		56	408175	6704700	31	1		SMITH, Dr Andrew	Calyptorhynchus lathami	Glossy Black-Cockatoo		0		-
LEEIS91	7677-B		56	410500	6707400	31	1		SMITH, Dr Andrew	Falco hypoteucos	Grey Felcon		0		-
LEEIS91	2193		56	411050	6703250	31	1 .		SMITH, Dr Andrew	Calyptorhynchus lathami	Giossy Black-Cockatoo		F		2
Compartm	ent ID	-			Total			5	<u></u>						
IP_ATLAS	SPXER007		56	415800	6709100	31	1	75	<u> </u>	Ninox strenua	Powerful Owl	4.6 km east along Springs Road from Sleeve Rd	w		19
Compartm	ient ID	75			Total			1	•						
P_ATLAS	SPXEI0070	0637	56	409200	6705100	31	1.	82		Calyplorhynchus lathami	Glossy Black-Cockatoo	SPRINGS ROAD	. 0		17
P_ATLAS	SPXEI0075	5204	56	409900	6705500	311	1	82		Ninox strenua	Powerful Owl	1.6 km north along Springs Rd from Lands End Rd	~ w		14
P_ATLAS	SPXEI0049	9544	56	409900	6705500	311	1	82		Calyptorhynchus lathami	Glossy Black-Cockatoo	1.6 km north along Springs Rd from Lands End Rd	0		1:
ATLAS	SPXEI0076	5817	56	409000	6704400	311	1	82		Ninox strenua	Powerful Owl	300 m east of Springs Rd on Lands End Rd	w		
_ATLAS	SPXEI0073	241	56	409000	6704400	311	I	82		Dasyurus maculatus	Tiger Quoli	300 m east of Springs Rd on Lands End Rd	н	•	1
_ATLAS	SPXEI0049	620	56	409000	6704400	311		82		Catyptorhynchus lathami	Glossy Black-Cockatoo	300 m east of Springs Rd on Lands End Rd	0		10
Compartm	ent ID	82			Total			6							
ATLAS	SPXE100553	264	56	408100	6704200	311		83		Calyptorhynchus lathami	Glossy Black-Cockatoo	Approximately 300 m south-west of the junction between :	Springs ()		05-
Compartm	ent ID	83			Total			1							
_ATLAS	SPXE100704			409700	6703300	311		84		Calyptorhynchus tathami	Glossy Black-Cockatoo	LANDS END FIRE TRAIL	w		17-
_ATLAS	SPXEI00573	341	56	409600	6703900	311		84		Aepyprymnus rufescens	Rufous Bettong	Lands End Rd and Lands End Trail	X		19
Compartme	ent (D	84		•	Total		-	2	<u></u>		· · ·				
_ATLAS	92830-035			415000	6704000	311		87	-	Tylo novashollandias	Masked Owl	Brother State Forest	0		
ATLAS	61161-HO		56	413200	6703800	311		87		Ninox strenua	Powerful Owl	3km down Howitts Peak Road from intersection with Lands			01-
ATLAS	92804-035		56	415000	6704000	311		87		Ninox strenua	Powerful Owl	Brother State Forest			03-
ATLAS	92803-035		56	415000	6704000	311		87		Ninox strenua	Powerful Owl	Brother State Forest	0		01-
Compartme	ont ID	87			Total			4					<u> </u>		01-
Songarun		V 7			10(0)			4							

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Fauna Data - Schedule 1 and 2 Sightings (AMGEAST >= 407000) AND (AMGEAST <=421500) AND (AMGNORTH >= 6694100) AND (AMGNORTH <= 6710500)

Page 2

Source Ref			AMG Coordinates	orest_Cpt. Recorder Name	Scientific Name	Common Name	Location	Type D	istr Ref. D
NP_ATLAS	12227-AG	IS	56 411800 6701200 31	1 94	Calyptorhynchus lathami	Glossy Black-Cockatoo	Pilot Range Road. Brothers State Forest	0	23-
Compartm	nent ID	87	Total	1	·	<u> </u>			
Forest ID	311		Total	20	.		<u>_</u>		<u> </u>
Manageme	ent Area	22	Total	30 ·	· · · · · · · · · · · · · · · · · · ·	<u> </u>	· · · · · · · · · · · · · · · · · · ·		
District	12		Total	30		······································	· · · · · · · · · · · · · · · · · · ·		
	•			-	End Of Re	eport			

Northern Rivers Region - Threatened Species Pre-logging and Pre-roading Survey

Northern Rivers REGION GLEN INNES MANAGEMENT AREA STATE FOREST: BROTHER SF SURVEY REPORT NO: Brothsr96 COMPARTMENT 89, 90, & 96

PART B. Flora and Threatened Fauna Features Traverse

Net Area:832.5HectaresTraverse Length:16.8kilometres (route of traverses on attached map)Surveyed By:Robert KooymanDuration of Traverse:32 hrsC89 = 5.0km, C90 = 5.0km, C96 = 6.8km.

1. Conservation Protocol Appendix 1 Flora Detections

Species Name	AMGEast	AMGNth.	Locality Description ·	Date	Observers Name	Number	Count
Dodonea megazyga	415220	6701180	Cmpt 96	1/5/98	Robert Kooyman	5	approx. C

Notes: ROTAP species 3RCa. Not schedule 1 or 2.

Location of detections shown on attached map.

Threatened Flora Individuals or Populations are marked in the field.

2. Conservation Protocol Threatened Fauna Features Detected

Feature Type	Field	Marked on Map
Glossy Black Cockatoo feed sites.	yes.	yes
Wet areas, small swamps.	no	yes
Rocky outcrops	no	refer HP

Notes:

es: Extensive rocky areas, and rock outcrops not mapped?

Number of Data Sheets Attached: see field notes

Northern Rivers REGION GLEN INNES MANAGEMENT AREA STATE FOREST: BROTHER SF SURVEY REPORT NO: Brothsr96 COMPARTMENT 89, 90, & 96

PART C: TARGETED FAUNA SURVEYS

Survey Type	Previous Surveys	Survey Required
<u> </u>	(Date)	(Y/N/IP ¹)
Spotlight	12/97	Y
Nocturnal Call Playback	12/97	Y
Hairtubes	<u> </u>	IP
Scat and Track	12/97	Y
Riparian Frog	12/97	Y, IP
Non-riparian Frog	12/97	Y, IP
Micro Bats	12/97	Y, IP
Small Mammals	<u></u>	N
Diurnal Birds	12/97	Y
Reptiles	12/97	
ITD 1		

1. Assessment of Surveys Required

 $^{1}IP = implement prescription without survey where required (takes into account seasonal constraints)$

Notes: Previous surveys in cmpts. 94 & 95. Refer to Kooyman et al. 12/97 (Conservation Survey Protocol surveys).

2. Surveys Undertaken

Survey Type	Date Undertaken	Time Spent	Undertaken By
F&F integ Transect	21/4/98	2 hours	Robert Kooyman
F&F integ Transect	22/4/98	6 hours	Robert Kooyman
F&F integ Transect	28/4/98	9 hours	Robert Kooyman
F&F integ Transect	29/4/98	10 hours	Robert Kooyman
F&F integ Transect	1/5/98	5 hours	Robert Kooyman
Call Playback/listen	21/4/98 RK1	3 hours	Robert Kooyman
Call Playback/listen	27/4/98 RK2	3 hours	Robert Kooyman
Call Playback/listen	28/4/98 RK3	2 hours	Robert Kooyman
Call Playback/listen	29/4/98 RK4	3 hours 30 mins	Robert Kooyman
Call playback	19/3/98 site 1	1 hour	Harvey,K & Herklots
Call playback	21/4/98 site 1	1 hour 5 mins	Harvey,K & Herklots
Call playback	19/3/98 site 2	1 hour 15 mins	Harvey, K & Herklots
Call playback	21/4/98 site 2	1 hour	Harvey, K & Herklots
Call playback	2/6/98 site 3	45 mins	Robyn Herklots
Call playback	3/6/98 site 3	40 mins	
Call playback	3/6/98 site 4	45 mins	Robyn Herklots Douglas & Herklots

Call playback	A16100 -14 A	· · · · · · · · · · · · · · · · · · ·	
Call playback	4/6/98 site 4	40 mins	Douglas & Herklots
Spotlight - walk	21/4/98 site 5	45 mins	Noel Douglas
Spotlight – walk	27/4/98 RK2	1 hour	Robert Kooyman
	18/3/98	1 hour	Douglas & Harvey, N.
Spotlight – drive	19/3/98	1 hour	Douglas & Harvey, N.
Spotlight – drive	19/3/98	1 hour 30 mins	Herklots & Harvey,K.
Spotlight - walk	21/4/98	1 hour 45 mins	Herklots & Harvey, K.
Spotlight – walk	21/4/98	55 mins	Douglas & Harvey, N.
Spotlight – walk	3/6/98	50 mins	Douglas & Harvey,N. Douglas & Harvey,N.
Spotlight – walk	3/6/98	2 hours 10 mins	Douglas & Harvey, N. Douglas & Herklots
Spotlight – walk	4/6/98	1 hour 55 mins	Douglas & Herklots
Spotlight – walk	2/6/98	55 mins	Douglas & Herklots
			Douglas, Harvey,N. & Hudson.
Spotlight – walk	3/6/98	1 hour 5 mins	• <u> </u>
			Douglas, Harvey, N. &
Spotlight – walk	3/6/98	40 mins	Hudson.
·		+0 mins	Harvey, N. Herklots, &
Spotlight - walk	4/6/98	40 mins	Hudson.
			Harvey, N. Herklots, &
Scat Transect	19/3/98	2 Icma Ediates 2	Hudson.
Scat Transect	19/3/98	2 kms [distance]	Douglas & Harvey,N.
Scat Transect	19/3/98	30 mins	Herklots & Harvey,K.
Scat Transect	22/4/98	1 hour	Herklots & Harvey,K.
Sonar Survey	19/3/98	50 mins	Herklots & Harvey,K.
Sonar Survey		30 mins	Douglas & Harvey,N.
Harp Trap	21/4/98	30 mins	Noel Douglas
Нагр Тгар	18-20/3/98	NA	Harvey, K. & Herklots
Location of surveys above	18-20/3/98	NA	Harvey, K. & Herklots

Location of surveys shown on attached maps.

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Notes: Diurnal bird surveys were integrated into flora searches, and integrated Flora and Fauna Surveys. No sch. 1 or 2 records.

Number of Data Sheets Attached:

21, plus field notes – Kooyman.

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Northern Rivers Region - Threatened Species Pre-logging and Pre-roading Survey

Northern Rivers REGION **GLEN INNES** MANAGEMENT AREA STATE FOREST: BROTHER SF SURVEY REPORT NO: Brothsr96

COMPARTMENT 89, 90, & 96

PART D. SURVEY RESULTS

Prepared By: Robert Kooyman

Date: 5/98

New Threatened Fauna Detections

Species	AMGEast	AMGNth.	Date	Observation		
Name				Туре	Observers Name	Survey/
Powerful	414600	6703900	21/4/98			Incidental
Owl				licalu	Robert	Playback
Powerful	415580	6704450	21/4/98	Heard	Kooyman	response
Owl			~1/-1/0	, incard	Robert	Playback
Glossy Black	412850	6703400	22/4/98	Heard	Kooyman	response
Cockatoo			22/4/90	rieard	Robert	Traverse
Sooty Owl	414775	6701930	27/4/98	Heard	Kooyman	
Sooty Owl	414300	6701630	27/4/98		R.Kooyman	Playback
Sooty Owl	415200	6701225	27/4/98	Heard	R.Kooyman	Playback
Powerful	414100	6701225		Heard	R.Kooyman	Playback
Owl	11100	0/01000	27/4/98	Heard	Robert	Incidental
Sooty Owl	415700	6701575		· ·	Kooyman	
Glossy Black	414920		28/4/98	Heard	R.Kooyman	Incidental
Cockatoo	-14720	6701500	28/4/98	Heard, seen	Robert	Traverse
Powerful	414200				Kooyman	
Owl	+1+200	6702100	29/4/98	Heard	Robert	1 hr after
Masked Owl	414520		L		Kooyman	playback
Glossy Black	414530	6702130	29/4/98	Heard	R.Kooyman	As above
Cockatoo	414550	6702300	29/4/98	feed site	Robert	Traverse
Rufous	415200				Kooyman	Traverse
Bettong	415200	6701150	1/5/98	Seen	Robert	Traverse
Falsistrellus	412200		· · ·		Kooyman	liaveise
tasmaniensis	413200	6701600	21/4/98	Sonar	Noel Douglas	Sonar survey
Sooty Owl	110000					Sonar survey
South Owl	413900	6701170	3/6/98	Seen	Robyn	Playback&
Glossy Black	4140.00				Herklots	Spotlight
Cockatoo	414950	6703400	20/3/98	[2] seen	Douglas &	Incidental
					Harvey,N.	
Glossy Black	414500	6702600	20/3/98	heard calls	Douglas &	
Cockatoo					Harvey,N	Incidental
Powerful	414150	6702900	21/4/98	Calls		
Dwl		1 1		-4110	Douglas &	Playback
					Harvey, N.	response

Greater Glider [AMG references and maps] detection rates indicate relatively high numbers Notes: (in excess of 1/ha in some areas) requiring an increase in (hollow bearing) tree retention.

