FACSIMILE TRANSMISSION

To	NPWS TSU PO BOX 914 COFFS HARBOUR 2450 NEFA 123 KEEN ST LISMORE 2480		
Attention	Donella Anderson Georgia Beyer	Date	16/09/97
Your Fax	02 9980 7042	Our Fax	6662 5826
From	Peter St.Clair Forester - for District Forester - CASINO	Phone	6662 4499
No of Pages	(including this cover page) DO 463C		

STATE FORESTS
NORTHERN REGION

State Forests of New South Wales
Casino District
PO Box 688
CASINO NSW 2470
Phone (066) 624499

Message

Re RE GIBBERAGEE SF CPTS 115, 117-123,125,126

Please find enclosed flora report prepared by A. Benwell. SF have adopted most the suggestions he has raised.

The location of two possible new plant species have been given. In the plan they are shaded blue and have been made Interim exclusion zones. SF would welcome an onsite meeting to discuss their future management. These areas and the plants have been clearly marked. In the meantime we would prefer NPWS to proceed with licensing and we will address the Melichrus (C118) and Pultenaea (C115) occurences and management as time is available. We do however need to harvest in the balance of those cpts.

Wildlife

An extract of the harvest plan is attached. A koala high use area occurs in C126. Other cpts are intermediate or low use.

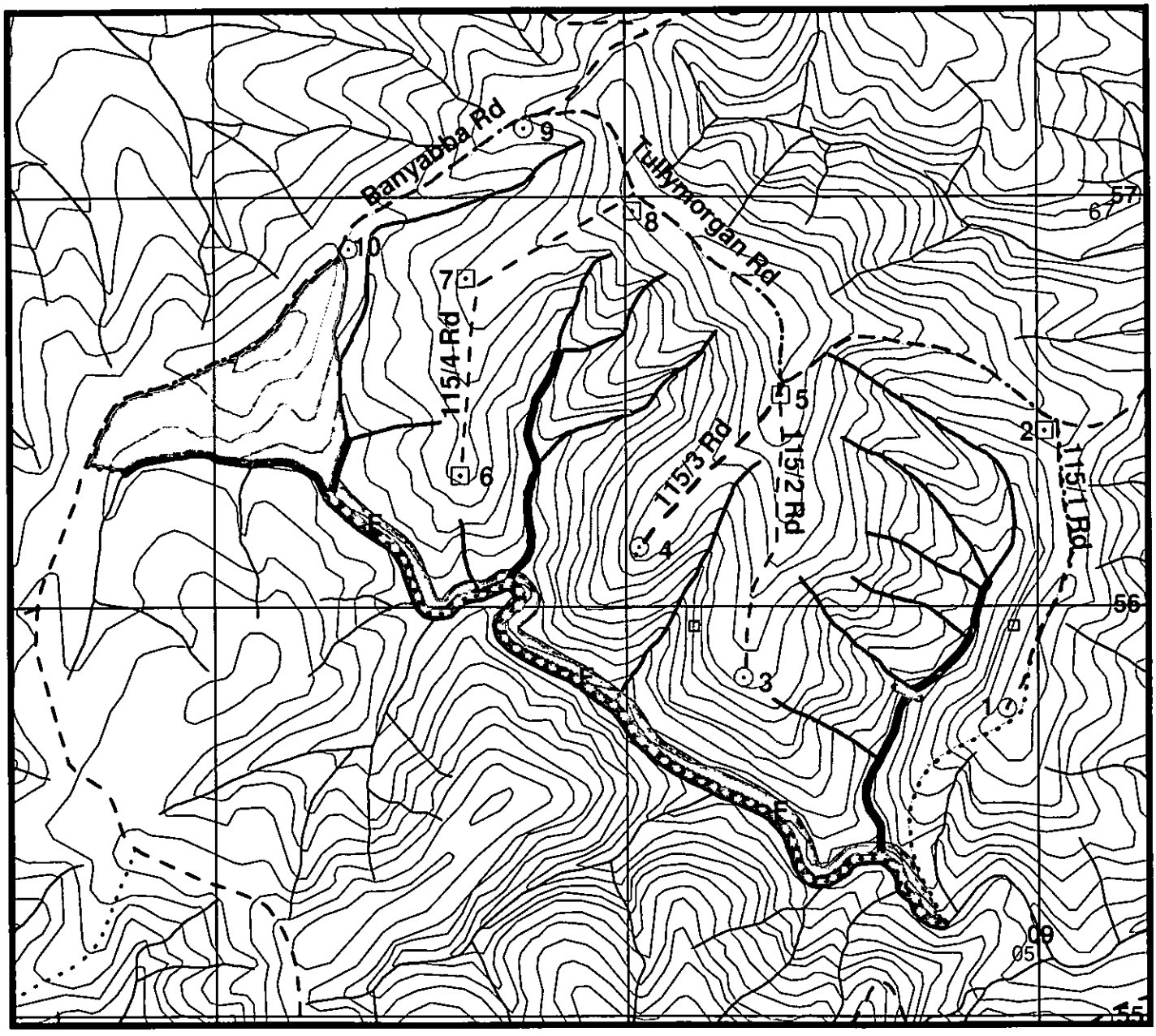
Old Growth

Inspections were made of mapped old growth and boundaries accepted.

Thank you

NORTHERN REGION - CASINO DISTRICT
HARVEST PLAN OPERATIONAL MAP
COMPARTMENT 115
GIBBERAGEE STATE FOREST NO. 19
BANYABBA MAP SHEET
SCALE 1: 15 000
09/09/1997

STATE FORESTS



200 0 200 400 600 800 1000 Meters

BOUNDARIES
- Compartment Boundaries
- State Forest Boundary

ROADING
- Road Closed
- New Roading
- Natural Surface
- Four wheel drive

NORMAL PRESCRIPTIONS
- Harvestable Area

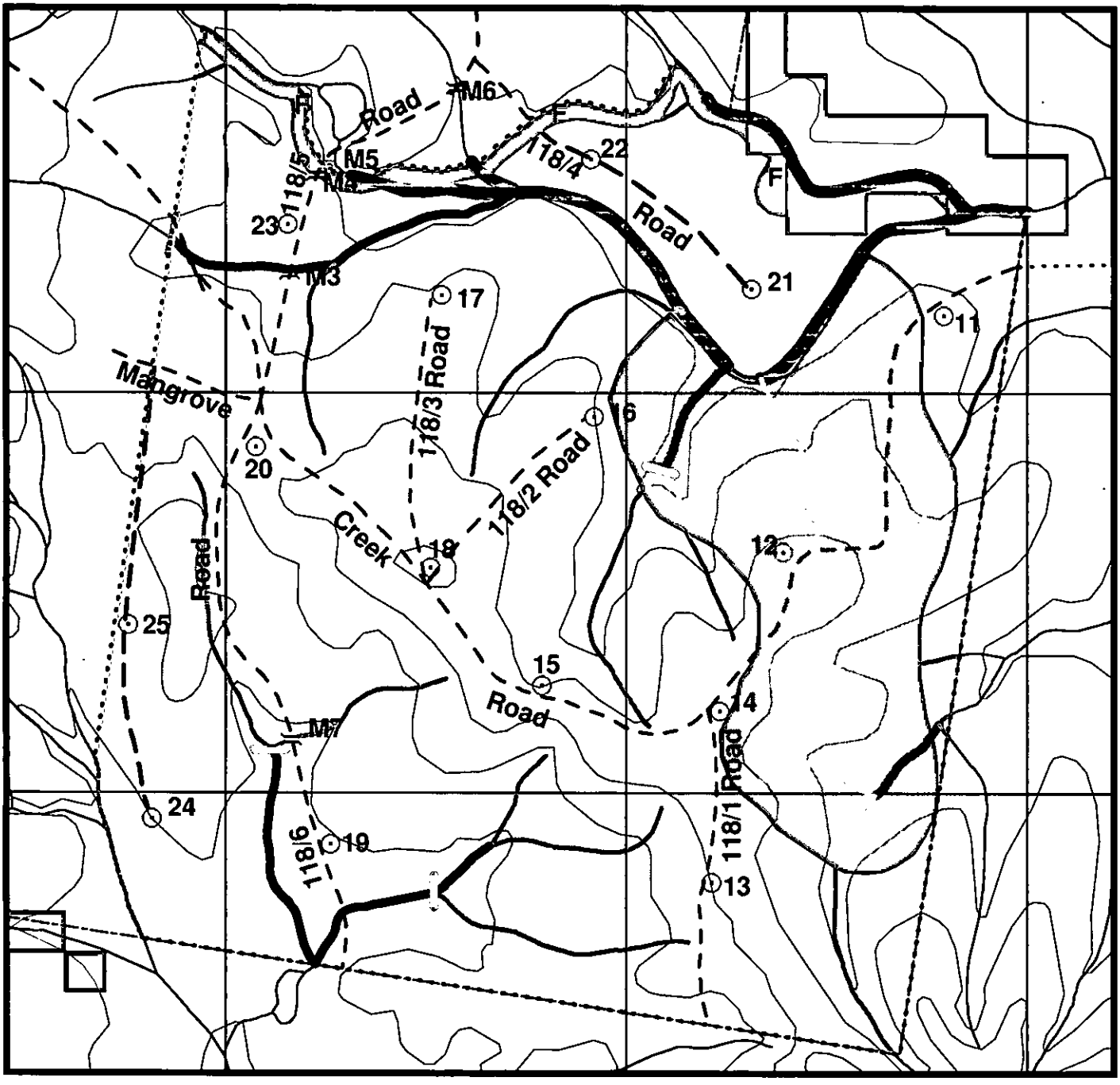
NON HARVEST AREAS
- Old Growth
- Flora and Fauna Protect
- Interim Exclusion Zone
- New Pultenaea species

DUMP SITES
- Temporary Dry
- Temporary Wet

WATERCOURSES & DRAINAGE
- External Drainage
- 1st Order Stream
- 2nd Order Stream
- 3rd Order Stream
- Catchment Greater Than 40 ha
- Connection Corridor 40m
- Connection Corridor 80m

MN

NORTHERN REGION - CASINO DISTRICT
HARVEST PLAN OPERATIONAL MAP
COMPARTMENT 118
GIBBERAGEE STATE FOREST NO. 19
BANYABBA MAP SHEET
SCALE 1: 15 000
12/09/1997



BOUNDARIES

Compartment Boundaries

State Forest Boundary

NORMAL PRESCRIPTIONS

Harvestable Area

ROADING

Road Closed

New Roading

Natural Surface

Four wheel drive

200 0 200 400 600 800 1000 1200 Meters

NON HARVEST AREAS

Paperbark/ Forest Red Gum FT

Old Growth

Flora and Fauna Protect
Interim Exclusion Zone
New Melichrus species

DUMP SITES

Temporary Dry

Temporary Wet

WATERCOURSES & DRAINAGE

External Drainage

1st Order Stream

2nd Order Stream

3rd Order Stream

Catchment Greater Than 40 ha

Connection Corridor 40m

Connection Corridor 80m

MN

Condition 4.6 FAUNA PROTECTION

(a) Specified Forestry Activities

For the purposes of fauna protection, Specified Forestry Activities for this operation are those listed in Condition 4.5 (a) of this plan.

