

Pre-harvest Significant Flora Surveys: Package 27-1

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Table of Contents

Document Information	2
1. Introduction	4
Study Area	4
2. Methodology	5
2.1. Targeted Flora Transects	5
2.2. Permits	6
3. Results	7
3.1. Yazoo Coupe	8
3.1.1. Significant flora	8
3.2. Tombigbee Coupe	8
3.2.1. Significant flora	9
3.3. Sand Pit Coupe	9
3.3.1. Significant flora	10
3.4. Uncle Road Coupe	10
3.4.1. Significant fora	10
3.5. Roll On Coupe	11
3.5.1. Significant flora	11
4. Plates	13
5. References	17

1. Introduction

TactEcol Consulting Pty Ltd (TactEcol) was commissioned by VicForests in October 2018 to undertake pre-harvest targeted surveys for significant flora species in five (5) coupes located between Bruthen and Nowa Nowa (Package 27-1) in East Gippsland, Victoria. The objective of the surveys was to assess and document the presence of a range of target significant flora species.

Study Area

Pre-harvest surveys were undertaken in the Tambo Forest Management Area. All 5 coupes were located in the Bairnsdale forest district.

The coupe names, numbers and general location are provided in Table 1 below.

Table 1 Coupes surveyed for significant flora during pre-harvest surveys in East Gippsland, October 2018.

Coupe name	Coupe number	District	Nearest named road
Yazoo	743-502-0001	Bairnsdale	Boundary Rd
Tombigbee	743-502-0006	Bairnsdale	Bruthen - Nowa Nowa Rd
Sand Pit	743-505-0002	Bairnsdale	Uncle Rd
Uncle Road	743-506-0001	Bairnsdale	Uncle Rd
Roll On	743-501-0009	Bairnsdale	Seaton Tk

2. Methodology

Pre-harvest surveys were undertaken over three days between 17 October and 20 October 2018. The survey techniques undertaken are summarised below.

2.1. Targeted Flora Transects

Transects were undertaken by two botanists walking approximately parallel with each other, contributing equally to the total area surveyed. Transects were approximately 400 m long, with an area of detection of 25 m on either side of each surveyor; giving a survey area of c.4 ha. Each transect was walked at an average speed of 0.75 km/hr, equating to approximately 30 minutes per transect.

Transects were located in areas of potentially suitable habitat for the target species and positioned to cover a large proportion of the coupe. Transects were surveyed under suitable conditions (e.g. little or no rain). Each coupe had a minimum of three transects undertaken; four transects were surveyed at Tombigbee, while five transects were undertaken at Yazoo. This equated to approximately 2.5-3.5 hours of survey time within each coupe by the two botanists.

Walking transects targeted significant flora species, with a focus on those listed in Table 2 below; significant species detected were recorded and marked by a GPS waypoint, with the following information also captured:

- Coupe name or number
- Species and common name
- Date and approx. time
- Observer
- Count/estimate of individuals

Photographs were taken of the target species encountered. VicForests (2015) and (2017) were reviewed and used as reference material where needed.

Table 2 Target flora species for pre-harvest surveys in East Gippsland

Key: EPBC Act (1999): EN – Endangered, VU – Vulnerable

FFG Act (1988): L – listed under the Act

Advisory List of Rare or Threatened Plants in Victoria (DEPI 2014): en – Endangered; vu – Vulnerable; r – Rare; k – Poorly Known

Scientific Name	Common Name	Status
<i>Acacia caerulescens</i>	Limestone Blue Wattle	VU vu L
<i>Acacia maidenii</i>	Maiden's Wattle	e L
<i>Allocasuarina</i> spp.	Sheoak (stands)	
<i>Androcalva rossii</i>	Blackfellow's Hemp	v
<i>Beyeria lasiocarpa</i>	Wallaby Bush	r
<i>Correa lawrenceana</i> var. <i>latrobeana</i>	Red Mountain-correa	r
<i>Cyathea cunninghamii</i>	Slender Tree-fern	v L
<i>Cyathea leichhardtiana</i>	Prickly Tree-fern	v L
<i>Euphrasia collina</i>	Purple Eyebright	^
<i>Euphrasia scabra</i>	Rough Eyebright	e L
<i>Geranium solanderi</i> var. <i>solanderi</i> s.s.	Austral Crane's-bill	v