SUMMARY

The results of the database search, threatened flora and fauna traverse and spotlighting, nocturnal callback surveys result in the implementation of the following threatened flora and

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- Powerful Owl.
- Masked Owl.
- Sooty Owl.
- Yellow-bellied Glider.
- CWR terrestrial mammals.
- Greater Glider (in conjunction with Powerful Owl prescription applied throughout).
- Glossy Black Cockatoo. • Rainforest.

Attachments:

- 1. Flora and Fauna Survey Report, Kooyman.
- 2. Maps showing various transects, traverses, threatened species records, and survey locations.
- 3. Maps showing Forest Types.
- 4. Field notes / diaries.
- 5. Species lists; flora.
- 6. Species list, fauna.
- 7. Datasheets.

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FLORA and FAUNA SURVEY of COMPARTMENTS 89, 90, & 96, BROTHER STATE FOREST.

-prepared by Robert M. Kooyman, [FA- flora and fauna] Northern Rivers Region. 12/6/98.

Results of field surveys are provided as field diary notes, data sheets, and species lists, with scheduled and target species records provided as AMG co-ordinants. Maps provide details of sample sites, playback locations, harp trap locations, sonar detection sites, species records and distributions, and extent and location of the various transects and traverses undertaken.

Introduction:

Flora and Fauna Surveys were conducted by Kooyman, [15/4/98, 21&22/4/98 and 27 - 30/4/98], with Harvey, K. and Douglas, N. et al [SFNSW], assisting with integrated fauna features searches, and the general and target species fauna surveys.

As part of the core survey team Robyn Herklots, and Nicole Harvey assisted with surveys of all fauna groups, assisted on one occasion by Karen Hudson.

Detailed analysis of recorded microchiropteran bat calls was conducted by Noel Douglas and Nicole Harvey.

General Description of Survey Area:

The three compartments cover an area of approx. 1000 hectares, with the proposed net loggable area adjusted to 832.5 hectares, after deletion of [mapped] deferred forest types, old-growth, fauna corridors, and the standard riparian and other exclusions. Geology appears to be dominated by two main elements: the variously eroded granites, and the [volcanic] sediments and conglomerates from the main [Great-Dividing] range. Granite derived soils are mostly brown, to grey-brown sandy clay loams, with sandy alluvium evident in creeks. There are areas of deeper brown earths [possible residual granidiorites - hornfels] in a number of areas along the main range, particularily in association with the higher peaks, and several areas on southern slopes. These areas are generally dominated by New England Blackbutt, Ft163, on the higher peaks, and Ft.3, 47 and 53. [with rainforest], on several southerly slopes (NB: Ft47&53 are not on the SFNSW Forest Type maps).

Altitudinal range varies from 1255m. to 820m. Slope classes vary from slight to moderate on the upper slopes and ridges, to moderate to steep in the remainder. The vegetation of the area is only generally illustrated by the forest type map [SFNSW], with several forest types not included [see above]. Species lists for forest types, and a composite list for the area have been compiled, and are appended to this report as field notes. These provide an indicative sample of the various habitats, floristic alliances, forest types, transitional boundaries and overlaps.

The sequence of forest types largely follows the altitudinal, topographical, and soil gradients, and variations. Ft.163 [E. andrewsii subsp. campanulata, with E. laevopinea, E. brunnea, E. obliqua, E. radiata] occurs on the higher peaks and slopes in association with the granite derived soils, and extends onto the volcanic sediments, creating diffuse type boundaries with Ft.169,152,161,&122. All these types have predominantly grassy

understoreys. Shrub layers are generally poorly developed in upslope areas except on rocky sites, and on steep, lower slopes. Some areas of regrowth are dominated by Eucalyptus laevopinea, with E. brunnea, E. obliqua, [sometimes dominant] on the lower slopes. Rainforest [Ft.3,-11] occurs along the main drainage lines, and extends upslope in the moist forest types on several of the southern slopes.

Along the creeks, there are several distinct riparian rainforest alliances, [eg Ft 3, 11, and the Backhousia myrtifolia alliance]. Details are provided in the species lists appended. Small areas of Ft.122, with E.cameroni, E.caliginosa[poss.], E.obliqua, E.laevopinea, E.radiata, occur in these compartments.

Flora survey methodology: Plant species recorded from each forest type [and habitat] were listed, and frequency of occurrence and stratum [canopy, sub-canopy] indicated. Walked traverses were mapped . [See field notes attached.]

Particular attention was directed to locating and recording the distribution and numbers of ROTAP plant species [Briggs and Leigh, 1995 Revised], and Schedules 1&2 [NSW Threatened Species Act, 1995] plant [and animal] species.

Botanical references used for study: Harden, G.J. Flora of NSW. vol. 1-4. Flora of Australia. CSIRO. ABRS-Canberra.

Flora of SEQId. vol.1-3, Stanley and Ross.

Eucalypts. Brooker and Kleinig. vol.1.

Orchids of Aust. Nicholls.

NEFBS - results, various reports.

Sig. Plants of Glen Innes M.A., and EIS - SFNSW.

Rare, Threatened, or Significant Plants recorded in Brother SF. cmpts. 89,90,&96. No Schedule 1 or 2 species were recorded / collected.

ROTAP: Dodonea megazyga - 3RCa - recorded very infrequently in compartment 96, southern [mid] slopes, Ft 163, 169, 152, with shrubby understorey.

Fauna survey methodology: [Note seasonality constraints for micro bats, frogs,

reptiles, seasonal birds]. Includes application of the pre-logging / roading survey design forming part of the updated Threatened Species Protocol [8/9/97], incidental records collected during flora survey and habitat assessments, as well as the results of integrated koala transect surveys, and includes -:

1. walked spotlight transects, one kilometre long [minimum], 100 watt light [with dimmers fitted].

minimum 10 minute listen at start and finish.

2. call playback for target species. Nocturnal -: powerful owl, masked owl, sooty owl, yellow bellied glider, koala, squirrel glider.

Diurnal -: eg. Bush Thick-knee.

Calls are started after a substantial listening period and played briefly at low volume. This is done to avoid disrupting localised activity of the target or other_species which may respond [or be disturbed], and to maximise knowledge of actual habitat use, rather than gaining responses from further afield [at least initially]. Louder playback calls are then initiated if no clear response is heard.

3. transect and incidental scat collection and identification. - results of predator, and [remaining unidentified] non-predator scat analysis provided by Barbara Triggs. Scat transects were undertaken [refer to data sheets], and scat collection was integrated into all other traverse and transect samples.

4. track identification on sandy or soft sections of roads, tracks and creek areas. 5. extended listening time for calls, [variable sample length, and dependent on conditions], targeting all playback target species listed above, and including other seasonally variable species where appropriate.

6. harp trapping and sonar detection for bat species.

7. frog surveys - creek transects, habitat searches, and call playback and recording. 8. search for all other features listed in the Threatened Species Protocol Survey Design while applying the above flora and fauna surveys. [this will be supplemented by the SFO while marking out and supervising harvesting operations].

9. hair-tube sampling - <u>no hair-tube sampling was undertaken on this survey</u>, thus potentially under sampling for a number of terrestrial and arboreal species, eg. tiger quoll, long-nosed potoroo, brush-tailed phascogale. Conservation protocols should be applied for these species, to ameliorate potential impacts of proposed operations.

10. one of us [Kooyman], camps out in the survey area every night, moving from site to site, [habitat to habitat] during the course of the survey. This provides a substantial increase in; listening time, incidental and opportunistic scheduled species records, diurnal and nocturnal survey effort, and overall survey time/effort.

Results of Fauna Surveys:

1. Glossy Black Cockatoo [Calyptorhynchus lathami] - sch.2, this species was located in all three surveyed compartments by calls and sightings. Suitable habitat is widespread throughout the area with most Allocasuarina spp present on rocky sites or steeper lower slopes and along the creek lines. At the time of survey, GBC activity was apparently concentrated in these areas, and several feed sites were marked. Application of the Conservation Protocol and retention of any feed trees or nest sites located during the mark-up phase should assist this species.

2. Square tailed Kite [Lophoictinia isura] - sch.2, not recorded on this survey, but is regarded as likely to use the larger river valleys, flood plains, and woodlands of the area. A recent record from Girard SF [SFNSW survey-Kooyman 1998] Tenterfield District.

3. Red Goshawk [Erythrotriorchis radiatus] - sch.1, not recorded on this survey, but there are records for this species from the Clarence and Richmond River valleys and associated forests. This species is thought to favour the higher nutrient / higher productivity tall open forests and riparian vegetation of the larger river valleys, where prey species are abundant. However, it extends up to 1000 metres in altitude in suitable forest [Debus et al.,1991].

4. Bush Thick-knee [Burhinus grallarius] - sch.1, not seen or heard on this survey. There is suitable habitat in the survey area, and historic records for this species on the tablelands, however there are no recent records in proximity to the survey area. Searches for this species were incorporated into the general flora traverses in suitable habitat, which equates with almost the whole area. Playback sampling was undertaken at sites in the compartments, and one of us [Kooyman] camped in suitable habitat over the survey period to extend available listening time.

5. Regent Honey-eater [Xanthomyza phrygia]- sch.1, not recorded on this survey. Nectar resources were limited at the time of survey. Note seasonality factor.

6. Swift Parrot [Lathamus discolor]- sch.2, not recorded on this survey. The nectar resource was limited to just a few species during the survey time.

7. Powerful owl [Ninox strenua] - sch.2, this species was recorded calling on several occasions during this survey, in all surveyed compartments. Playback and listening was conducted for this species over the early part of the survey period, with several records from playback response, and the others from unprompted calling in the main valley in the centre of the survey area. This area appears to be the core moist forest habitat and roost area for this species, with the surrounding Ft163, 152, 169, providing the key habitat resources for prey species such as the Greater Glider.

8. Masked ow] [Tyto novaehollandiae] - sch.2, this species was recorded from calls heard [Kooyman] during this survey. Suitable habitat for this species occurs over much of the survey area, i.e. the dry, open forest types with a grassy understorey. Persistent calling and chattering in the area of the record from this survey may indicate the commencement?

9. Torquoise Parrot [Neophema pulchella] - sch.2, not recorded this survey.

10. Brush-tailed Rock Wallaby [Petrogale penicellata] - sch.2. This species was not observed during the course of the survey [nor are there any historic records], and no scats collected could be attributed to this species. Potential habitat for brush-tailed rock wallaby was located south of the survey area, [in the Henry River catchment], where there are areas of steep rocky terrain. The survey area proper lacks suitable habitat for this species.

11. Tiger Quoll [Dasyurus maculatus] - sch.2, suitable habitat occurs in the area [particularily the higher altitude and moist areas of the main range] however the species was not recorded during this survey. This may reflect the lack of survey effort [no hair-tubing or trapping was undertaken] rather than a true indication of presence or absence in what is 'known habitat' [see previous records nearby]. Searches of rocky areas suitable for latrine sites or den areas were integrated into the general flora and fauna surveys, and the transect based 'integrated fauna features' and target species surveys. None were located, however these searches will be supplemented by SFO habitat and 'fauna

features' searches during mark up stage of operations. Given the likely occurrence of this species in the harvestable area, and known records from nearby, SFO should be aware of the likely presence of latrine and den sites in the area.

12. Yellow bellied Glider [Petaurus australis] sch.2; this species was recorded in the western area of cmpt. 96 during a previous survey in the area [cmpts 94 & 95, Report dated 24/12/97, Kooyman et al]? Yellow-bellied gliders are very mobile and can cover large areas, depending on the availability of feeding resources, so the SFO should look for V-notch and other incisions during mark-up and supervision stages of operations over the whole of the area, and in particular the areas with gum-barked trees. The previous [Survey referred to above provided significant new records for this species in the Glen]

13. Squirrel Glider [Petaurus norfolcensis] - sch.2. Not recorded on this survey. No response to playback calls. Habitat is generally suitable, particularily the drier, open forest habitat with Banksia spp and Acacia spp.

14. Koala [Phascolarctos cinereus] - sch.2, - Results of Koala surveys indicate that no evidence of Koala activity was found in the survey area. No scats or other indications of this species were located during the survey, either during random traverses, along transect lines, or as a result of other target species surveys.

15. Rufous Bettong [Aepyprymnus rufescens] - sch.2. Recorded during this survey from a brief sighting of an animal disturbed during daylight in cmpt.96. Generally good to excellent habitat throughout the dry, grassy, open forest in the survey area. A range of non predator scats were collected, not all have been identified. Spotlighting and scat records indicate a very low strike rate for CWR terrestrial mammals. This is likely to be an indication of the impact of the fire and grazing history, and the presence of feral predators [fox and cat].