(b) Sightings of fauna

Single records exist for the Koala and the Squirrel Glider in compartment 120.

During pre-logging Koala and general fauna surveys 8 incidental sightings were made of Glossy Black Cockatoos (2 sightings in compartment 117, 2 in compartment 118, 1 in compartment 121, 1 in compartment 122 and 2 in compartment 125). Other evidence of Glossy Black Cockatoos (crushed Allocasuarina cones) was also found in compartments 117, 120, 121, 122, 123, 125 and 126.

In addition the following fauna (Schedules 1 and 2 of the Threatened Species Conservation Act 1995) have been recorded within 5 kilometres of the harvest area and may occur in the management area where compartments 115, 117 to 122, 123, 125 and 126 are located.

MAMMALS

Brush-tailed Phascogale	Squirrel Glider	Koala
Tiger Quoll	Rufous Bettong	Common Bent-wing Bat
Great Pipistrelle		

BIRDS

Powerful Owl	Masked Owl	Black-necked Stork
Bush Thick-knee	Regent Honeyeater	Osprey
Glossy Black Cockatoo		

AMPHIBIANS

Green -thighed Frog

Contractors and supervisory staff must immediately report any sightings of threatened species to the District Marketing Forester. Such confirmed sightings or findings will generate the application of the appropriate prescriptions under the Conservation Protocols to reduce the impact on the species. This plan must be amended to include the prescriptions if necessary.

(c) Pre-logging Fauna Surveys

General fauna surveys

The harvest area was surveyed by Mr Robert Kooyman over four days and two nights, 26/27 June and 3/4 July 1997. No arboreal mammals or forest owls responded to playback, and the area in which a Squirrel Glider has been recorded in compartment 120 was thoroughly inspected but no glider detected. Nevertheless a specific prescription to protect this species and its habitat is contained in Condition 4.5(l), Prescription 3.

During pre-logging surveys for Koalas surveys were also undertaken for other fauna. 8 incidental sightings were made of Glossy Black Cockatoos (2 sightings in compartment 117, 2 in compartment 118, 1 in compartment 121, 1 in compartment 122 and 2 in compartment 125). Other evidence of Glossy Black Cockatoos (crushed Allocasuarina cones) was also found in compartments 117, 120, 121, 122, 123, 125 and 126. Prescriptions to protect this species, its habitat and food resources are contained in Condition 4.5(g) and 4.5(l), Prescription 6.

Pre-logging surveys generally indicate that the harvest area contains suitable habitat for a number of Critical Weight Range species including the Rufous Bettong and Brush-tailed Phascogale. A prescription to protect CWR species is contained in Condition 4.5(l), Prescription 1.

Koala surveys

A pre-logging Koala survey was undertaken in June and July 1997 according to the methodology prescribed in the Conservation protocols. Transects were undertaken by four Casino district staff. Transect location maps and data sheets are stored in the Compartment History Files. A summary of the results of the transects are attached to this plan as Appendix 2.

A total of 96 koala scats were located under a total of 30 trees over a total transect length of 24.15 kilometres and 2415 trees searched. Koala usage of the compartments within the harvest area based on the results of the transects is set out in Table 5 in Description 9(c).

The high use area in compartment 126 is shown on the Operational Map and must be marked in the field by the SFO for harvesting exclusion.

The general Koala prescription, including a modified prescription for intermediate use areas and a prescription to exclude harvesting from high use areas is contained in Condition 4.6(l), Prescription 2 of this plan.

(d) Pre-logging site inspections by the SFO

During tree marking the SFO must search for and record the following threatened species habitat features:

- nest, den and roost sites (especially raptor and owl nest and roosts, nests and dens of threatened hollow-dependent species);
- owl pellets, distinctive scats (eg. Tiger Quoll, Koala and Brush-tailed Rock Wallaby scats), a sample of predator scats and distinctive tracks (eg. Tiger Quoll);
- latrine and den sites of the Tiger Quoll;
- crushed cones beneath *Allocasuarina* spp;
- yellow-bellied glider "v-notch" trees and trees with other incisions made by Yellow-bellied Gliders;
- skeletal remains;
- caves, tunnels and disused mineshafts;
- conical diggings made by potoroos and bandicoots.

Results of these surveys must be notified to the Supervising Forester.

(e) Tree Retention

The harvest area is within the "regrowth zone" as defined in the Conservation Protocols. The following prescriptions apply and their application must be recorded on the compartment history maps:

Hollow-bearing Tree retention

1. A minimum of ten hollow bearing trees, where available, must be retained per two hectares. If this number is not available then those hollow bearing trees present must be retained.
2. Retained, hollow-bearing trees must be selected from trees with diameters within the largest 30% of the stand and be live trees with good crown development.
3. Retained hollow-bearing trees should represent the range of species that occurs in the area.
4. Trees retained outside the net harvest area must not be counted as hollow-bearing trees. Trees retained within filter strips that are not riparian buffers may be counted as hollow-bearing trees.

5. Hollow-bearing trees must be scattered throughout the net logging area.
6. Hollow-bearing trees must be marked for retention by the SFO.

Recruitment tree retention

1. One recruitment tree must be retained for each hollow bearing tree retained up to a maximum of 10 per hectare.
2. Retained recruitment trees must show potential for developing into hollow-bearing trees with good crown development. Trees in the mature and intermediate growth stages should be retained as recruitment trees.
3. Retained recruitment trees should represent the range of species occurring in the area.
4. Trees retained outside the net harvest area must not be counted as recruitment trees. Trees retained within filter strips that are not riparian buffers may be counted as recruitment trees.
5. Recruitment trees must be scattered throughout the net harvest area.
6. Recruitment trees must be marked for retention by the SFO.

Dead stag retention

1. Dead stags must be retained in areas outside the net harvesting area, visual protection strips, and elsewhere where it is safe to do so.
2. Dead stags must not be counted as hollow-bearing trees or recruitment trees.

Protection of hollow-bearing trees, recruitment trees and dead stags

Specified forestry activities and post-logging burning must aim to minimise damage to hollow-bearing trees, recruitment trees and dead stags. The potential for damage should be minimised by techniques of directional felling. Felled heads must be flattened or removed from within 5 metres of stems retained to meet this prescription.

(f) Non Harvest and Modified Harvest Areas

Riparian Buffers

Riparian Buffers are shown on the Operational Maps.

- The width of riparian buffers is shown on the map legend.
- Specified forestry activities, with the exception of road and snig track construction and maintenance where there is no other practical means of access, must be excluded from riparian buffers.
- Road and snig track construction and maintenance through riparian buffers should avoid areas where threatened species have been recorded.
- All practical precautions must be taken to avoid falling trees into riparian buffers.

Connection Corridors

Eight (8) Connection Corridors have been established as required by the Conservation Protocols. They are shown on the Operational Maps and are as follows:

1. an 80 metre wide corridor linking a third order stream of the Broadwater Creek catchment in compartment 119 with Mangrove Creek on the boundary between compartments 115 and 117;
2. a 40 metre wide corridor linking a second order stream of the Filans Creek catchment near the southern boundary of compartment 117 with another second order stream of the Mangrove Creek catchment in the same compartment;
3. a 40 metre wide corridor linking a second order stream of the Broadwater Creek catchment in compartment 121 with a second order stream of the Filans Creek catchment in compartment 120;

4. another 40 metre wide corridor linking a second order stream of the Broadwater Creek catchment in compartment 121 with a second order stream of the Filans Creek catchment in compartment 120;
5. an 80 metre wide corridor linking Broadwater Creek in compartment 123 with a third order stream of the Filans Creek catchment in compartment 124 to the east, which is a deferred compartment and is outside this harvest area;
6. another 80 metre wide corridor linking Broadwater Creek in compartment 123 with a third order stream of the Filans Creek catchment in compartment 124;
7. a 40 metre wide corridor linking a second order stream of the Broadwater Creek catchment in compartment 125 with a second order stream of the Filans Creek catchment in compartment 126; and
8. the existing Wildlife corridor which links Broadwater Creek with Mangrove Creek through compartment 119, the boundary between 115 and 117 and along the northern boundary of 117 and 118 (see description below).

- Specified forestry activities, with the exception of road and snig track construction and maintenance where there is no other practical means of access, must be excluded from connection corridors.

- All practical precautions must be taken to avoid falling trees into riparian buffers and connection corridors.

Wildlife Corridor

There is a wildlife corridor of 40 metres width exists the eastern side of Broadwater Creek in compartments 119, 121 and 123 and the western side of Broadwater Creek in compartment 122. It extends 40 metres each side of a drainage line in the northern section of compartment 119, across Oil Rig Road and along the headwaters of Mangrove Creek on the boundary between compartments 115 and 117. It then continues east along the southern side of Mangrove Creek along the northern boundary of compartments 117 and 118 and a drainage line forming part of the northern boundary of 118.

This corridor is shown on the Operational Maps.