Scientific Name	Common Name	Status
<i>Grevillea celata</i>	Colquhoun Grevillea	VU vu L
<i>Grevillea polychroma</i>	Tulloch Ard Grevillea	v
<i>Leucopogon juniperinus</i>	Long-flower Beard-heath	k
<i>Nematolepis squamea</i> subsp. <i>squamea</i>	Satinwood	r
Orchidaceae spp.	Orchid species	^
<i>Pomaderris eriocephala</i>	Wooly-head Pomaderris	r
<i>Pomaderris ligustrina</i> subsp. <i>ligustrina</i>	Privet Pomaderris	r
<i>Prostanthera walteri</i>	Monkey Mint-bush	r
<i>Sambucus australasica</i>	Yellow Elderberry	v L
<i>Zieria smithii</i> subsp. <i>smithii</i>	Sandfly Zieria	r

^ The status of *Euphrasia collina* varies by subspecies. A range of indigenous species in the Orchidaceae family are listed as threatened.

2.2. Permits

Field assessments by TactEcol staff are covered under the Department of Economic Development, Jobs, Transport and Resources, Wildlife and Small Institutions Animal Ethics Committee approval (12.17), and Research Permit under the Victorian *Wildlife Act 1975*, *Flora and Fauna Guarantee Act 1988*, and *National Parks Act 1975* (10008411).

3. Results

Significant flora species recorded during the surveys, or with suitable habitat occurring in the coupe, are listed in Table 3 below; see the relevant coupe section below for further details.

Table 3 Target flora species for pre-harvest surveys in East Gippsland

Key: Advisory List of Rare or Threatened Plants in Victoria (DEPI 2014): r – Rare; k – Poorly Known

Coupe	Significant Species / Habitat	Status	Count	Comments
Yazoo	<i>Allocasuarina littoralis</i>		1	One mature individual recorded.
	<i>Leucopogon juniperinus</i>	k	194	Abundant occurrence throughout coupe
	<i>Diuris sulphurea</i>		7	Scattered occurrence throughout coupe
	<i>Chiloglottis</i> sp.		25	Scattered occurrence throughout coupe
Tombigbee	<i>Leucopogon juniperinus</i>	k	159	Abundant where recorded in coupe
	<i>Diuris sulphurea</i>		2	Rare within coupe
	<i>Caladenia catenata</i>		1	Rare within coupe
	<i>Caldenia</i> sp.		1	Rare within coupe
	<i>Pomaderris aurea</i>	r	40	Rare within coupe. This population is restricted to an area with a radius of c. 10 m.
Sand Pit	<i>Chiloglottis</i> sp.		145	Scattered occurrence throughout coupe
	<i>Eucalyptus tricarpa</i> subsp. <i>tricarpa</i>		20	
	<i>Leucopogon juniperinus</i>	k	4	Rare occurrence throughout coupe
Uncle Road	<i>Allocasuarina littoralis</i>		c. 1,000	Extensive distribution throughout much of coupe, including many large, mature individuals. Large stands of this species are typically an important food resource for the threatened Glossy Black Cockatoo <i>Calyptorhynchus lathami lathami</i>
	<i>Caladenia catenata</i>		2	Rare within coupe
	<i>Diuris sulphurea</i>		1	Rare within coupe
	<i>Eucalyptus polyanthemus</i>		3	Present in coupe as an uncommon understory tree.
	<i>Leucopogon juniperinus</i>	k	15	Scattered occurrence throughout coupe
	<i>Chiloglottis</i> sp.		35	Scattered occurrence throughout coupe
	<i>Ozothamnus argophyllus</i>	r	1	Rare within coupe. Only one plant detected
Roll On	<i>Chiloglottis</i> sp.		89	Scattered occurrence throughout coupe
	<i>Caladenia catenata</i>		1	Rare within coupe
	<i>Glossodia major</i>		2	Rare within coupe
	<i>Eucalyptus tricarpa</i> subsp. <i>tricarpa</i>		5	Rare within coupe.
	<i>Leucopogon juniperinus</i>	k	111	Scattered occurrence throughout coupe