16. Brush tailed Phascogale [Phascogale tapoatofa] - sch.2, not recorded this survey but the area has some good dry woodland /open forest habitat. No hair-tubing or trapping was undertaken on this survey, thus effectively undersampling for a species which is otherwise difficult to detect and which seems restricted to areas closer to the coast. No previous records for the survey area.

[17. Microchiropteran Bats - [Survey Protocol requires a minimum of two harp traps for two nights per. 200ha in suitable habitat]. In addition two Anabat Sonar sites were established to provide an indication [seasonal] of microchiropteran bat activity in the study area. Seasonality factors were a major constraint on this survey. The previous surveys of cmpt 94 & 95-[when a six night sample was conducted], provided records for seven species, including two, schedule 2-species. [see maps and data sheets, report 12/97] Records from cmpt 94/5 survey, 12/97 - Kooyman et al.

Kerivoula papuensis -sch.2, one harp-trap capture.

Scoteanax rueppellii - sch.2, [one] sonar record.

Chalinolobus morio - [five] sonar records. Scotorepens orion - [twenty-seven] sonar records. Vespadelus pumilus - [two] sonar records and [one] harp-trap capture. Vespadelus regulus - [thirteen] sonar records, and [one] harp-trap capture. Vespadelus darlingtoni - [five] sonar records.

Records from this survey, cmpt 89, 90, 96.

Falsistrellus tasmaniensis - sch.2, [three] sonar records, [prob] Scotorepens orion - [ten] sonar records.

Bat work was done by Noel Douglas and Nicole Harvey. Sonar calls were recorded directly onto laptop computer and later analysed and then compared to library calls by Douglas and N. Harvey. Sonar calls are ascribed file names and are retained for future reference or verification. A comprehensive library of calls for the NE of NSW is not yet available, limiting our ability in some cases to ascribe species names to recorded calls. We are currently expanding our call library and this situation should steadily improve to the limits of the technology [and with all survey calls retained for future review]. No mine shafts were detected in the mapped harvestable area. No caves were detected. Any such sites located during operations should be buffered from proposed operations to ameliorate potential impacts on potential roost / maternity / torpor sites.

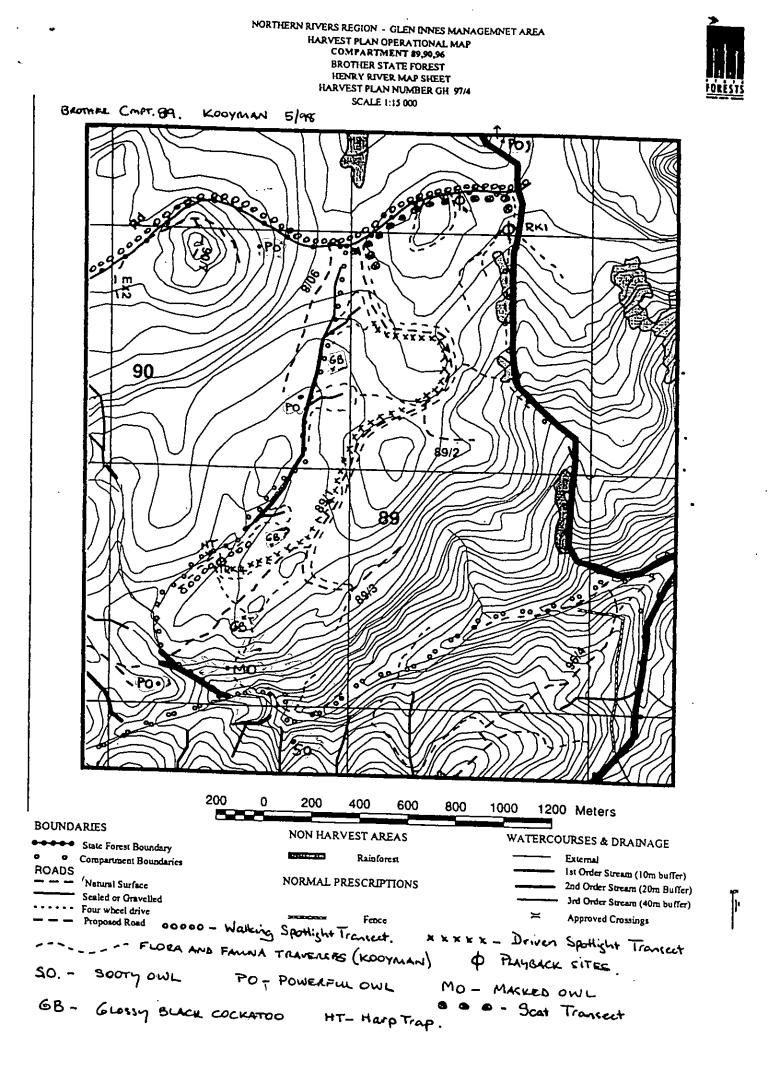
Harp trapping for Kerivoula papuensis and Myotis adversus in suitable habitat [[flyways and larger pools along rainforest creeks], resulted in one capture of Kerivoula/ papuensis and nil captures of Myotis adversus on the first surveys [12/97] in cmpts 94/5, [with no records for these species on this survey. The habitat has been considered / excellent for both species and there is a known occurrence of Kerivoula papuensis] Note seasonality for the survey area.

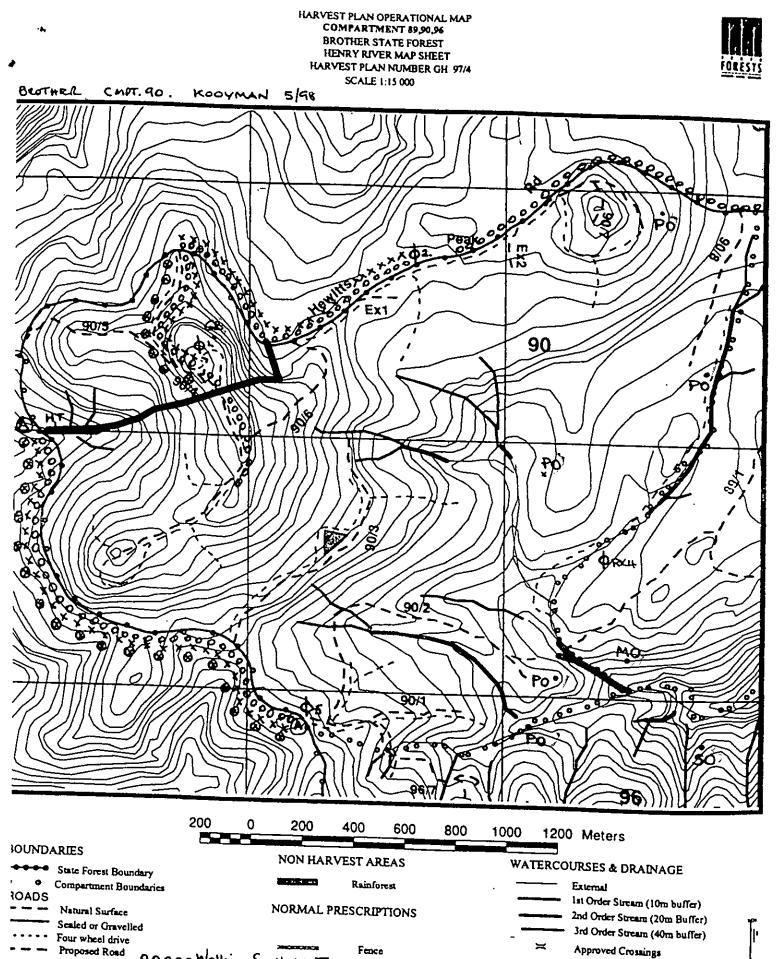
Note seasonality factors for current survey.

18. Frog species - Transect and habitat based surveys were conducted at a number of sites, and habitat assessments and searches were integrated into the other surveys [see survey sheets and maps for details]. The weather was cool to cold, with rain, at the start of the survey, becoming dry and warm, in the second week. Species of frog recorded during survey include -: Litoria peronii, Litoria chloris, Litoria revelata, Litoria pearsoniana, Litoria lesueuri, Lechriodus fletcheri, Limnodynastes peronii, Limnodynastes dumerilii, Pseudophryne coriacea, Crinia signifera. Habitat assessments and distribution of species [Gilmore and Parnaby 1994] indicate possible occurrence in the survey area of Mixophyes balbus, Litoria subglandulosa, Litoria piperata, Litoria]

19. Hastings River Mouse [Pseudomys oralis] sch.1 - not recorded this survey. Some potential habitat in the south-western section of cmpt.96 and 89. Small mammal trapping was not conducted on this survey. Suitable habitat was restricted to several small swamp / sedge areas in cmpt 89, and several areas with grassy/sedge understorey, close to the creeks and rocky areas. Altitude, and the grazing and fire history are likely to be major factors in determining this species presence or absence in the survey area. This area is not within the species' known distribution, and there are no records of this species nearby.

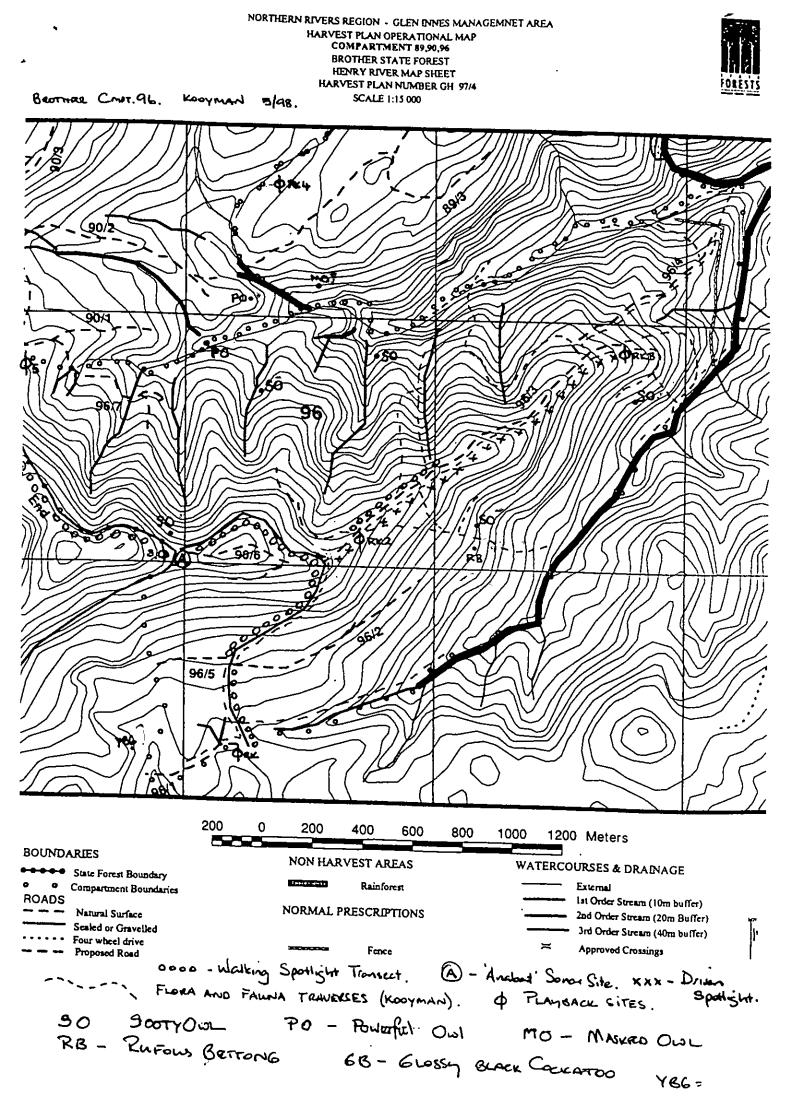
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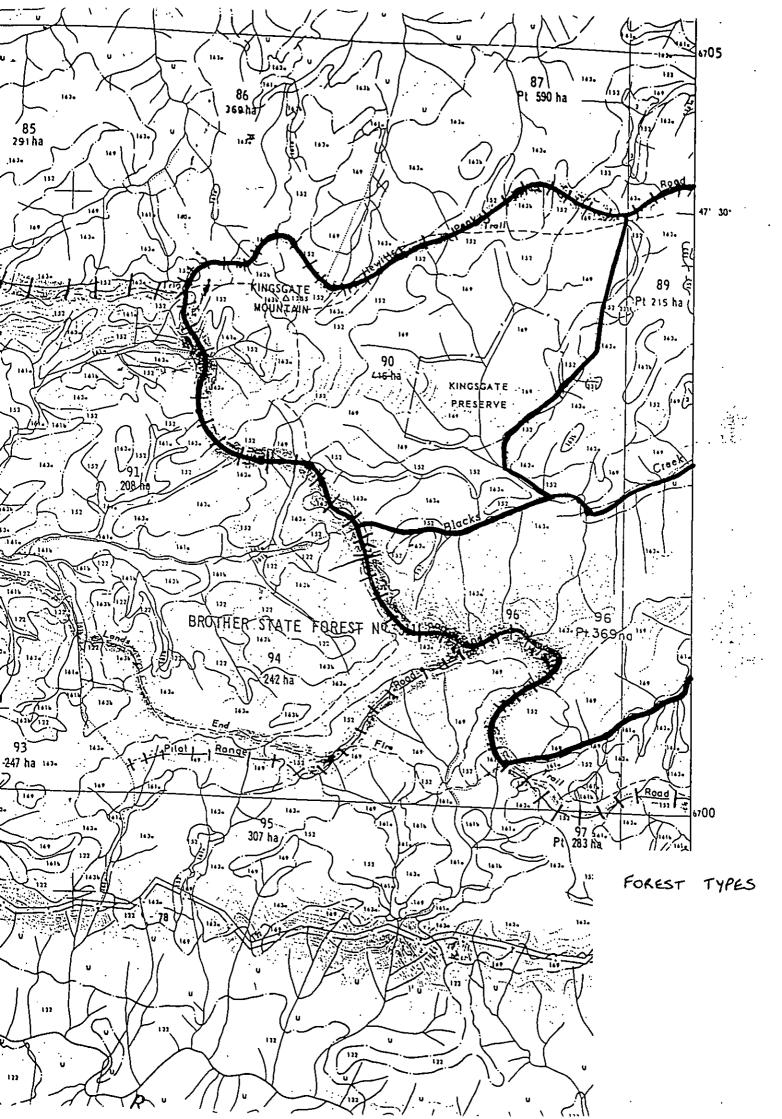