All specified forestry activities, with the exception of the use of existing roads, must be excluded from the wildlife corridor.

(g) Significant Food Resources

1. Stands where *Allocasuarina* species dominate the canopy should be protected from specified forestry activities. Where more than 30 crushed cones have been found beneath individuals of *Allocasuarina* species, indicating intensive use by the Glossy Black Cockatoo, the tree must be protected.

2. At least 4 mature (>40cm dbh) winter flowering eucalypt species per two hectares must be retained where they occur. Where retained hollow-bearing or recruitment trees meet these requirements, the hollow-bearing and recruitment trees can be counted as food trees.

3. Damage to mature banksias and *Xanthorrhoea* spp. should be avoided during forestry operations.

4. All trees with "V-notch" incisions or other incisions made by the Yellow-bellied Glider must be retained. Where retained hollow-bearing or recruitment trees meet these requirements, the hollow-bearing and recruitment trees can be counted as food trees.

5. Specified forestry activities and post-logging burning must aim to minimise damage to retained feed- trees. The potential for damage should be minimised by techniques of directional felling. Felled heads must be flattened or removed from within 5 metres of stems retained feed trees.

APPENDIX 2

APPLICATION OF KOALA PROTOCOL

Pre-logging Koala transects were undertaken by four Casino district staff in June and July 1997. Transect location maps and data sheets are stored in the Compartment History Files. A total of 96 koala scats were located under a total of 30 trees over a total transect length of 24.15 kilometres and 2415 trees searched. A summary of the transect results is shown below:

Transect	Length	Bearing	Tree Species	Trees searched	Scats	Comments (tree species by scat number)
115/1a	400m	140°	GG, WM, SG	40	6	GG 20–40 (3), WM 20–40 (3)
115/1b	200m	0°	TWD, GG, WM	20	Nil	
115/2a	200m	225°	WM, SG, IBK	20	Nil	
115/2b	200m	90°	WM, SG, IBK	20	Nil	
115/2c	250m	20°	SG, WM, OAK	25	Nil	
117/1a	400m	115°	WM, SG, IBK	40	Nil	
117/1b	400m	180°	WM, GG, OAK	40	Nil	
117/1c	300m	295°	WM, TRP, OAK	30	Nil	
117/2a	500m	90°	WM, IBK, SG	50	Nil	
117/2b	600m	215°	WM, SG, GG	60	Nil	
117/2c	550m	335°	GG, SG, WM	55	Nil	
118/1a	1000m	180°	GG, IBK, SG	100	5	RG 20–40 (1 very old), GG 20-40 (3), GG 20–40 (1)
118/1b	500m	290°	GG, SG, WM	50	2	TWD 20–40 (2 old)
118/1c	500m	0°	GG, IBK, SG	50	1	GG 80+ (very old-unsure if koala)
118/1d	300m	113°	GG, IBK, SG	30	Nil	
118/2a	500m	95°	SG, IBK, GG	50	Nil	
118/2b	900m	180°	GG, WM, SG	90	1	GG 40-60 (very old)
118/2c	400m	320°	IBK, GG, OAK	40	Nil	
119/1	1000m	180°	SG, WM, GG	100	Nil	
119/2	400m	300°	SG, GG, IBK	40	Nil	
120/1a	600m	10°	WM, TRP, BBT	60	Nil	
120/1b	400m	135°	WM, BBT, TRP	40	Nil	
120/2a	200m	130°	BBT, WM, TWD	20	Nil	
120/2b	500m	235°	WM, IBK, BWD	50	3	WM 40-60 (2), TWD 20-40 (1)
121/1a	600m	15°	GG, WM, IBK	60	3	WM 20–40
121/1b	450m	90°	GG, WM, IBK	45	11	GG 20–40 (1 very old), TWD 40-60 (10)
121/2a	300m	235°	WM, BBT, OAK	30	Nil	
121/2b	400m	320°	WM, BBT, BWD	40	Nil	
122/1a	1200m	105°	SG, WM, IBK	120	Nil	
122/1b	600m	240°	SG, OAK, TRP	60	Nil	
122/2a	900m	90°	SG, WM, GG	90	Nil	
122/2b	900m	320°	WM, SG, GG	90	Nil	
123/1	1300m	185°	WM, OAK, IBK	130	Nil	
123/2	400m	180°	WM, BBT, SM	40	Nil	
125/1a	1000m	240°	IBK, GG, BWD	100	2	TWD 20–40, 40-60, very old
125/1b	300m	350°	BBT, BWD, OAK	30	Nil	
125/2a	500m	190°	TWD, WM, BBT	50	1	TWD 20–40 (old)
125/2b	700m	280°	WM, BWD, OAK	70	Nil	
125/2c	400m	30°	WM, BWD, SM	40	Nil	
126/1	1800m	288°	GG, BBT, IBK	180	59	TWD 40-60 (3), TRP 40-60 (2), TWD 40-60 (3), TRP 40-60 (2), IBK 40-60 (2), TWD 20–40 (6), TWD 20–40 (6), TWD 10-20 (25), WM 20–40 (4), BBT 20–40 (2), TWD 20–40 (3), TWD 40-60 (6).
126/2a	600m	280°	WM, IBK, GG	60	Nil	
126/2b	600m	145°	TWD, BBT, WM	60	2	TWD 40-60 (1 old), TWD 40-60 (1 old)
Total	24150m			2415	96	30 trees

On transect 126/1 a total of 25 scats were found under a small Tallowwood tree (10-20 cm diameter) 860 metres into the transect. This triggered a star transect to determine the extent of the high use area, with the Tallowwood tree forming the centre of the star. The results of the star transects are set out below:

Transect	Length	Bearing	Tree species	No. trees in transect	Scats	Comments
1	210m	333°	WM, BBT, TWD	21	1	Low use - scats under less than 3 out of 10 consecutive trees
2	110m	18°	WM, BBT, TWD	11	9	Low use - all scats under I tree (TWD 10-20).
3	330m	63°	BBT, TWD, WM	33	21	High use - scats under more than 3 trees out of 10 consecutive trees
4	100m	153°	BBT, SM, WM	10	Nil	Low Use
5	260m	198°	WM, BBT, TWD	26	19	Intermediate use - scats under 2 out of 10 consecutive trees
6	110m	243°	SM, WM, BWD	11	Nil	Low use
Total	**1120m**			**112**	**50**	

Koala usage of the compartments within the harvest area based on the results of the transects is set out below:

Compartment	Koala Use
115	Intermediate use
117	Low use
118	Intermediate use
119	Low use
120	Low use
121	Intermediate use
122	Low use
123	Low use
125	Intermediate use
126	High use area in central eastern section as shown on Operational Map. Intermediate use over the remainder of the compartment.

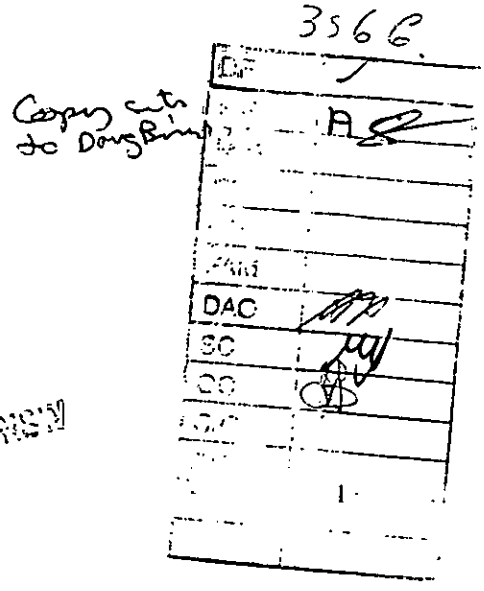
PRELIMINARY FLORA SURVEY

GIBBERAGEE STATE FOREST COMPARTMENTS 117,118,119,120,121 & 122.

Prepared By:
Andrew Benwell
Botanical and Environmental Consultant
PO Box 641
Mullumbimby
NSW 2482
Ph/Fx 066 845496

For: State Forests of NSW
Casino District
PO Box 688
Casino
NSW 2470

Date: 14/8/97
Version: DRAFT



Preliminary Flora Survey Gibberagee State Forest Compartments 117, 118, 119, 120, 121 and 122.

Methods

A flora survey was carried out in compartments 117, 118 and 120 on the 19th of June and in compartments 118 (again), 119, 121 and 122 on the 1st of August.

The survey method consisted of mobile roadside searches with random stops and ground traverses in a range of different forest types in each compartment and concentrating on harvestable forest. Searches were also made in non-harvestable habitat such as rocky areas and gully lines, at several locations. All plant species encountered were identified and a list of plant species was compiled during the survey (see attached list).

The references used for determining the significance of recorded plants were: (i) Schedules 1 and 2 of the NSW Threatened Species Conservation Act, 1995, (ii) Briggs and Leigh (1995), also known as the ROTAP (Rare or Threatened Australian Plants) list, (iii) Sheringham and Westaway (1995) for regionally significant species.

Codes given with regionally significant species follow 'categories of conservation significance in upper north-east NSW' from Sheringham and Westaway 1995, as follows:
1. Nationally rare or threatened
2. Uncommon throughout distribution
3. Rare in NSW
4. Regionally uncommon
5. Depleted habitat/sparse
6. Endemic
7. Disjunct
8. Distributional limit
9. Atypical habitat

General Description

Gibberagee State Forest is located in the southern Richmond Range east of Whiporie. The environment comprises a sandstone range supporting low site quality Blackbutt and Needlebark Stringybark forest types (eg. FT's 38, 41 and 97), surrounded by gently undulating country with heavy to medium clay soils supporting grassy open forests of Spotted Gum (FT 74 *E. henryi*), Grey Gum-Grey Ironbark (FT 62) and Forest Red Gum (FT 92). Major creeks such as Mangrove Ck and Broadwater Ck have narrow belts of wet sclerophyll forest including Flooded Gum (FT 48), Brush Box (FT 53) and Grey Gum (FT 60).

Results

The following significant plant species were recorded:

Species	Location	Numbers	Comments
TSC Act Threatened Species Schedule 2 Vulnerable			
Hibbertia marginata (Richmond Range Guinea Flower)	507600 6753400 s 120	approx. 8 in 0.1ha	FT 41/97
	507700 6753800 cpt 120	approx. 10 in 0.1 ha	FT 41/97
	508000 6754900 cpt 117	approx 3 in 0.1ha	FT 41
	508600 6755000 cpt 117	approx. 5 in 0.1ha	FT 41
	506200 6753150 cpt 121	50 - 100 in 1ha	FT 41
	506100 6752900 cpt 121	10 - 20 in 0.5ha	FT 41
	505800 6752600 cpt 121	10-20 in 0.1ha	FT 41
ROTAP - Vulnerable			
Papalidium grandispiculatum (Tall Shot Grass)	508600 6753500 cpt 120	approx.10 in 0.1ha	
Rare			
Boronia chartacea (3RC-) (Tall Sandstone Boronia)	508600 6753600 cpt 120	approx. 30 in 0.1ha	along gully
	506250 6753500 cpt 121	approx. 20 in 0.1ha	gully crossing
	506100 6752900 cpt 121	approx. 10 in 0.1ha	near roadside
Regionally Significant			
Davesia wyattiana (7) (Narrow-leaved Bitter Pea)	507600 6753400 cpt 120	good sized pop.	
	508000 6754900 cpt 117	good sized pop.	
	505800 6752600 cpt 121	good sized pop.	
Pultenaea petiolaris (7) (Petiolate Bush Pea)	507600 6753400 cpt 120	good sized pop.	
	506200 6753150 cpt 121	approx. 50 in 1ha	
Acacia hispidula (7) (Rough-leaved Wattle)	507500 6753100 cpt 120	approx. 5 in 0.1ha	
	508200 6753300 cpt 120	approx 10 in 0.1ha	
Tricoryne anceps ssp.	507600 6753400 cpt 120	approx 10 in 0.1ha	

pterocaulon (3 8S) (Winged Rush Lily)	506200 6753150 cpt 121	100+ in 1ha	
Other Significant Species			
Curculigo ensifolia (Curculigo)	511000 6751900 cpt 118		uncommon north from Newcastle
New/Undescribed Species			
Melichrus sp.	511300 6753300 cpt 118	5-10 plants in 0.2ha	
(an Urn Heath)	511500 6754000 cpt 118	5-10 plants in 0.2ha	
Pultenaea/Almaleea sp.	505800 6755700 cpt 119	15-10 plants in 0.2ha	on edge of road and fence
(a Bush Pea)	506500 6755950 cpt 119	10-20 plants in 0.2ha	on edge of road and fence

Hibbertia marginata (Richmond Range Guinea Flower) (NSW TSC Act Sch. 2)

Endemic to the southern Richmond Range between Mt Belmore State Forest and Doubleduke State Forest, with an outlier at Waihou near Glenreagh. Reserved in Banyabba Nature Reserve and Waihou Flora Reserve.

Found during the survey at several locations in low site quality forest on sandstone, particularly forest type 41. Binns (1995) regarded this species as "widespread and locally abundant on sandstone .... and not of particular conservation significance" (Casino EIS - p.62). In recent surveys for the CRA in Doubleduke and Devil's Pulpit State Forests, *Hibbertia marginata* was found to be uncommon, apart from around the southern end of Lockleys Rd. It may be more common in Mt Marsh and Mt Belmore SF's. During the survey, *Hibbertia marginata* occurs in loggable (mainly blackbutt) if rather poor quality forest.

The fire response of *Hibbertia marginata* is unclear, but the low-growing and clustered arrangement of stems indicate a resprouting response.

In the compartments under consideration, *Hibbertia marginata* is likely to be scattered throughout forest type 41, which is fairly extensive. Survey and marking of all specimens would be impractical, particularly as harvesting in type 41 is likely to be low intensity because of poor site quality and low timber volumes. Low intensity logging disturbance is not considered to pose a significant potential threat to the species, however, as *Hibbertia marginata* is a listed threatened species, ameliorative measures should be applied.

Recommendations: Locations of *Hibbertia marginata* flagged during the survey should not be disturbed during timber harvesting and protected by a buffer as prescribed in the Conservation Protocols. Rather than attempting to tag all plants prior to harvesting, forestry personnel and contractors should be instructed on how to recognise this easily identified plant (e.g. supply with pressed specimens in a folder). Plants encountered during operations could then be protected by a buffer as prescribed in the Draft Conservation Protocols. A follow-up field inspection should be made 12-18 months after the operation to assess the impact of timber harvesting on the species.

Paspalidium grandispiculatum **(Tall Shot Grass)** (ROTAP 2V)

Listed as nationally vulnerable in ROTAP, but not listed under the NSW TSC Act as this species was only recently discovered in NSW (Binns 1995). Target flora surveys carried out during the CRA for this species found it to be abundant on sandy soils on the western side of Doubleduke SF. Two small groups of plants were also recorded in Needlebark Flora Reserve in Gibberagee SF (see results of CRA survey). The species appears to be represented in several moratorium compartments in Doubleduke SF (see Doubleduke Flora Survey Report).

The present survey was carried out in June when *P. grandispiculatum* is well past flowering and looks very similar to common *Entolasia stricta* in the vegetative state. Plants with old inflorescences were found at only one location despite a close inspection of grasses at several points along roads in likely habitat (forest type 41). It is probably not possible to reliably identify *P. grandispiculatum* at this time of year, however field work carried out indicates that the species' is relatively uncommon in Gibberagee SF compared to Doubleduke SF.

Recommendation: In Doubleduke SF, *P. grandispiculatum* is particularly common along roadsides indicating it may increase after soil disturbance associated with logging. Low intensity logging in forest type 41 (its main habitat) is considered unlikely to pose a threat to local populations if present. However it is recommended follow-up monitoring be carried out to assess impacts of logging (general field assessment) and that this be recorded.

(Note: The CRA survey in Gibberagee SF extended from the southern end of Oil Rig Rd to the TV transmitting tower (including compartments 126 and 123) and followed a similar methodology to this survey with mobile roadside checking and random stops and traverses in likely looking habitat. Apart from *P. grandispiculatum* described above, the only other significant species recorded was *Acacia hispidula* in Needlebark FR.)

Probable New Species:

***Melichrus* sp. (Urn Heath)**

This plant is an upright heathy shrub growing 0.5 to 1.0 metre high with dark green, glossy, sharp-tipped leaves and white flowers. Specimens were sent to the Royal Botanic Gardens, Sydney and to John Williams at the University of New England for identification. John Williams (an authority on *Melichrus*) thought it probably a new species and the Royal Botanic Gardens were unable to make a determination, suggesting it was related to *Melichrus procumbens*.

The *Melichrus* was recorded in compartment 118 growing in medium to high site quality forest dominated by Grey Gum (*E. propinqua*) on the eastern side of the compartment (typed as 62 and 72/74). The soil associated with the stand of Grey Gum is a red podzolic clay, while the surrounding Spotted Gum where the plant appears to be absent, is growing on a poorer yellow podzolic clay. The population is sparsely distributed through about 50 ha of forest and numbers approximately 300 to 500 plants.

During field work on 1/8/97 30-40 plants were tagged with pink flagging tape and red paint markers sprayed onto trees along the road where it passes through the plant's habitat.

Recommendation: This probable new species is clearly very rare, not having been picked up in recent regional flora surveys by NPWS or SFNSW. As the identified area of Grey Gum forest in compartment 118 represents the taxon's only known habitat it is essential this area be protected and not disturbed during timber harvesting. The fairly even distribution of individual plants through the area would make it impossible to carry out logging without damaging the plants. See attachment for area recommended for protection.

***Pultenaea/Almaleea* sp. (Bush Pea)**

This plant is a pea-flowering shrub growing 1-2 metres high. According to the Royal Botanic Gardens it is probably a new species with affinities to *Pultenaea flexilis* and *P. altissima*. John Williams from the University of New England also thought it very likely a new species, but thought it may actually be in the genus *Almaleea*, which was recently split off from *Pultenaea*.

The plant was recorded in compartment 119 in Spotted Gum (*E. henryi*) type 74 near the junction of Banyabba Station Rd and Oil Rig Rd and at two or three points along the western boundary of compartment 119. Another group was seen on private property adjacent to the western end of compartment 122, where the species is also likely to occur. The total number of plants seen was about 30. From its growth form, the species appears to be an obligate seeder.

Recommendation: As this probable new species is apparently very rare, not having been found in Spotted Gum habitat elsewhere during recent regional surveys by NPWS or SFNSW, full protective measures should be applied. This should include a thorough search of compartment 122 and the area on the western side of compartment 119 to determine its distribution in the logging area. All locations should be appropriately protected by a logging exclusion buffer and linked in continuous areas of habitat where possible.