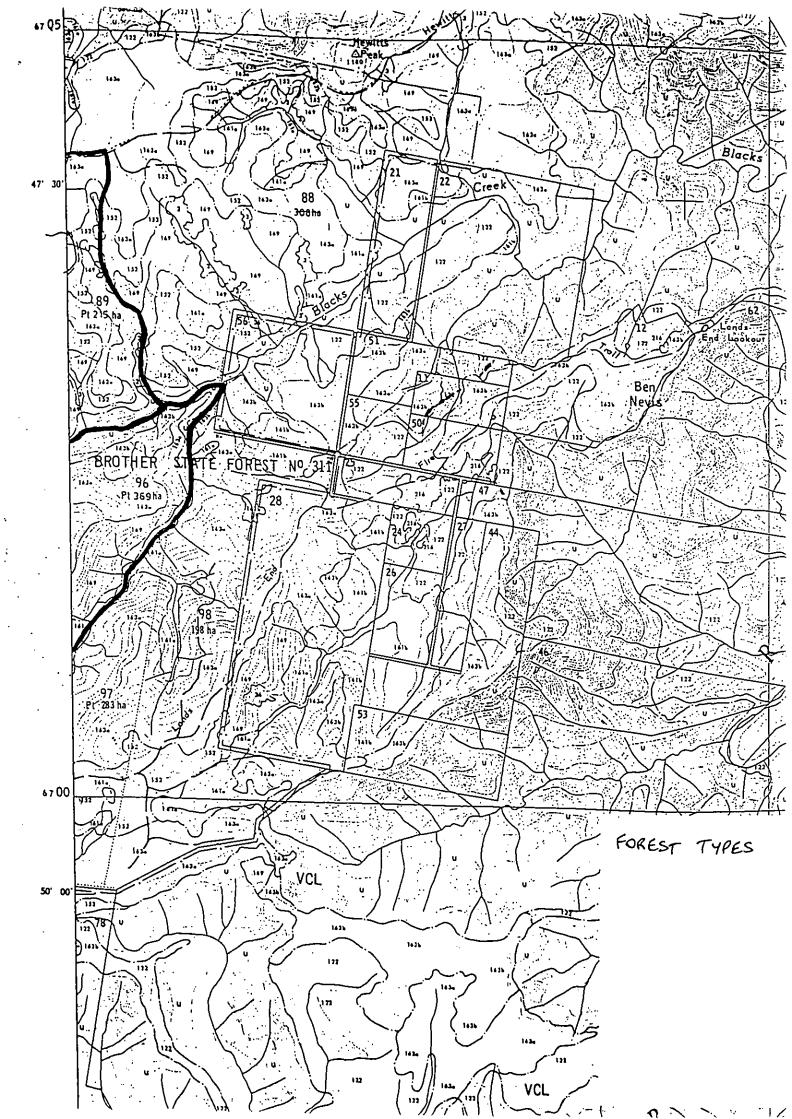


---- Proposed Road 0000-Walking Spotlight Transact XXX-Driven Spotlight Transact. ---- FLORA AND FAUNA TRAVERSES (KOOYMAN) \$\$PLAYBACK SITE ()- Sonor Site. SO - SOOTY OWL PO-POWERFUL OWL MO-MACKED OWL

6B - 6lossy Black Cocketos







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THURE. 30/4/98 BROMMER S.F. 4/48. Robert Kaange 7:00 an - 1. D. Specimene, etc. Flan to look at part Kiges to F.R. / M.O. & P.O. wen. / wer area / Cmpt. 89 / 90. S.E. from Rich camp -- to Main Cole. Follow creat downsream. 6BC - fail trees / on rocking knows ... SW carres Cups. 89. Flora Surveys -Cupi. 90, \$ 96 (12 part)... E. anglipholin ... 5:30 pm : and . biogen - winking - no fama away ----Friding 1/5/98 1. J. Specimen, Flara & Forma Surveys.... Cyp. 96 (some (see your) 7:00 am -E. oblique - E. schigner - E. brunnea etc... E. hewopsieon = E. campenlite heaving larged 40 yes say for segrave ----* Dodenea mejazifia (correr) - locande Cont. ab.

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Brothin SF. Compt. 89. - Riparian (& adjacand) Rainforent sample. SNVF / CNYFF Ft C/1 Carryadahum apetalum (c.ve) cele Callicome servetitolia (0-) de Acmera smithir (0-) Accesia viserata ve viraunta (0-c) anter sere c/u che Barkere integrifolia (o-c) one des ele Daryphore sampran (o-c) Che Schizonerie ovate (ve-0) che Caldelnvic pomintara (- c) cla Cryptocinga dooveta (vo-e) ilee Stonea woethin (vo-n). che Allocarerina tarulosa (0) enview. .c. Notelea longifalia (0-c) · Denhama colorisider (0-) « Oriter exceduce (vo). Copiosna cramanoider (40-0). Cryptucarya rizida (or. ic Enducadra sieheri (v.). Pitosparum revolution (vo-a). le Syron Standulosun (vo-0). Tasmania insipida" (vo-r). Raparea houittiana (vo). ·· Pittasparun undulatur (vo-a). · Elaeocarpie reticulations (vo). · Guilfoylie manostylis (vo). Eupomatic laurina (vo).

Robert Koagnam 4/95 Ceretopatalum apetalum alliance. F.u. Ft. 163, -12;-5m/ 20= 30m conory ht. Cyrother america (0). Sticharm futation (0-c) and align. Lonandra long. golia (o-c). Paris unbrasa (o-c) Dichranic enterchice (o-c). Lapidasperma laterale (vo-c), cly... Microsorran scandars (vo). Hictophonis idented (12). Blechnum nudum (vo). Doodie aspera (10-0). Streptothanne bedderi (10-0) Ciscus hypeglance (0) Creicus antarchica (0). Parlarec parlarana (vo-o). "Cephakrahin cephalabotrus (0). Piptocalyz moverei (vo) Marriden janninoider (vo). Parsonnà stransiare (vo). Palmerie scender (0-vo). Dansania superba (o-c) mon. Pellec falcate ver. Palcate (0-vo).

Robert Kommen 4/98. Brother S.F. Carple. Bajale Creeke Bandung.... Parky area to Ole Granthe Rochy Area - Riparian Bechlousie enoc. tog sieberung (Vo-R). C. Encalyphia obligina (0) homenan lang. Bolici (e-vc) C.E. brunea (o-vo) Blochnum undum (0-0) с. <u>Е</u>. componulata (0740) Doodie ayua (10-c) Ε. saligna (0-vo) Blechnum contrilagemen (0) ¢E. mierocarys (n) Galinia melanocarpa (0). Rieman sample: clac Banksic integrigolia (vo-c). sicherman (vo-0) 6. Microclaer 4. Stipoides Dianella comercher (vo o). c/sc. Allocarnerina terulora (o-c) Marsdania roedrater (c) Notelea longifolia (c) Histortia condens (c) sele Baddhousia mystifelia (o-e-ve). Smilare ambralin (0). Cissing hyporlance (ve - 0) Cissing enterchica (vo). Ponadarris lanigira (01 cc. A comera constair (0) Aphenopetalum verindum (vo-o). c/c Callicoma serchifolici (o-vo). . Caballana dubia (c-vd Lancopagan lanceolatine (o-c) Dichanic anterchica (10-0) Cyathea anetralis (0). Olearic elative (Habelyn elabor) for/specina : Lygodiman microphyllum (a). se Cintocesya sijida (o-c) stapfera: Dictymia brownii (vo- 0). sc. Elaescarpa reticulature (vo - 0) Dandrodo, un prysingarme (vo-ol. sc. Rapanea variationi (vo) Pyeronie 7. hotagen the filming for - -(0-c) s. Denhamic relatioider Senecio amygdalyfolin (vo) Entolaria etricta (0-vo). Plectranture parvigolia (c). an south homatic sitaifolia (vo-o) Hildorthi aspera (0). re. Callisteria salignes (10). 5% Acacia Molt floribula ((vo) anow long - specimen ... re. Burgaria spinona (vol che Endrandra sieheri (vo). Cograma quadrigida (16). Acanea nova-zoelendin (vo). Elbobeterra (*•1. Viola haderaceae (v.). Pratic purpisercone (v.).

FF. 53 ± Fr. 3 (Rainforant) upslupe ... Brother SF Cryst. 96. anthy disturbal / lagsing.... "SNVF- die back" C. Laphasterian curfertus (c-o) c. Encaryptus saligna (0 -) C·E. · microwaye (10 -) C. E. acmanioider (n - 1 e4.... sc. Acacia melanozylan (2-0) che Caldeluvia parientera (0-). sc. Syronn glandedonn (0). se. Acación irrorata var irrovata (o-c) sc. Neolitzen dechosta (0-vo) Carengline petiòlaria (07c). Cryptocciga injida (o-c) sek Hymenospann flavam (0-vo). sc. Rhodennie subscience (0-vo). sc. Notalea longifolia (0). sc. Hedycarya angustifatic (0-vo). c/x Schizomeria outer (0). set Daylandia sp.A. (0-10). cle Doryphan sanafes (0-) cc. Charglon and de (vo -). Diospyroe and din (0). Che Cryptocarya microneura (vo-o). sele Polyscier degare (vo-a). se. P. Sambucifolie sursp.? (M) specimen (Zu-RF). Cynaylorenn httpdim (vo-c) Ruy). Acaenan nover- zoelandia (0-vo). Ozothanne discarifolita (0). Solanum aviculare (vo). &. Clarodardian tomortosum (vo.o). Se. Aristotelia anterdasica (2720). . c/se Acmera smithing (o-vo). c/sc Ehretic acuminata (2-vo). Pittospornen vevolution (10-0). « Acronychia oblancifelia (0-) -idoundupe (une into hiporian RF alliancen ". Euponatri lanna (0-vo). c. Citranella maarei (vo)) ". Elasodendron (Causie) austiche (0). sele Pennantia curninghamii (vo. v). sck Allangium villarum vury. (0-vo). sele Balughia inophylla (ro-).