Compartment 118

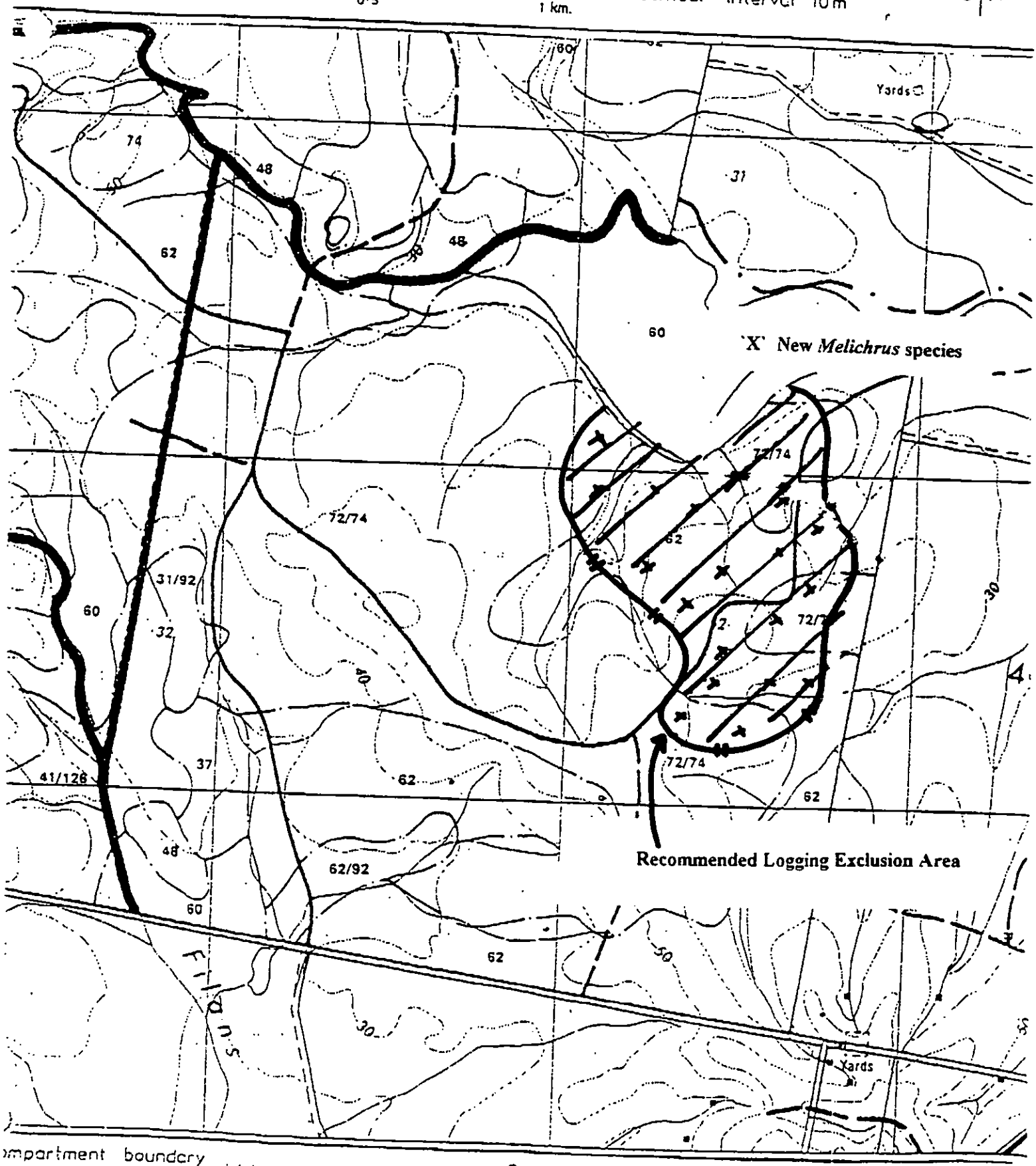
Scale — 1 : 15 000

0 0·5 1 km.

CB / 19

Contour interval 10 m

G N



Compartment boundary .....

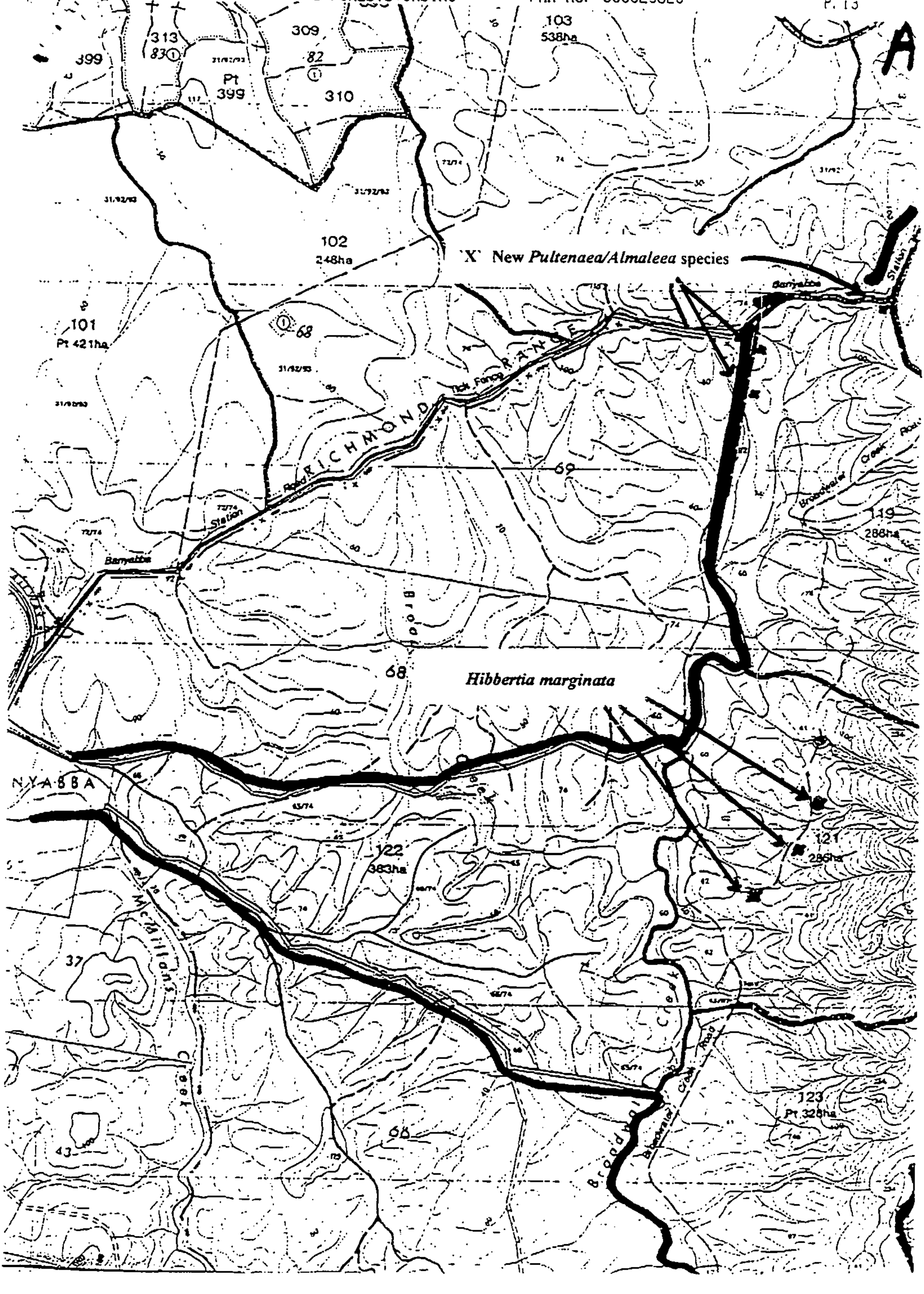
Filter strips .....

Protection strips .....

Road . minor road . dump site . . . .

Wet weather dumps shown in red

Special emphasis . . . . . .


A
'X' New Pultenaea/Almaleea species
Hibbertia marginata
RICHMOND RANGE
313
399
Pt 399
309
310
103
538ha
102
248ha
101
Pt 421ha
68
69
119
286ha
121
286ha
122
383ha
123
Pt 328ha
NYABBA
Banyabba
Station
Road
McMillans
Creek
Broadwater Creek Road
37
43
66

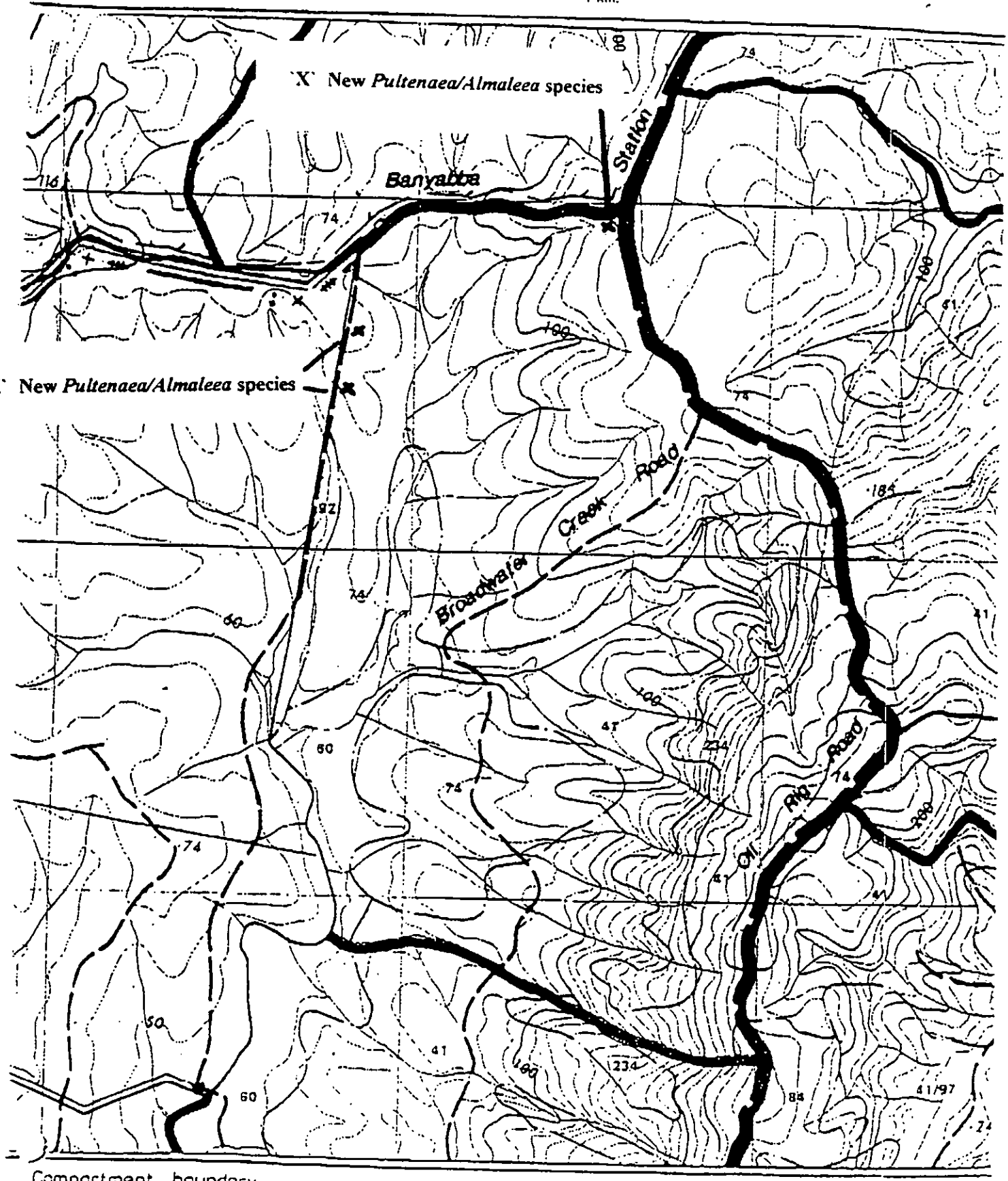
Compartment 119

Scale — 1 : 15 000

0 0·5 1 km.