4/18. Robert Koongman Cissina hypoglama (o)-c) Calastron subspicahres (vo-o). Cepholarchia caphodoloutrus (10-0) Streptothammen becklari (0). Zehre in comighanii (40-0). Hildoertia scanders (0). Ciercies anterchie (o-e). Muedaria routrate (0). Rubons sarifolius (v-). Marida jaeninsider (0). Rubu hillingi (0) 1 Palasia ccarden (0). Gertenoplesmen cynosum (10-0). Adraition formanum (0) Heris exculenterm (vo-c) Calochaena dubia (vo-c). Doodin aquera (o-c). Lastreagnis decomposita (vo-c). Hymenophyllum 19. (0) Galmie metanocanpa (0). homanda ep. (0). surg for (crishyle) -Dendrobum pyiniforme (vo-0) Micronarum scondens (v). Gynastadyn anceres (0-vo). Clematic avistata (2) (0-vo). Piptocaly & moorei (vo-ol. P. (repenting (0-v.). Cyathea and din (o-c). Dicksunic spontarchica (vo) Applenium antralasium (v.). C. Stoanen woollin (10-0). «. Polyama, considerii (vo-). se. Tarmannia incipida (* -0]. sel-? Cryptoccing foredate (2) - stamon lang from! che Cryptoccina dancarcans (R-) chanter. Pohysician cantoncifolia subsp. C (2) Dendrobum acmutum (0-v-). see specier lists this report.... Solarun Capricoides" (x). Ustica incisa (R-0). Dioscaraa transverse (Vo-o). Cayradio -lo-miden (Vo-o). Machina cochinachineraii (vo). Mo-X Diplocyclar patriature (voj. ? Sienen

Compre. as / gio

C. Encalyptus saligras (vo) C. E. vimindin (R-o). Ft. 163 aligect. E. deligna (vol Riparin ample -: E. brunes (voj E. andifolia (e.vo). c/x Syzygin andrale (to). 8. Strobolius brunaniecea (vo-) syc Allocasmina tornasa (vo-o) re. Backboneie mysty dia (o-c) che. Acmena smithii (0) c/se Caldeluvien penientosa (o-c). Cigptocerga sigida (vo-ol. se Callicana serresifolia(o-c). sep Acacia irrarata va. irrarata (vo - 0 - c). clec Doinghara saxafrar (c). se Elaeocarpus reticuladur (0). cele Pennantin cumignanii (vo-o). de Cinanomina oliverii (0). sc. Tasnamia . insipida (.) St. Notelea laigiblia (v.- 0). se. Denhanna celastroider (0) sele Cryptocarya micronenea (2-) sele Endiandra sieberi (n-). che Schrienens overla (0-). 54c Syrann Bardelown (0). c/a Endiandra duicolor (v. - 0). Raparea howithing (.) stermen... Viola hedercene (0). &. Guilfoyta manostylis (RI. se Raparea variabilis (e-v-1. sc. Bursceria spinosa (vo). Ex Callitemon salignus (2). sterm (etrin ? «Le Barkerian a: anighanii (re). sit Acacin Ep. AP. Layinsinic (0-vo). sa Diospyree andrahis (owo). sc. Hedycary agentific (a). Buecher sp. (2-40). apr. Oiter exceles (vo-0). c/ic Cerchopetalum apetalum (R.o). x/c Daphrandra or.A. (vo-R).

Brother SF. Riperand Raingerent F+ 3 = Encaliption app. [5.0. Latitud Robert Karyman Parkaren pardonara (vo). Cephalaialia cephalabourus (vo-o). Lonandra long. Jolia (0 - vc) areale. Coron op. 6-c) erale. Ophismine acontin (0). her losperna or. 6 abrie mela-ccupa (Vos Aphenoperatum resinor um (o-c) Streptorhamme beckeler: (Vo-o) Locommethin handarty (0-vo). Cissin antactric (o-c). Circue hypertance (o- c). Hibbertia scanders (0). Geitengolaring aynorun (vo). Piptocelyz moorei (vo) Blechnum cartilaganum (0-vc) Blechann ander (10-01 Cyartra anstrahis (0) Dictuaria antarchica (x) Gymartichym ancupe (0). Calochbere dubic (vo-cl. Lastreapers' decompasita (vo-o). Pellea falcata var. forasa (v. - 0) Doolic aspera (o- c). Adicitum of formasum (0-vo). Peris unbrana (vo-o). chart : Schoering meterospectry ... eran... Sarcochilus phiceene (vol Sticharme Idoatus (vo-o) guing... Hymes duythin magination (c-va) Pohyphich in Veranne? (Ancilence op. (0) creek produr -. Loballia sp. (2), Carlyine petiolaric (vol. Cynoclarcian latygoliuis (2). Richardia sp. (vo). Ellaborena (1000) .-Cyparus tetraphyllus (vol. Paperania tobraphythm (v). Platyce in bifurcature (vo- 0). sele Ficine coronasta (vo-o). Caproince qualifile (10-1) c/ Dandrocnike exceded (a) Ripogenum (brevifelium) (vo...e). Tetrastigna riter (vare) Sarcopeleture barrayanum (01.

Broker SF. NEBBT Fr. 163 C. Eucohyphis comparaleta (vc) Ft. 161, 169, F4. 151 1 c. E. herapira (c-o) C. E. valita (vo-n) C. E. oblique (v.) c.E. microcarys (R.vo) C E brunnea (R-vo). orthy/ low elve. C. E. soligne (a-vo) Se Allocaucina littarchin (R- v. - 0). se Acaria out si Polin (vore. Allocasnarina tornhora (2-10). Oxyldown illicifelium (40-c) C. Encotyphe raliate (vo-2). Leucopayon lasceolaturi (o-c) Acacia sp. off. Inground (vo -) , and specime ... Acacia virasota sor irrounta (vo-c) Trochocarpa laurina (R-0) Psychotria lonicuroides (R--) Plechranthen parvilation (v-c) hometic siloifolia (0-0) Manterns bilocularis (10-0) Indigofera anneralis (vo-Goodia batifolia (vo - vc) Germin solutori (o-c) Solarun densivertitum (o-c) Protice purparencene (o-c) Thyllanthen sp. guarii (vo) tome creek. Viola betanicifolia (0) Gonoccipie tencrioides (0) Oralist op. Pinelea linifolia sep. hinfolia (vo) Solarum opecum (vo-a) Galium bisiblim (vo-o). Hubbertin riparia (v.). Barania microphylla (vo- 1). Hakea eriontha (vo-o). Bankria integrifolia (o-va). Bankeria, cunninghamie (18A) ? (v-) Pumane unibeliata (vo- .).

Rebert Kangna Compt. Maolab. Por (lahillardie : /querta thin? Sielering ver law) (Vel Importante unindrica (c - 0) Dianella comprulea (0) Therela antidis (10 -) Entolonia stricta (orve). hepidosporma laturale (vo-o) Lomandoa langifictia (R-vo) Billerdiere procumbers (vo). Porrania staninae (10). Rubus pervifelia (0). Elycine charlestina (vo-0) Hibbertia scandens (or Dermodium p. verience (ex Hibbotic aspera (-). Herdenbegen Violacea (0). Blechnun nudur (R-0) erech. Blechnum cartilegenum (e-0) Ptoni tremula (R-10) Have esculatering (vo-c) Calochlaena dub. ~ (vo - vc) Lindraen sp. linearie ? (^). Gleichenia sp. dienspa (4) *-----. Sticherne flahellutie (n – v+) Xanthharea glanca (R-0) Anjema pendulum so perlate (vo-c). Diekannin antarchia (vo-c). Cyahea annualis (vo-o) Cynbopyen refracter (vo) Echiapopan of. (--) Petrophile convices (10-0). Pomalitis optanizera (vo). Pullace vehica (vo) Ozothannes discriptine (ro-ol. Elaeocarpus retriculature (vo). Commasperna op. ancinum (vo-o). Cryptocerga visida (e-o). Helichyrun (Olearia) eladiin [16]. Amperea xiphochada (vo-) Brachycome nova - anglica (1-vo) Callistenson cityin (a) any ear only ? Danpiera stricta (vo) Epacent microphylic ver. micro (n-> Gycine pp. (** - *) Goodenia bellikifalia (vo-) Phylondian manasetalian (vo -)

FJ. 163 contid.

Hypericum n. gramianne (vo-o). Lagrifera stipitata (R-vo). Microlana otipoides vor. n) -Monotoca scaparia (vo-o). Personnia blevides (vo-ol. Plantago debilis (R-) Operentarian sq. Polyecian economicafolia (vo-o). Solarum prinephyllum (v.). Accena nova - redardia (vo-R) Callisteman (pallidue / christer?) (R) courty are Leptonpornum polygaligatian (10-a) Serecia anygdal, John (vo). Senecio 2p. minimu (1.) Bossiaca se. (4) Conyza albida () Garacepor humilie (141 telegynu (1 Hybandure emecupoane vor. stellavoider (vo-o). Hydrocumple granificia (2-0) and pur-Platycace ericoides (Ewg. Prostathue incisa (R-vy. Senecia oz. (=). Sizerbedua oriendin (vo- 1 Zièriea cmithii (2) have the hageifer + p. ? (R-va) new crates Microbana stipoider (12- 10) 10-0 where I alig. RF. Opercularia. hiepida (10-0) crate area ... bancarput areaphilus (R.v.o) Court. creek arean ... Jackranic ecopanie (?) (a). Acacia Micifolia (10-12).

Smilone slyciphythe (vol Similar anerdia (+-0). Lindre microphylle (re) aloa Endrephine habifaling (vo. .).

Juncen sp. (vota) Ophianines intrecillés (n). Lepidosperna filifanné (vos. Kennedia rubiconda (vo-o). Snilare Blyciphythe (vol Snilare aneretic (vo-o).

4/98 Kdut Knongene

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* Dodonea mejerycha (27.16)

Includes fluristics for Fr. 163, 169, 161, 152, 122, #, # E. comment E. comm BLOTHAL SP.

Compr. 89/90/96.

homilmy 1998.

Robert Koongrom

Superts Lyre-bird Scitin Baner-bird Lewine Havenpeaker. Chandie. Pied Curamong White throated tree-creeper Glong Black Cochectro Yellow - tailed Black Cochectoo Mth. Lorikeet. Grenz chritec thrush. Pale yellow Robin (RF) Yellos Robin Stubble Quart White branch Sarah Wran. Brash cucluso - dove frie bird Laughing kookcharra

Eastern Grey Kangeroo Walleroo Whip-tail Wallats Swamp Hallats

Greater Glider Sugar Glider Mtn. Bobule

Barlicoot Ruforn Being Bruch tout poram.

Bodsode Oist Poneful Oul Marbel Owl Sooly Owl

Refer to histo from previous aluly Brother Curch. 94 fris. 12/27.

SCATS - NORTHERN RIVERS REGION

STATE FOR	EST Br	oller					·····				
OBSERVER	(S) N.D	ouglas M.N.H		M.A. COSI	<u>mo</u>	COMPT. 90					
SURVEY NA	ME	Pre-harvest	cruey_	DATE 19.3	<u>.98</u>	REGION CODE	461				
DETECTION	DETECTION METHOD(S) 1 Km road transect per 200 ha net logging area										
BROAD HAE	JITAT TYPI	E Rainforest	200 na net iogg	Sclerophyll							
		Subtropical		Wet Sclerophy	///	Woodland					
		Dry Temperate		Ory Scierophyl	ł	C Heath Woodland	1				
FOREST TY	PE NUMB	ER(S)		Swamp Sclero	phyll	Tall Woodland					
AMG	Start			163.							
COORDINA			75		ig 4.13.						
Location Des		Northing 67.02	<u>5.200</u>	Northi	ng 67.01.	300					
	caption	Lands End	horel,			·····					
Time Start	<u> </u>	Time Finish		·			******				
SAMPLE (Total Travel Time	3	Species Targeted	911				
•											
DISTANCE	SAMPLE	SPECIES	OBS	PROBABILITY	ANALYST	ANALYSIS ATTAC	HED? YES / NO				
	D		TYPE	STATUS	-	HOTES					
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·	<u> </u>	<u> </u>		3 = possible							
		Nil.									
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SKETCH MAP						<u> </u>					
NORTH	(1102002)	DRAINAGE, ROADS AND TRAC	CKS, DISTANCE	ES, BEARINGS)							
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SCATS - NORTHERN RIVERS REGION

STATE FOREST Brother SF M.A. MAL & Stars COMPT SO										-			
OBSERVER((S)		<u>, </u>			DATE	~	R	WEAS 1	COMPT.			
K Harvey / R 16 Lots					I9.3.'98			REGION CODE					
SURVET NAME Pre-harupak					14.3.48				461	<u></u>			
DETECTION METHOD(S) 1 Km road transect per 200 ha net logging trans											1500		
BROAD HABITAT TYPE Rainforest Sclerophyll Woodland													
D Subtropical					OWe	t Sclerc	ophy	·	O Shrub				
🛛 Dry					□ Wet Sclerophyll ☑ Dry Sclerophyll			O Heath	Woodlani	3	:		
U lemperate					C Swamp Sclerophyll			🛛 Tall W	oodland	4			
163 (a)										••••••••			
Easting 412850					0	: Finish	Finish Easting 412750						-
			Northing 6713200				No	rthir	¹⁹ 6703				
Location Description												1	
Time Otent										••••••		• • • • • • • • • • • • •	1
Time Start	9 _{Am}		Time Finish	<u> </u>	.30	Total	Travel	Tim	e the	Species	l'argeted	All	
SAMPLE D	ETAILS											1111	4
DISTANCE	SAMPLE	SPI	ECIES		OBS		BABILIT	<u>-</u>	ANALYS	IS ATTAC	HED? W	/ NO	
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SKETCH MAP	(INCLUDE D	RAIN	AGE, ROADS ANI	D TR	ACKS, DI	STANCE	ES, BEAI	RIN	GS)				1
NORTH [TOP]													
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SCATS - NORTHERN RIVERS REGION