CB / 19

Contour interval 10 m



Compartment boundary .....

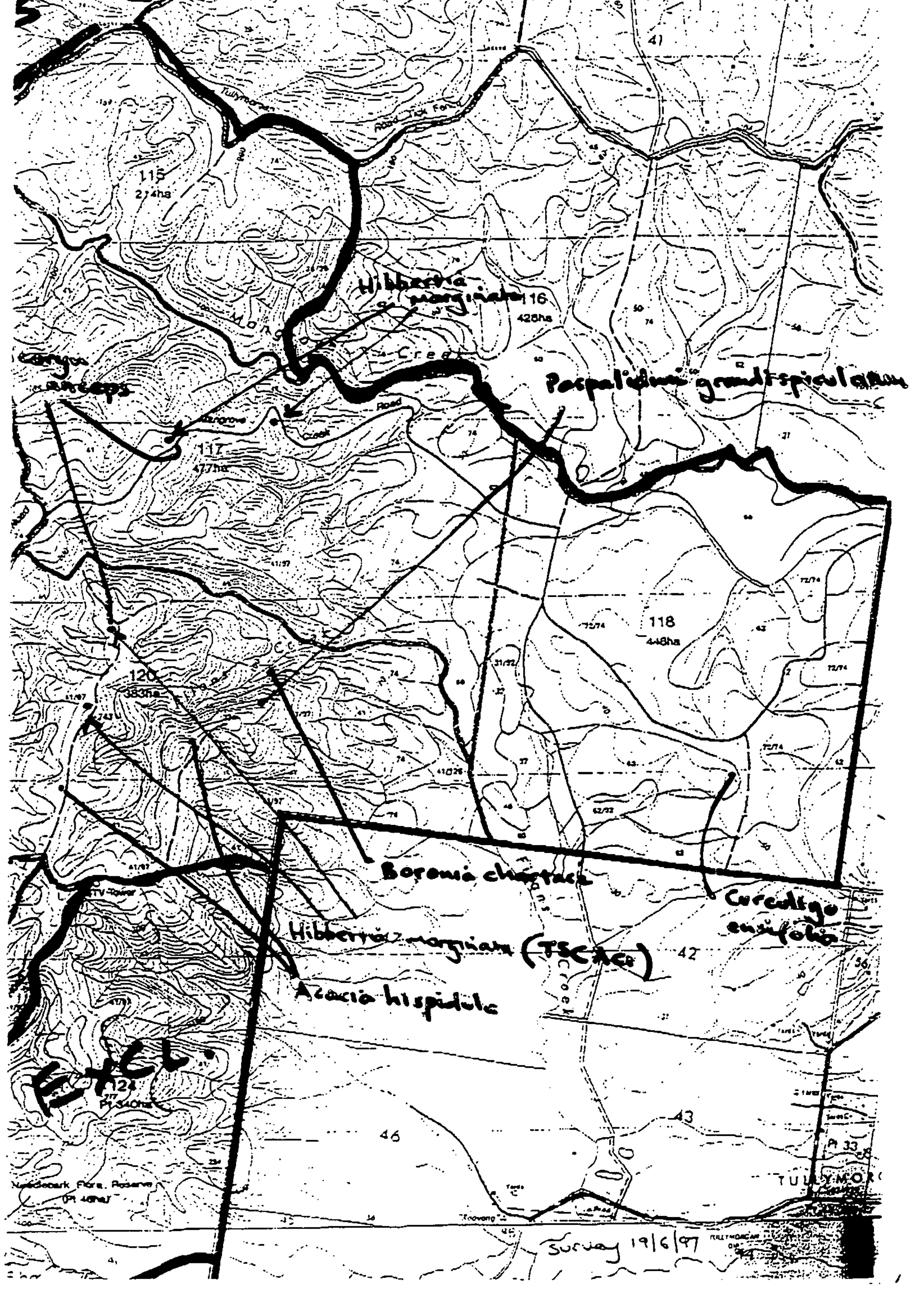
Filter strips .....

Protection strips .....

Road , minor road , dump site.....

Wet weather dumps shown in red

Special emphasis .....



41
Tullymorgan
Road
Tick Fence
115
214ha
Hibbertia marginata
116
428ha
Mangrove
Creek
Paspalidium grandispiculatum
Mangrove
Creek
Road
117
477ha
118
448ha
120
383ha
Boronia chartacea
Curculigo ensifolia
TV Tower
Hibbertia marginata (TSCAct)
42
56
Acacia hispidula
EXCL
121
Pt 340ha
43
46
Pt 33
TULLYMOR
Needlebark Flora Reserve
(Pt 46ha)
Survey 19/6/97

Cpt. 120 – track to nth, 300 m past TV tower FT 41/97

Dawesia cyathiana
Paspalidium grandispiculatum
Hibbertia obtusifolia
Xanthorrhoea latifolia
Leptospermum trinervium
Leucopogon spare leaves
Gompholobium pinnatum
Pultenaea petiolaris
Platylobium formosum
Acacia complanata
Euc. planchoniana
Persoonia tenuifolia
Hibbertia marginata (TSC Act)
Monotoca scoparia
Tricoryne anceps
Stipa
Phyllanthus hirtellus
Patersonia sericea
Lomandra obliqua
Bossiaea rhombifolia
Chloanthes
Eurolasia stricta
Euc. pyrocarpa
Leucopogon lanceolatus var. lanceol.
Cassytha com.
Xanthosia pilosa
Persoonia pulchella
Aristida ramosa
Hakea florulenta
Dampiera stricta
Pultenaea euchila
Hybanthus vernonii ssp. scaber

Acrotriche procumbens.
Crowplolobium laxifolium
Banksia spinulosa.
Acacia hispidula.
Banksia oblongifolia
Pultenaea sp.
Platysace ~~too~~ ericoides
Syncarpia glomulifera
Lobelia dentata
Lambertia formosa
Dowesia umbellata.

Mangrove Ck Tk. Cpt 117 FT 41
Euc. intermedia
Euc. bancroftii
Euc. pilularis
Reseda aurralis
Aristida vagans.
Jacksonia scoparia
Scaevola ramosissima
Trachymene incisa
Digitaria parviflora.
Acacia concurrens.
Calycina clandestina
Eustrephus latifolius
Alphitonia excelsa
Dodonaea triquetra
Persoonia stradbrokensis ? raspony
Hibbertia vestita
Pomaderris microphylla
Sporobolus diandrus
Pimelea linifolia

Euc. eugenioides
Euc. tricdalina
Lomandra filiformis
Brunoniella australis
Allocasuarina littoralis

- - - - - - - - - - - - - - - -

Euc. aff. acmenioides (prob. not Eucarvea) E. carn..
Xanthorrhoea latifolia
Euc. planchoniana
Euc. intermedia
Leptospermum trinervium
Hibbertia marginata (TSC Act) – 3 plants flagged 1.1km from main road, 5 more at 1.6km roadside
Epacris pulchella
Lindsaea microphylla
Bursaria spinosa
Platylobium formosum
Banksia spinosa

- - - - - - - - - - - - - - - -

Persoonia wyattiana
Acacia hispidula
} 1.8 km from main rd. (down Mangrove Ck Rd.)

this section mis-typed as 41 – should be 74 (Spec. G.-Sneig

Caladenia carnea
Melaleuca sieberi
Aristida warburgii
Gonocarpus tetragynus
Haloragis micrantha
Pranis purpurescens
Leptospermum polygalifolium
Desmodium rhytidophyllum
Centrolepis muticum.
Hibbertia scandens
Euc. propinqua
Hardenbergia violacea

Melaleuca alterni folia
Melaleuca quinquenervia
Carex maculata
Adiantum aethiopicum
Trochocarpa laurina
Parsonsia straminea
Cyperus exaltatus.
Chiloglottis sp. (not flowering)
Euc. tereticornis
Cymbidium suave.
Caladenia sp. B/A.
Lantana (medium density on mid to lower slopes in places, dense in some places along drainage lines)
Eremophila debilis.
Allocasuarina torulosa.
Dendrophthoe vitellina
Breynia oblongifolia
Pandorea pandorana
Ajuga australis
Adiantum hispidulum.
Maytenus ~~ sylvestris
Euc. ~~microcarpa~~
Cu[illegible] crucifolia
Solanum densivestitum

Colong B.C. 3.6 km.

Cymbopogon refractus
Pultenaea euchila
Euc. henryi
Hibbertia aspera
Imperata cylindrica
Acianthus sp. Prior Capt.
Pterostylis sp. nutans
Centella asiatica
Oplismenus aemulus.
Desmodium brachypodum
Leucopogon juniperinus.
Acacia aulacocarpa
Acacia falcata.
Goodenia rotundifolia
Echinopogon ovatus
Dawesia ulicifolia
Opercularia diphylla
Vernonia cinerea.
Cheilanthes sieberi
Dianella caerulea
Acacia irrorata.
Leucopogon lanceolatus var. lanc.
Acacia concurrens.
Themeda australis
Euc. siderophloia
Phyllanthus virgatus.
Lophostemon suaveolens.
Notelaea longifolia
Billardiera scandens
Glochidion ferdinandi
Callistemon salignus.

Flora Survey Gibberagee State Forest - Results of Additional Fieldwork 20-21/8/97

Introduction

Two days of additional flora survey work in Gibberagee State Forest was carried to: (i) determine the extent of a probable new species of Bush Pea or *Pultenaea* (aff. *flexilis*) recorded in earlier survey work and (ii) to inspect further areas in the ten compartments not yet surveyed.

Results

Pultenaea sp.aff *flexilis* (Gibberagee Bush Pea)

The plant was in full flower allowing ready identification from a distance. It was found to occur mainly in compartment 117 around the junction of Banyabba Rd and Oil Rig Rd, extending north into compartment 115. Here it occurs on a flat topped-ridge and adjacent upper slopes in several large patches each of several hundred plants with small groups and individuals scattered in between. The area has been marked from the road by red dots on trees starting ('arrow') about 500 metres south of the junction and ending ('arrow') about 1km north of the junction - see attached map.

The species is obviously an obligate seed regenerator that regenerates from soil stored seed after fire. Adaptation to natural disturbance by fire does not necessarily imply that the population will persist under an artificial disturbance regime of logging, follow-up silvicultural treatment, control burning etc. The sequence, timing and intensity of these imposed treatments may inhibit the process of seedling recruitment in particular (The absence of the species from identical forest on the southern side of the road recently controlled burned suggests that some process of this nature may have caused it to be eliminated there). As a likely new and restricted species, caution should therefore be exercised in interfering with its habitat.

The related species *Pultenaea flexilis* was collected along Mangrove Creek Road growing on sandstone in forest type 41, quite a different habitat to the Spotted Gum forest preferred by the new species.

Melichrus sp.*nov* (Shiny Urn Heath)

The new *Melichrus* species previously reported in compartment 118 was inspected with Doug Binns. Plants were found extending further south-eastwards as indicated on the attached map.

The practicality of marking all the *Melichrus* plants, imposing a 10 metre buffer as proposed in the conservation protocols and then logging in between them was discussed. The plants occur as single individuals or in groups of a few generally 10 to 20 metres apart making such a strategy appear feasible. However, it would be impossible to prevent falling tree crowns 10-15 metres wide impacting on the *Melichrus* plants and there was the further problem of using large machinery to drag trees out of the forest.

Inspection of cleared lands east and south-east of compartment 118 around Tullymorgan showed the same type of higher quality Grey Gum soils associated with the *Melichrus*. which are therefore likely to have formed part of its former habitat. Only a small area (50-100 ha) of these better Grey

n soils extend into the extreme eastern side of the State Forest at cpt. 118, which would account for its restricted occurrence there.

Addtional Significant Plants

Species	Location	Numbers	Comments
ROTAP			
Olearia stilwelliae (3RCa) (Red-leaved Daisy)	506700 6749700 cpt 126	approx. 30 in 0.1ha	in rocky habitat mapped as 234 unlikely to be significantly disturbed.
Regionally Significant			
Lindsaea dimorpha (4 7?)	508400 6749300 cpt 126	approx. 20 in 0.025ha	regionally uncommon; in forest type 41 in grassy area with sparse Casuarina flagged with pink flagging.

Forest Typing

The Red Gum type in compartment 122 has been incorrectly typed as 65, the correct type being 92 or 92/93. Forest type 65 applies to Forest Red Gum on slopes and ridges in hilly or mountainous terrain, while type 92 applies to Forest Red Gum in the lowlands and on valley floors (SFNSW 1989), the latter being the topographic situation found in cpt. 122. The red gums present in the compartment include Forest Red Gum, Narrow-leaved Red Gum and Bancroft's Red Gum. The examples of type 92 and 92/93 in cpt 122 are generally unlogged or very lightly logged, because of low timber quality (poor form, hollows etc).

Recommendations (revised)

1 A logging exclusion area encompassing the more or less continuous population of *Pultenaea* sp.aff. *flexilis* in compartment 117 and adjoining 115 should be implemented - see attached map.

2. The logging exclusion area previously recommended to protect the new *Melichrus* species should be implemented and extended over about another 10 ha of adjoining forest in the south-east corner of the compartment, where the *Melichrus* was also observed.

3. Logging should be excluded from or kept to a minimum in areas of red gum forest in cpt 122, a lowland red gum type closest to protected type 92, which has been erroneously mapped as 65 or a combination thereof.

Compartment 115

T1 600
T2 650

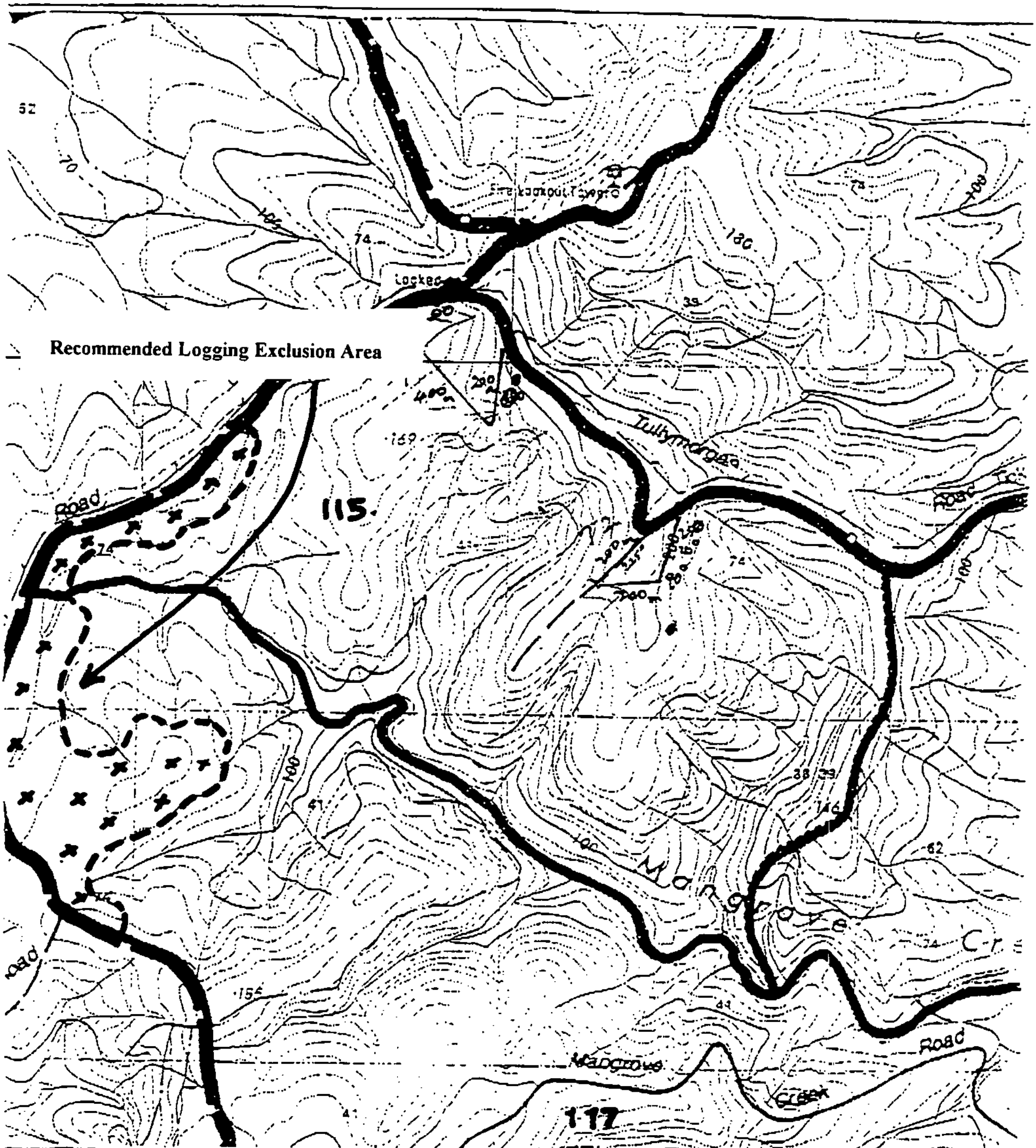
G. 214
N 120
1.2k
transect G

Scale — 1 : 15 000

0 0·5 1 km.

Contour interval 10m

N



...rtment boundary
...strips ...
...n strips ...
...minor road, dump site ...
...ther dumps shown in red

Special emphasis ...