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STATE FOREST Brother SF M.A. Nthe Rivers COMPT. 90								
OBSERVER(S)	C Hanner (A.H. I.	1 40		Rivers	COMPT. 90			
SURVEY NAME	ne-harvest	TOTS	DATE 19.	5.798	REGION CODE 461			
DETECTION MET	10D(S) 1 Km mad improved por 200	TRANSECT LENGTH						
BROAD HABITAT TYPE								
	Subtropical		Sclerophyli		Woodland			
	C Dry		Dry Scleroph	vli	Shrub Woodland Heath Woodland			
FOREST TYPE NU			Swamp Scler	ophyll	Tall Woodland			
COORDINATES		∞	Finish Easti	ng				
<u>. </u>	Northing 67026	<u> </u>	Northing					
Location Description	" 1.4 km along	Rd "	90/4"					
Time Charles A.C.	_			*****				
Time Start 10.	30 Am Time Finish 11.30	aM.	Total Travel Tim	ie Ltr	Species Targeted PARMA			
SAMPLE DETA								
DISTANCE SAM	PLE SPECIES	OBS	ANALYSIS ATTACHED? YES / N PROBABILITY ANALYST NOTES					
10	ID UBS		STATUS	ANALYST	NOTES			
		scat or	1 = definite 2 = probable					
		in scat	2 = probable 3 = possible					
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SKETCH MAP (INCL	JDE DRAINAGE, ROADS AND TRACKS	DISTANCE	ES, BEARINGS)	·				
NORTH . [TOP]			,					
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SCATS

SCATS - NORTHERN RIVERS REGION

STATE FOR	EST BO	other sf		M.A. CLENN			
OBSERVER((S)	VINER OF		DATE O	INNIS	COMPT.	89
SURVEY NA	K Hert	HER SF tots / Ir Harves		1ª 22.	4.'98	REGION CODE	461
DETECTION	115	-harvest				TRANSE	CT LENGTH
BROAD HAB		tain toad transect j	xer 200 ha	net logging area		E,	1 km
		Rainforest		Sclerophyll		Woodland	<u> </u>
	•	D Dry		D Wet Scleroph Dry Sclerophy	yll 	C Shrub W	oodland
		: 🛛 Temperate		D Swamp Sciero	ophyll	D Heath W	
FOREST TY			*******	163			iolano
AMG	Start	Easting 415	700	Finish Eastin	9 4150		
COORDINAT		Northing 670	4050	Northi		5800	
Location Des	cription	Hewitt's Pea	Le Rd	(1 00			
					/1 1000	<u>k.)</u>	
Time Start	9.15 AM	Time Finish 10	0500	Total Travel Tim	B 5000	Species To	. <u> </u>
SAMPLE D	ETAILS						rgeted AII
DISTANCE	SAMPLE	SPECIES	OBS		ANALYS	IS ATTACH	ED? YEES / NO
	D		TYP	PROBABILITY STATUS	ANALYST	NOTES	
			E	1 = definite			
		l	scat or in	2 = probable 3 = possible			
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NO	SCATS	FOUND			·	<u></u>	
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NORTH	(INCLUDE D	RAINAGE, ROADS AND TH	RACKS, DI	STANCES, BEARIN	GS)		
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BAT SURVEY- NORTHERN RIVERS REGION

STATE FOREST ACTEL A	Bender	0 "									
OBSERVER(S)	<u> </u>	15rc-her	·			cis in		۰.	C	OMPT. 9	0/96
SURVEY NAME Prc-Lo	uglas.			DATE DATE	E FR E TO	0M27	· 4	<u>.पर्</u> পट्ट	R		
DETECTION METHOD(S)	GPIND 2	unver		NO, (OF C	ENSUS	NIGHT	s /	<u> </u>		
- 1 - 1	• harp trap` `	• •		lrip						observed	
AMG	Obat sonar			• mi:	slne	t	-				·
COORDINATES	Easting 413	5200		SPE(CIES	TARGE	TEO			ouner	
BROAD HABITAT TYPE		01600		•							
· · · · · · · · · · · · · · · · · · ·	Rainforest			Scler	ophy	/11			Wco	dland	
	• Dry			· We	et Sc	lerophyll		******	- SI	urub Woodlan	
FOREST TYPE NUMBER(S)	- Temperate			Sw Sw	y Sci Vamo	erophyll Sclerop	hull		• He	eath Woodlan	ıd
LOCATION DESCRIPTION							<u></u>			ili Wcodland	
									<u> </u>		
WEATHER (census = 1 night)										· • • • • • • • • • • • • • • • • • • •	
Date		Census 1	Cens	us 2	Ce	nsus 3	Censu	s 4 ! Cen	sus 5	Census 6	
Temperature		21.4								Census o	Census 7
Relative Humidity		16.									<u> </u>
Time Measurements Taken		90									i
Wind ((1) calm (2) light (3) mode		6. Sopn									
Rain ((1) during survey (2) evider	rate (4) strong]	1	•					<u>-</u>			
a la la source ou (c) can	ust 24 hrsj	ک							——		
Night light ((1) very dark (2) dark (4) bright]	(3) detail seen										
CAPTURE / SAMPLE DE	TAUS				-1.7						
DATE SPECIES			Sex	Wa	ight						
				(gn		F-arm Length	Field No.	Compuls	ory not	es (age, bree	ding, appearance)
21.4 Prob Falsi	stre 1 kista	Sman ip.					1.0.	 			
21.4 Prob Scolore		<u>shanjen</u>	<u></u>	╂				<u>x3</u>			
··· 7 .00 .000	pens Gric	<u>``</u>						x 10			
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OVERLEAF? YES / NO MAP

BAT SURVEY- NORTHERN RIVERS REGION

TATE FOREST

SIALEFO		en				·					
OBSERVE					M.A.	(COS)	~ວ		C		
	- N.Dova	Lo No. Ho	· • • • • •		DATE	FROM I	9. 9.	98		EGION	
SURVEY N					DATE			••	C	DDE 46	1.
	N METHOD(S)				NO. OF	CENSUS	S NIGHT:	s			
		• harp trap	·		• trip li	nes					
		Obal sonar			• mist					observed	
AMG		Easting (·						•	olher	
COORDIN	ATES	Easting 4,	<u>12 · 075</u>		SPECIE	ES TARGE	ETEO				
BROAD HA	BITAT TYPE	<u> </u>	· 02 · 50	ا œ							
					Sclerop	hvii	- <u> </u>		14/		·
		- Subtropical - Dry			• Wet	Scleroohyl	 1			idland hrub Woodlan	
		Temperate		•	Ury S	Scleraphyl			- H	eath Woodlan	id
FOREST T	YPE NUMBER(S)		· · · · · · · · · · · · · · · · · · ·		• Swar	mp Scieroj	ohyll		- Ta	all Woodland	a
LOCATION	DESCRIPTION							·····	•••••		
		-donals_	Erel R	cool.				<u>-</u> i			
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	(census = 1 night)		Census 1	Censu							
Dale				<u> </u>	<u> </u>	Census 3	Censu	s 4 Cens	us 5	Census 6	Census 7
Temperatu	re ·		19.5.98	<u> </u>			į.				
Relative Hu	umidity		20'	<u> </u>							
	urements Taken	· · · · · · · · · · · · · · · · · · ·	$\left \right\rangle$		1		<u> </u>		·		
			7pm				<u></u>				
Wind ((1) ca	ilm (2) light (3) mode	[pnorte (+) eten					<u> </u>				
Rain ((1) du	ning survey (2) avida		<u> </u>	<u> </u>			<u> </u>				
1113 [-	no excerce of U F	ist 24 hrs]	3								
Night light ((1) very dark (2) dark	(3) detail seen	<u></u>	<u></u>			<u> </u>				
	(*) vognig		3								
CAPTUR	E / SAMPLE DI	TAILS .	······				<u> </u>				
DATE	SPECIES			Sex	Weigi	ht F-arm	r .	<u> </u>			
			<u> </u>		(gms)	Length	Field No.	Compulso	ry not	es (age, bree	ding, appearance)
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PAGE _	of	. SKETCH			-	-4	L	L			

OVERLEAF? YES / NO

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STATE FOREST BAG	THPAL		M.A. GLEN IN	NEL	COMPT. QL
OBSERVER(S) ROBERT	Kooyman		DATE FROM 28/L		REGION CODE NH. RIVERS
SURVET NAME COns.	SWV. Prot.		Part of Spotlight Trans	ed ? YESINO	
DETECTION METHOD(S)	🗹 arboreal mammals	<u> </u>	🗌 diurnal birds		D other
LISTAN	e noctumal birds				
Species Targeted	7.0., 9.0.,	m.,	0. YAC	Calls Played	M.O., S.C., YSC
CENSUS 1	Slart Time: 6 000		Finish Time: 8100		Total Travel Time
SITE(S) - AMG Site	Easting 415			Site	Easting
COORDINATES Zone	Northing 66 (Zone	Northing
BROAD HABITAT TYPE	Rainforest		Sclerophyli	: 20116	Woodland
(1 only)	Subtropical			R	Shrub Woodland
	Dry 🗆		Dry Sclerophyll]	Healh Woodland
	Temperale			3	Tall Woodland
FOREST TYPE NUMBER(S)	<u>F4.53,47</u>				
LOCATION DESCRIPTION	•				
WEATHER CLEAR			To point where	track t	WAS LAND / S.E. 200m.
WEATHER clear Wind (1 only for all)		<u>°c</u>	Relative Humidity	40 10	Time 7:30 am / pm
	ix calm □ light - leaves rustle				moves branches
Rain	□ rain during survey				pedes progress æ of rain in the last 24 hrs
	evidence of rain in l	<u>ast 2</u> 4 hi	rs_	M HO CAREIR	e or rain in the last 24 nrs
Night light	very dark - no moon				- moon and clear sky
OBSERVATION DETAIL	dark - quarter moon	or mooi	n with heavy doud	🗌 bright - ha	If moon or more and no cloud
DATE SITE SPECIES	085.	COUNT	RESPONSE (ESTIMATE	<u></u>	NOTES (man
NO.					NOTES (appearance, sex, note if count an estimate, AMG of S1 or S2)
	TYPE	<u>.</u>	DISTANCE	BEARING	
28/4 RK3 Soom	OWL HEARS	<u>ا</u>	350 (+1) 100	SSE	trilling cells after unprompt intice bond-drup, at due
			(+1-)		at dry
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PAGE _____ OF _____ SKETCH MAP OVERLEAF? YES / NO

FORESTS

STATE FOREST BROTHER M.A. GLEN INNES COMPT. 89 OBSERVER(S) ROGART KOOYMAN 19.196 DATE FROM 2914198 REGION Rivers NH. DATE TO CODE SURVEY NAME Cons. Surv. Prot. Part of Spotlight Transect ? YES / NO specify ... DETECTION METHOD(S) & arboreal mammals diumal birds O other K nocturnal birds ***** Species Targeled P.O., M.O., S.O., YEG. Calls Played P.O., M.O., S.O., VB6. CENSUS 1 Start Time: 6: 30 pm. Finish Time: 10:00 pm. **Total Travel Time** SITE(S) - AMG 4 14250 Easting Site..... Easting Site COORDINATES Zone Northing 66 02450 Northing Zone BROAD HABITAT TYPE Rainforest Sclerophyll Woodland (1 only) Subtropical Wet Sclerophyli X Shrub Woodland Dry ٥ Dry Sclerophyll Heath Woodland Temperate Swamp Sclerophyll 0 Tall Woodland ٥ FOREST TYPE NUMBER(S) Fi. 163, 152, 169. LOCATION DESCRIPTION S.W. carnes of Compt. 89. near crede WEATHER fine. Temperature Relative Humidity +15 °c 50% Time 8:30 ant / pm Wind (1 only for all) C calm D moderate - moves branches X light - leaves rustle strong - impedes progress Rain I rain during survey X no evidence of rain in the last 24 hrs evidence of rain in last 24 hrs Night light X very dark - no moon+doud D detail seen - moon and clear sky dark - quarter moon or moon with heavy doud D bright - half moon or more and no cloud OBSERVATION DETAILS DATE SITE SPECIES COUNT RESPONSE (ESTIMATE) OBS. NOTES (appearance, sex, note if count an estimate, AMG of S1 or S2) NO. TYPE DISTANCE BEARING LITEN 29/4 Powerful Oul RKY ١ 400 (+) 100 reard วฟ LYTEN Marked Owl RKY Fih. ŧ 350 (+) 100 heerl SE (+/-) (+1-) (++-) (+1-) . (+/-) (+/-) (+/-) (++-) (++-)

PAGE _____ OF _____ SKETCH MAP OVERLEAF? YES / NO

OBSER	FOREST	BROTI	ER SP			M.A. Kolin I	KAPPA CHEN	COMPT. 90
ODGEN	,*=((3) 	K HARVer	10			DATE FROM 1	9.3 🦢 🗌	REGION
SURVE	Y NAME	PRE - HA	<u></u>	TERKLO	15_	DATE TO 21	<u>.4</u>	CODE 461
DETEC	TION ME	THOD(S)	G arboreal	. <u> </u>			Transect ? 🆽	/ NO specify
		· · ·	-	•		🛛 diurnal birds		C) other
<u> </u>	Targeted		Bnoclurna	lbirds				
<u> </u>							Calls PI	aved PO SO MO K Line
) - AMG	SiteI.	Easting	12 9	50		Notes	ayed PO, SO, MO, K, YBG, SQG
-	DINATES	Zone	Northing 6	702	୫ଟ୦		110(63,	••••
BROAD (1 only)	HABITAT	TYPE	Rainforest			Sclerophyll		Woodland
(1000)			Subtropical			Wet Sclerophyll	α	Shrub Woodland
			Dry	D		Dry Sclerophyli	2	Healh Woodland
-			Temperate	D		Swamp Scleroph	ıyll 🗀	Tall Woodland
		IUMBER(S)				163	• -	
LOÇAT	ION DESC	CRIPTION 1	Km al	ong R	م. ٣	10/4 "	off He	withs Peak Rd
						7 1		ical Ka
CENSU			Start Time:	9.30	PM	Finish Time: 10		Total Transfer
WEATH	ler		Temperatu	re 185		Relative Humidit	<u>7.00pm</u>	Total Travel Time www. 1. hr
Wind (1	only for a	ll)	C calm					rale - moves branches
Rain		<u></u>	🗌 light - lea	ives rustle			. O strong	g - impedes progress
Naill		• .	C rain duri	ig survey			🗌 no ev	idence of rain in the last 24 hrs
Night lig	ght ·		 very dark		last 24 hr	5	<u> </u>	
			G dark - qu	arter moor	1+Cloud 1 Of moór	with heavy cloud	🗋 detail	seen - moon and clear sky
CENSU	<u>S 2</u>		Start Time:	800		Finish Time Q		- half moon or more and no cloud
WEATH	IER		Temperatu	<u>= 16</u>		Finish Time: 9		Total Travel Time . 1 hr Smins
Wind (1	only for a	ll)	E calm	- 10	<u> </u>	Relative Humidit		^{lime} 7.15 an / pm ·
	•		🗌 light - tea	ives rustie				rale - moves branches
Rain			🖸 rain duri	g survey		<u> </u>		g - impedes progress idence of rain in the last 24 hrs
Night lig	nht	<u>·</u>		of rain in	last 24 h	<u>s</u>		idence of rain in the last 24 hrs
		•	D dark - ou	(- ño mooi adec mooi	n+cloud		🗌 🗆 detail	seen - moon and clear sky
OBSE	RVATIO	N DETAILS				with heavy cloud	D brighl	- half moon or more and no cloud
DATE	CENSUS	SPECIES		OBS.	COUNT	RESPONSE (EST		
	NO.				-		imatej	NOTES (appearance, sex, note if count
	NO			TYPE	ļ	DISTANCE	BEARING	an estimate, AMG of S1 or S2
9.3	1	NO RES	PONSE		,	, (+!-)		
					<u></u>			
	·				<u> </u>	(+/-)	<u>,</u>	
21.4	2	NO RESP	love -			· (+/-)		
		DR. REDI	ONSE					
						(+/-)	•	
					<u> </u>			
		<u>├</u>		- <u>-</u>		(+/-)		***** *
				· ·		(+/-)		
		1	י	Ι.	1	(+/-)		

PAGE ____ OF ____ SKETCH MAP OVERLEAF?

STATE FOREST Brother SF		M.A. Holden Breezes Green		
OBSERVER(S)		DATE FROM 10 TANIS	COMPT. 90] .
	Herlelots	DATE TO 21.4. 198	CODE 461	
DETECTION NETHODICE	<u> </u>	Part of Spotlight Transect ? 128 / N	O specify	
		🗅 diurnal birds	other	1
Procturna Species Targeled	l birds			
		Calls Playe	ed PO, SO, MO, K, 486, SQG	-
One	13600	Noles		-
BROAD HABITAT TYPE Rainforest	703650	·		
(1 only) Subtropica		Sclerophyli	Woodland	-1
Dry		Wet Sclerophyll	Shrub Woodland	
Temperate	-	Dry Sclerophyll Swamp Sclerophyll	Healh Woodland	
FOREST TYPE NUMBER(S)	-	Swamp Sclerophyll	Tall Woodland	
LOCATION DESCRIPTION 1.8 km	along He	withs Peak Rd '		
				1
CENSUS 1 Start Time	7.45Pm	Finish Time: 9.00 pm	Total Travel Time	
WEATHER Temperatu		Relative Humidity		· ·
Wind (1 only for all) . Scalm	<u></u>		e - moves branches	ļ. ⁻
Rain Dight - le	aves rustle	🖸 strong -	impedes progress	
	ng survey e of rain in last 24 h	. Eno evide	ence of rain in the last 24 hrs	1
Night light Every dar	k - no moon+cloud	n detail se	en - moon and clear sky	r, -
		on with heavy cloud D bright -	half moon or more and no cloud	
		Finish Time: 7.55 Pm	Total Travel Time	
WEATHER Temperatu Wind (1 only for all)	re 16°C	Relative Humidity	Time 7.15 am / pm	
	aves rustle		e - moves branches	
Rain 🛛 rain duri	ng survey	Etho ouida	impedes progress ence of rain in the last 24 hrs	
Night light	e of rain in last 24 h	nrs	and of fait in the last 24 nrs	
	k - no moon+cloud		en - moon and clear sky	
OBSERVATION DETAILS		U bright -	half moon or more and no cloud	· ·
DATE CENSUS SPECIES	OBS. COUNT	T RESPONSE (ESTIMATE)	NOTES (appearance, sex, note if count	ł
NO.	TYPE -	DISTANCE BEARING	an estimate, AMG of S1 or S2)	
19.3 I NO RESPONSE				
19.3 1 NO RESPONSE	<u> </u>	(+/-)		
		(+/-)		1
Powerful	Heard	(u) 100+	Heard to listering here for	
2.4 2 me	<u>call 1</u>	1 km (+/.) 100m	Heard in listening-time before phylosetre began & Did not do a PO day in the list of do a	414150
21.4 2 sugar alider		(+/-)	Po playback this and right	670290(
gues	╆╾╼╌╁╺┸╌╸			
<u>├──</u>	<u> </u>	(+/-)	- ·	
		(+1-)		4
	┼╾╼╵┼╌╼			1
<u> </u>		(+/-)		1
		(+/-)		4
PAGE A of 1 ourse	LL			ļ

PAGE 1 01 1 SKETCH MAP OVERLEAF?

STATE FOREST BRUT	1/=0	M.A. (Han Truck	
OBSERVER(S)		MA. Glen Innis DATEFROM 2-6-198	COMPT. 96
SURVEY NAME Pre-La		DATE TO 3-6- 198	REGION CODE 461
DETECTION METHOD(S)	rvest	Part of Spotlight Transect ? YES /	specify 2 other mentions of ecum do s//ract timestert
Derection method(s)	D arboreal mammals	🗆 diurnal birds	O alher ville playered in prayres
	C noclurnal birds		[****](L13
Species Targeled		Calle Player	
SITE(S) - AMG Site 3	Easting 413950		YBG SQG
COORDINATES Zone	Northing 6701050	Noles	No cul - calls played due s response to there in this
BROAD HABITAT TYPE	Rainforest	Scierophyll	Woodland
(1 only)	Subtropical	Wet Scierophyll	Charles and a
	Dry 🖸	Dry Scierophyli	Month Mar . It is a
	Temperate	Swamp Sclerophyll	
FOREST TYPE NUMBER(S)	163	•	—
LOCATION DESCRIPTION	Lands end hd at	junction with filot 1	Rancia C.D
· · · · · · · · · · · · · · · · · · ·			ge Rol.
CENSUS 1	Start Time: 8 fm	Finish Time: S. US on	
WEATHER	Temperature 12°C	Finish Time: 8.45 PM Relative Humidity 90%72	Total Travel Time 45mins
Wind (1 only for all)			Time 8.25 ≠ 1 pm
	Blight - leaves rustle		- moves branches npedes progress
Rain	O rain during survey	Plac eviden	ice of rain in the last 24 hrs
Night light	evidence of rain in last 24 h	rs	
· · · · · · · · · · · · · · · · · · ·	very dark - no moon+cloud	C detail see	n - moon and clear sky
CENSUS 2	Start Time: 6-10		alf moon or more and no cloud
WEATHER	Toppost	Finish Time: 6:50	Total Travel Time 20 min Time 6-25 am / pm - moves branches inpedes progress ice of rain in the last 24 hrs
Wind (1 only for all)	Acalm	Relative Humidity 90 %	Time 6-25 2m / pm
	O light - leaves rustle		- moves branches
Rain	O rain during survey		npedes progress
Night light	Bevidence of rain in last 24 h	<u>rs'</u>	ice of rain in the last 24 hrs
ing it light	O very dark - no moon+cloud	🗌 detail see	n - moon and clear sky ເບິ່ງ
OBSERVATION DETAILS	D dark - quarter moon or moon	h with heavy cloud Ø bright - h	alf moon or more and percloud
DATE CENSUS SPECIES	OBS. COUNT	RESPONSE (ESTIMATE)	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
· NO.		· · ·	NOTES (appearance, sex, note if count an estimate, AMG of S1 or S2)
	TYPE	DISTANCE BEARING	NOTES (appearance, sex, note if count an estimate, AMG of S1 or S2)
2-6 1 - No 105		(+/-)	· · · · · · · · · · · · · · · · · · ·
			+
		(+/-)	
3/6 2 Soch 0		(- (+/-)	
3/6 2 Soch 0	WI Heard I	100m 20m.	
		(+/-)	
		(+/-)	-•••
		(+/-)	
┝──┼──┼────		(*/-)	
		(+/-)	
	<u>ll</u>		

CALL PLAYBACK - NORTHERN RIVERS REGION

STATE FOREST BROT	HED	MACI	
00358758(3)		M.A. clen Znny DATE FROM 3.6.198	COMPT. 89
	Н	DATE TO 4.6 . 98	REGION CODE 461
·ne · na	west	Part of Spotlight Transect ? YES / NO	specify
DETECTION METHOD(S)	B arboreal mammals	C diurnal birds	
	O noclurnal birds		
Species Targeled	·		
SITE(S) - AMG Site	Easting 415 350	Calls Played	
COORDINATES Zone	Northing 6706150	Notes f	Vo oul-callo played
BROAD HABITAT TYPE	Rainforest	Sclerophyll	responses earlier in this
(1 only)	Subtropicat		Woodland
	Dry D	Vvet Scierophyll	Shrub Woodland
	Temperate	· •	Heath Woodland
FOREST TYPE NUMBER(S)		Swamp Sclerophyli	Tall Woodland
LOCATION DESCRIPTION	Thereway A 110	163 emits Pr Rd. dath M	
	He He	THE R. CARL M	e. Bijka .
CENSUS 1	Slart Time: 4. 25am		
WEATHER	<u></u>	Finish Time: 7.10 PM	Total Travel Time 45mins
Wind (1 only for all)	Vicalm	Relative Humidity 80 %	<u>lime</u> 6· යු යි කා / pm
	O light - leaves rustle		- moves branches
Rain .	O rain during survey		pedes progress ce of rain in the last 24 hrs
Night light	evidence of rain in last 24 h	IS	ee of fait in the fast 24 firs
Night light	very dark - no moon+cloud	S detail see	n - moon and closecky Cloudy
CENSUS 2	dark - quarter moon or moor Start Time: 6.55	n with neavy cloud Dibright - ha	alf moon or more and no cloud
WEATHER	<u></u>	Finish Time: 6.35 Pm	Total Travel Time 40mins
Wind (1 only for all)	Temperature 12°C	Relative Humidity 75%	Time 6.20 = 1 pm
· · · · · · · · · · · · · · · · · · ·	<u>O light - leaves rustle</u>		- moves branches
Rain	O rain during survey	Ostrong - in	npedes progress
	Devidence of rain in last 24 h	rs der no eviden:	ce of rain in the last 24 hrs
Night light	very dark - no moon+cloud		n - moon and clear sky
OBSERVATION DETAILS	& dark - quarter moon or moor	n with Markey cloud Dibright - ha	all moon or more and no cloud
DATE CENSUS SPECIES			
		RESPONSE (ESTIMATE)	NOTES (appearance, sex, note if count
. <u>NO.</u>	TYPE	DISTANCE BEARING	an estimate, AMG of S1 or S2)
3.6 1 SUGAR	dider Heard	(+/-)	closerved during synthinghi
	Jaco I canal	100m /	from collection site.
		(+/-)	
4.6 2 Sume	ale las Ila	(+/-)	Heard in luitenenis-
	graer reard	150m	time before playbours
4.6 2 Ocorle	t nighting	50 (+1-)	Hardyn Lestering-
	0 0	(+/-)	and after playbours.
		(+/-)	
		(+/-)	
		(+/-)	
PAGE 1 of 1			I