'X' New *Pultenaea* species

Compartment 118

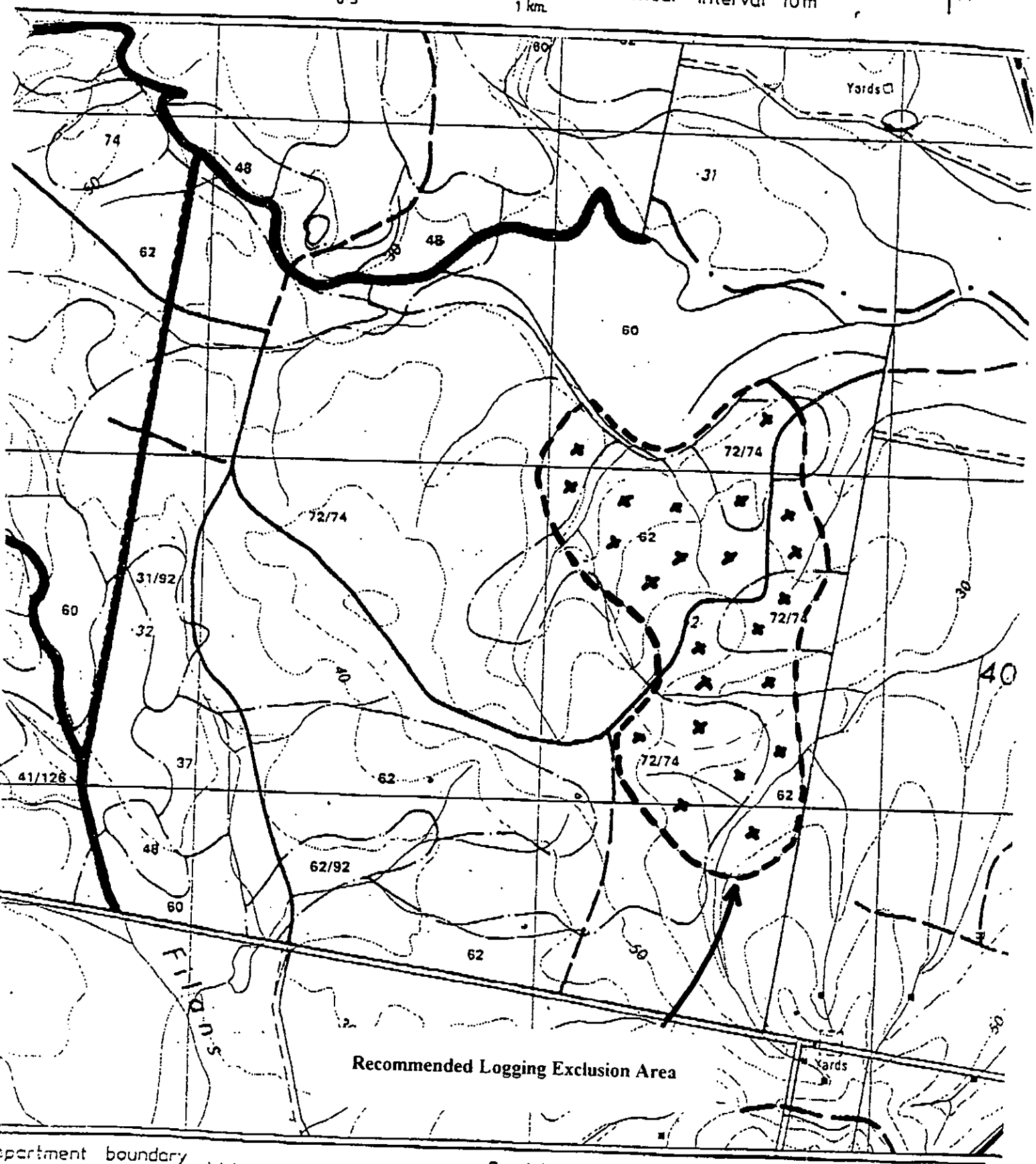
Scale — 1 : 15 000

0 0·5 1 km.

CB / 19

Contour interval 10 m

G N



Recommended Logging Exclusion Area

partment boundary .....

r strips .....

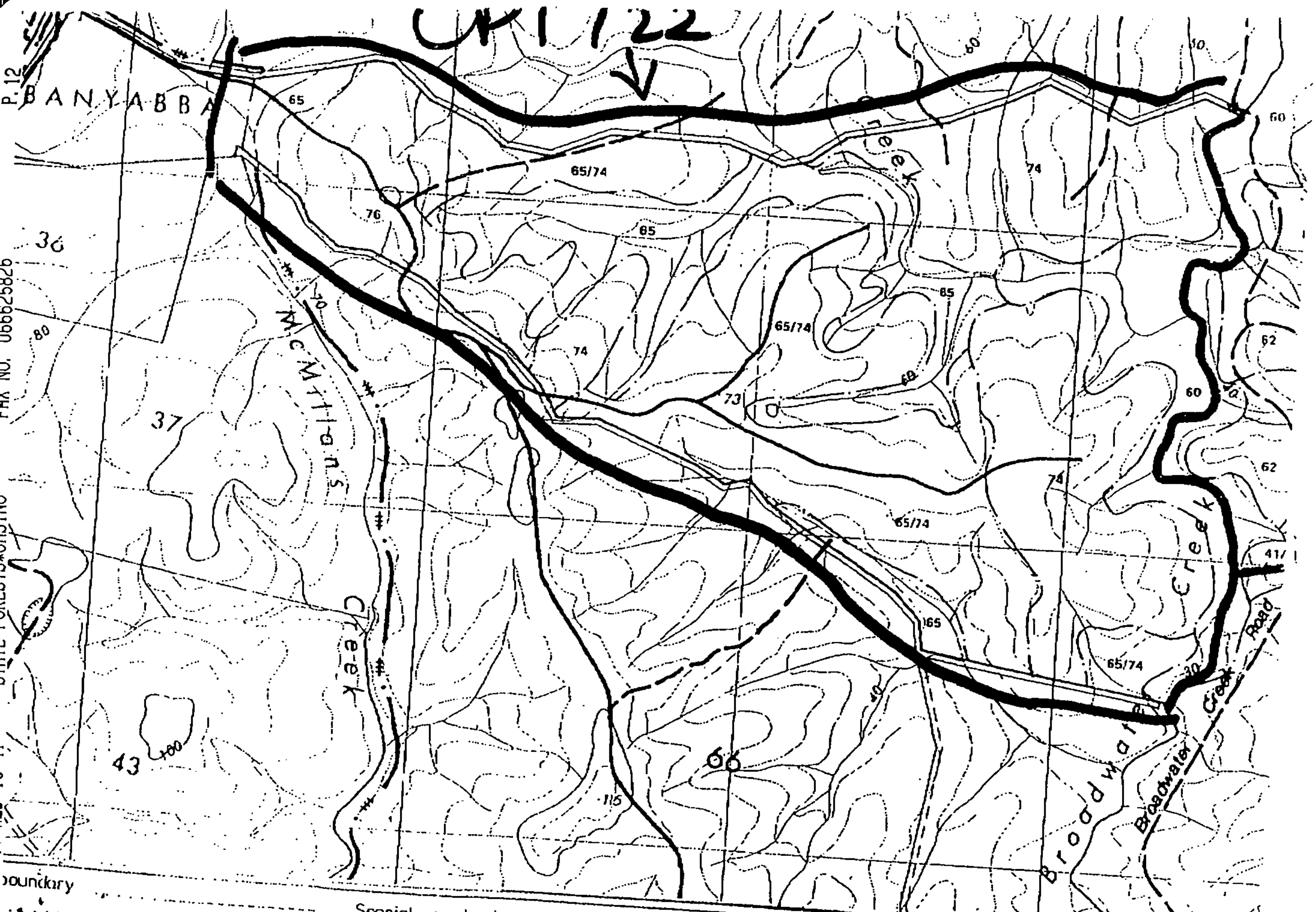
ection strips .....

d , minor road , dump site .....

weather dumps shown in red

Special emphasis .....

'X' New *Melichrus* species



boundary

Special emphasis

FACSIMILE TRANSMISSION

To	NPWS TSU PO BOX 914 COFFS HARBOUR 2450 NEFA 123 KEEN ST LISMORE 2480 NORTHERN REGION SF		
Attention	Donella Anderson Georgia Beyer Doug Binns	**Date**	23/09/97
Your Fax	516187 (NPWS) 224737 (NEFA)	**Our Fax**	62 5826
From	Peter St.Clair Forester - for District Forester - CASINO	**Phone**	(066) 62 4499
No of Pages	2 (including this cover page)		

479E
418A
356E.

your ref:Gibberagee SF

STATE FORESTS
NORTHERN REGION

State Forests of New South Wales
Casino District
PO Box 688
CASINO NSW 2470
Phone (066) 624499

Message

RE **Gibberagee SF Cpts 115, 117-123, 125, 126**

New Melichrus species in Cpt 118

Please find enclosed Botanist John Williams report on Melichrus "benwellii" which provides further evidence this is a new species. The occurrence is contained in Cpt 118 and clearly delineated on the ground.

We still await clarification on the Pultenea species in Cpt 115. This occurrence has been mapped in the field.

Please proceed with licensing this plan, less those areas marked in Cpts 118 and 115 where we await further herbarium reports and an onsite inspection.

Thank you

John B. Williams · Consultant Botanist
BOTANY and VEGETATION ECOLOGY
PO Box 330, Armidale, N.S.W. 2350
Phone (067) 72 4454

A PRELIMINARY REPORT ON A NEW SPECIES OF MELICHRUS FROM GIBBERAGEE STATE FOREST NORTH OF GRAFTON, NEW SOUTH WALES

John Williams, September 1997

In August 1997 Mr Andrew Benwell sent me specimens of a *Melichrus* which he had collected in Gibberagee State Forest, with a request for an opinion on its taxonomic status. *Melichrus* is a small genus of shrubs in the Epacridaceae; its major area of occurrence is in N.S.W. where all of the five species occur. There are four named species plus an unnamed species from Glenreagh which I am in the process of describing. This is *M. hirsutus* J. Williams ms (see *Flora of N.S.W.* vol. 4 p. 669).

I have examined Mr Benwell's specimens and am satisfied that they represent another new species of *Melichrus*. They differ from the 5 known species in a number of characters and do not appear to be intermediate between any two existing species thus ruling out a hybrid status. I give some notes on the distinctive characteristics of the Gibberagee species below:

The leaves are the narrowest in the genus at 1.2–1.4 mm wide and become distinctively appressed upwards on drying. They are not pungent pointed, sharing this feature only with *M. procumbens*. The leaves also resemble those of *M. procumbens* in being ciliate but differ in being narrower and having fewer ribs (5 - 7 not 10 - 14).

The flowers differ from those of *M. procumbens* in their slender urceolate not saucer-shaped corolla. The yellowish corolla differs from all the other species in being densely hairy inside over the whole lobes and part of the tube, and in having a tuft of spreading hairs at the apex of each lobe. The five glandular hair tufts are inserted very low in the corolla tube and each consists of a cluster of distinctive globose sessile hairs or scales. The apex of the corolla lobes is not obviously hooded as it is in other species. The style is very short.

The flowers are creamy yellow in colour with no red tinges or coloration as in *M. erubescens* or *M. hirsutus*. In colour and shape the corolla somewhat resembles *M. urceolatus* but is narrower and differs from that species in hairiness and in other respects.

The new species is reported to be a tall shrub thus differing from *M. procumbens* and in fact from all of the other species except possibly for some tall specimens of *M. urceolatus*.

On presently available information the *Melichrus* from Gibberagee S.F. is very restricted in distribution and is almost certainly to be proposed for ROTAP listing and for listing in th Threatened Species Schedule. Very careful consideration should be given before undertaking logging operations in any forest stand containing a population of this species.

John Williams