· or ______ SKETCH MAP OVERLEAF? 100

STATE	FOREST	Broth			NA CL T		<u> </u>	
OBSE	RVER(S)				M.A. Glen I DATE FROM 21-	haes	COMPT. 90/	96
SURV	EY NAME	Brothe N. Doug	ylas		DATE TO		REGION CODE 461	
DETE	CTION ME	 THOD(S)	Have	*	Part of Spotlight Trai	nsect? YESY NO	D specify	
		,	B arboreat		🗋 diurnal birds		C) other	
Casia	a Taraslad			l birds				
	s Targeled	YBG	SQG, H	Loola, PO.	MOLSO	Calls Played	{	
-	5) - AMG	Site.	Easting 4	13200		Natas T	the set was	·
	DINATES	Zone	Northing (5701600	callbac			
		T TYPE	Rainforest		Scierophyll	to this he	Woodfand	unde during this
(1 only)		Subtropical		Wet Sclerophyll	D .	Shrub Woodland	1
			Dry	0	Dry Sclerophyli		Heath Woodland	
CODE			Temperate	D	Swamp Scierophyli	•	Tall Woodland	
		IUMBER(S)	<u>_</u>			-		
LOCA	TION DESC	CRIPTION						
		<u> </u>	indse	ad Road.				
<u>CENS</u>			Start Time:	7:80		45	Total Turnet T	
WEAT			Temperatu		Relative Humidity		Total Travel Time	i
Wind (1 only for a	dl) .	& caim			/8	Time 6 : 30	am / pm
Rain			O light - lea	ives rusile			- moves branches npedes progress	
{\6 }		•	W rain durin	ng survey		🗆 no eviden	ce of rain in the last 2	4 hrs
Night I	ight			of rain in last 24 h	S			
			W dark - qu	arter moon or moor	With heavy cloud	O detail see	n - moon and clear sk	y
<u>CENS</u>	<u>US 2</u>		Start Time:		Finish Time:	U bright - h	alf moon or more and	no cloud
WEAT	HER		Temperatu		<u> </u>		Total Travel Time .	· ·
Wind (1 only for a	ll)	🗆 calm	<u> </u>	Relative Humidity		Time	am / pm
- <u></u>			light - lea				- moves branches	
Rain			O rain durir	ng survey		O no eviden	npedes progress ce of rain in the last 2	41
Night I	ight			of rain in last 24 h	rs			4 ms
, j			⊡ dark - niu	- no moon+cloud after moon or moon	· · · · · · · · · · · · · · · · · · ·	🗆 detail see	n - moon and clear sk	
OBSE	RVATIO	N DETAILS		arter moon or mooi	with neavy cloud	🗌 🗆 🗆 🗆	alf moon or more and	no cloud
DATE	CENSUS	SPECIES	,	OBS. COUNT	RESPONSE (ESTIMA	TE1		
	NO.		:			,	NULES (appearance)	e, sex, note if count
				TYPE	DISTANCE	BEARING	un cauna	e, AMG of S1 or S2)
21.3.	<u>B</u>	Nil. R.	500 a.C.		(+/-)			
	•				· · · ·			<u> </u>
				· ·	(+1-)			
		····	·		(+/-)			
					(+/-)		<u>_</u>	
					(+/-) ·			
					·(+/-)			
					(+/-)			
					(+/-)			
PAG	F	of ·						
1 70		······································	SKETCI	H MAP OVERI	EAF? YES / N	10		

SPOTLIGHT TRANSECT - SAMPLE REGION

OBSE	RVER(S)				START O	ATC TC	· <u>2</u> · 4:				
STATE	-DOL	alus (N. Harvey.		FINISHO	ATE 19	• <u>3</u> • 9 • <u>3</u> • 9	8 – 57	REGION CODE	<u></u>	
	EY NAME	Broth	er SF		M.A. Co	asinc		0	CODE	101	
SURVE		1			TIME Sta	<u>∽⊇inc</u> t 🎖	an./	 200	COMPT. Finish 9	<u> 40 </u>	
P_	۰				<u> </u>	•			pm	ag	1//m
	<u>1066</u>	ing Su	mues		NUMBER	OF TRAN	ISECTS	2			
		ETHOD(S)	Ø spotlight -vehicular trans	ect	Transect	No(s)	2				
			Ø spollight - Toot transect								
BROAD	D FORES	T TYPE	Rainforest	Color		40(s)	I				
			O Subtropical		rophyll et Scierophy		******	**	dland		
1			Ci Dry	e Dr	y Sclerophy	/u 11			rub Woodland aih Woodland		
FORES		NUMBER(S)	D Temperate	O Sv	vamp Sclere	phyll			Il Woodland	1	
Locatio	n Descrip					******				******	********
			Landsend Re	oud	*		*******				
	TRANSE		Location Description								
	istance	2 1cm	Lands End R	<u>ovel</u>							
<u> </u>	s Targete	d	<u>_</u>	<u> </u>			<u> </u>				
AMG		Start	Easting 6 . 4 . 12 . 0		Finish	- Eastin-			·		
COOR	DINATES		Northing 67.02.5			Easung	4.13				
WEATH	HER		Temperature	00	<u> </u>	Northing		01 - 30			
Wind					Time			m / pr	1		
			🖸 light - leaves rustle				es branche	25			
Rain			O rain during survey			dence of r	s progress ain in the l		<u> </u>		
Night lig			Id evidence of rain in last 24	4 hrs	<u> </u>		ani ni ule i	asi 24 N	rs		
rugara	3110		Very dark - no moon+clou	id	O detail	seen - mo	on and cle	ar sky			
			D'dark - quarter moon or mo with heavy cloud	oon	🗆 bright	 half mod 	on or more	and no	cloud		
	TRANSE	<u>CT 2</u>	Location Description	·	<u>م از بار میں مرک</u>			_			
Total Di	istance	2 Km									
	s Targeter		<u> </u>								
AMG		Start	Eaction () O								
COOR	DINATES		Easting 4.12.07	2	Finish	Easting	4.1	3 . 1	145		
WEATH	IFR		Northing 67.02.5	$\overline{\infty}$	<u>·</u>	Northing	67.	01.	300		
Wind					Time			m / pm			
			Qʻcalm 🛛 light - leaves rustle (2)				es branche	s			
Rain			O rain during survey			- impedes	progress				
			Q'evidence of rain in last 24	t hrs	Ų no evi	aence of n	ain in the l	ast 24 h	2		
Night lig	int		O very dark - no moon+clou	ıd	O detail	seen - mo	on and cle	ar skv			
			dark - quarter moon or me	oon	🛛 bright	- half mod	on or more	and no (cloud		
OBSE	RVATIC)NS	with heavy cloud			······			_		
DIST.	TRANS.	SPECIES			OBS.						·
	NO.				TYPE		IST. Co am	TNUC	NOTES		
Ъ.							ANS.				
२००	μ_	great	er Glider		Sight	ad 60.		2			
				·				<u>`</u> +			<u> </u>
	┾╌──-	<u> </u>								•	- 1
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OVERLEAF? YES / NO SKETCH MAP OVERLEAF? YES / NO

5-25

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SPOTLIGHT TRANSECT - NORTHERN RIVERS REGION

STATE FOREST Brother	M.A.	Glen Inn			
OBSERVER(S) N.A. K Ihdia	KH DATE	FROM 3-6-	98	COMPT. 96 REGION	
SURVEY NAME the - harvest		TO 4-6-	<u>98</u>	CODE 46/	
DETECTION METHOD(S) Byvehicular tran					
S loot transect	 -	No(s)	Notes:		
Species Targelled	Census	No(s).2			
TRANSECT DETAILS Location Descri	intion ()				
Total Distance Swom	iption Along	Road 9	16/2	•. -	
AMG					
COORDINATES	14200		Finish	Easting 414	650
BROAD HABITAT TYPE Rainforest	400550			Northing 670	20650
	Sclero			Woodland	
	LI Wei PrDou	i Sclerophyll Sclerophyll		C Shrub Woodland	
		amp Scierophyll		C Heath Woodland	•
FOREST TYPE NUMBER(S)				Tall Woodland	
CENSUS 1	161	<u></u>			
TIME Start Time	Finish				
WEATHER Temperature				Total Travel Time	40 min
Wind & Calm		ve Humidity 90		Time G:25	eas./pm
light - leaves	ruslle			moves branches	
Rain Drain during su	Irvey			pedes progress	
Drevidence of r	ain in last 24 hrs			e of rain in the last 24	hrs
Night light Overy dark - no	moon+cloud		D detail seen	- moon and clear sky	·
CENSUS 2	r moon or moon with a	avy cloud	O bright - hal	f moon or more and n	o cloud
······································	<u> 3. </u>				
	55pm Finish		<u>é</u> m	Total Travel Time L	±0
	12°C Relativ	/e Humidity 7	5%) 🖛 / pm
io (dil)	- 0			moves branches)
Rain D light - leaves			🗌 strong - imp	edes progress	
D evidence of r	ain in last 24 hrs	·	S no evidenci	e of rain in the last 24	hrs
Night light 🛛 very dark - no	o moon+cloud		D detail seen	- inoon and clear sky	
OBSERVATIONS	r moon or moon with he	ese cloud	D bright - hai	f moon or more and n	o cloud
			_	a more and th	
DIST. PRANO SPECIES		O8S. DIS TYPE from		NOTES (AMGs for S	18S2 spp, note if
	<u></u>		ANS	count is an	esimale)
100,m " GG		Sight &	Com 1		
2 - nil -		┟───┼─			
		<u> </u>	╼╼┼╾╼┥		
PAGE Of SKETCH I		L		· · · · · · · · · · · · · · · · · · ·	

SPOTLIGHT

SPOTLIGHT TRANSECT - NORTHERN RIVERS REGION

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	FORES		ther st	MA Gle	· Th	nis	COMPT. 96			
	RVER(S)	ND/H	 Hudson/NH 	DATE FROM	DATE FROM 2/6/48 REGION					
SURVE	EY NAME	Pre-1	narvest	NUMBER OF T	RANSECT	S 🕰	(x 2 nights)			
OETEC	TION M	ETHOO(S)	vehicular transect	Census No(s)		Notes:				
	•		E fool transect	Census No(s)	_(×	2 40	ints)			
Species	s Targett	a All					· · ·			
TRA	WSECT	DETAILS	Location Description	on South	- hay	adar -	1 il compt. 96 up			
Total Di	istance	1 km	to internet w	H. Pilote L	LA Rd	مام	g Lands End Ad.			
AMG		Start	Easting 414250			Finish	Easting 413950			
COORD	NNATES	;	Northing 670031		{		Northing 6701050			
BROAD	HABITA	TTYPE	Rainforest	Scierophyli	i_	· · · · ·	Woodland			
			C Subtropical	O Wet Scleroph			O Shrub Woodland			
			O Dry O Termente	E Dry Sclerophy			D Heath Woodland			
FORES		NUMBER(S)	D Temperate	0 Swamp Scient 163	τ ^{μηγα}	-	Tall Woodland			
	CENSU		· · · · · · · · · · · · · · · · · · ·	دور			!			
TIME	30.130	<u> </u>	Stat Time and and	I CALLER C		· · · · · · · · · · · · · · · · · · ·				
WEATH	50		Start Time 7. 55pm				Total Travel Time 55 mins			
WeATH			Temperature 12°C 8 catm	Relative Humidi	<u>· · · · · · · · · · · · · · · · · · · </u>		Time 8.30 Am / pm			
110		-	ar carm O light - leaves rustle				- moves branches opedes progress			
Rain		<u>_</u>	O rain during survey	<i>.</i>			pedes progress			
	_		D evidence of rain in last 24 ha	<u>n</u>						
Night ligi	ht		O very dark - no moon + doud S dark - quarter moon or moor	with heave cloud			n - moon and clear sky . If moon or more and no cloud			
	CENSU	52		,, <u>,</u>						
TIME			Start Time 8.55pm	Finish Time I	0 pm		Total Travel Time 1 hr Smins			
WEATH	ER		Temperature 12*C	Relative Humidit			Time 6-23 at / pm			
Wind			Scalm	1,			moves branches			
			🛙 light - leaves rustle				pedes progress			
Rain			C) rain during survey		C	no evidenc	e of rain in the last 24 hrs			
Night ligt	м		Di evidence of rain in last 24 hr O very dark - no moon+cloud	1		I dataž neno	- moon and clear sky			
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SKETCH MAP OVERLEAF? YEE / NO PAGE

SPOTLIGHT

CALL PLAYBACK - SAMPLE REGION R2 Foitists

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ight		N verv dad	s of rain in t	ast 24 h	rs				
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		S					an moon or more and i	no cloud	
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CALL PLAYBACK

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	ies Targel	12 Listen.	A nocturna				_,		
CENS	· · ·		PO, MO	-			Calls Played	Po,	
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•			D dark - or	rk - no moor	+cloud		🛛 detail seer	1 - moon and c	lear sky
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