3.1. Yazoo Coupe

Yazoo coupe is bounded by Boundary Rd to the east and Bruthen-Nowa Nowa Rd to the north, at an elevation above sea level of approximately 160-180 m. Yazoo coupe is 22.3 ha in size. The coupe is modelled as comprising Lowland Forest EVC (DELWP 2017).

The vegetation canopy was dominated by young Silvertop Ash, with a sparse upper-midstory and a range of shrubs and herbs in the understory (Table 4). There were relatively few large old trees and hollow-bearing trees, as well as limited large logs and coarse woody debris on the forest floor. The substrate was predominantly light, loose and sandy with some areas grading to a heavier sandy loam.

3.1.1. Significant flora

Allocasuarina littoralis (Black Sheoak) occurred in the northern section of the coupe with individuals being of a relatively young age. The *Chiloglottis* sp. (Wasp Orchid) was not able to be identified to species level due to a lack of flowering material; flowering occurs during autumn. It is considered most likely to be *Chiloglottis curviclavia*, a widespread and locally common species occurring in sandy soils across southern Victoria. It had a scattered distribution within Yazoo coupe, but was not detected in the neighbouring Tombigbee coupe. *Diuris sulphurea* (Tiger Orchid) had a very sparse distribution, being confined to the more open and higher elevation areas to the north of the coupe. In contrast, *Leucopogon juniperinus* (Long-flowered Beard-heath), which is considered Poorly Known in Victoria (DEPI 2014), was quite numerous throughout Yazoo, excepting the more densely vegetated gully in the south of the coupe.

Table 4 Dominant and distinctive flora species recorded in Yazoo coupe during pre-harvest surveys.

Scientific name	Common name
<i>Eucalyptus sieberi</i>	Silvertop Ash
<i>Persoonia linearis</i>	Narrow-leaf Geebung
<i>Cassinia longifolia</i>	Shiny Cassinia
<i>Kunzea</i> sp. (scrubby form)	Tangled Burgan
<i>Philotheca trachyphylla</i>	Rock Wax-flower
<i>Hibbertia sericea</i>	Silky Guinea-flower
<i>Patersonia glabrata</i>	Leafy Purple-flag
<i>Craspedia variabilis</i>	Common Billy-buttons
<i>Pteridium esculentum</i>	Bracken
<i>Xanthorrhoea minor</i> subsp. <i>lutea</i>	Small Grass-tree
<i>Platylobium montanum</i> subsp. <i>montanum</i>	Handsome Flat-pea
<i>Leucopogon juniperinus</i>	Long-flower Beard-heath

3.2. Tombigbee Coupe

Tombigbee coupe is bounded by Bruthen-Nowa Nowa Rd to the north and Mississippi Creek to the west, at an elevation above sea level of approximately 150-165 m. Tombigbee coupe is 25 ha in size. The coupe is modelled as comprising Lowland Forest EVC (DELWP 2017).

The vegetation canopy was dominated by young Silvertop Ash, with a sparse upper-midstory and a range of shrubs and herbs in the understory (Table 4). There were relatively few large old trees and hollow-bearing

trees, as well as limited large logs and coarse woody debris on the forest floor. The substrate was predominantly light, loose and sandy with some areas grading to a heavier sandy loam.

3.2.1. Significant flora

Orchid species detected within Tombigbee included *Caladenia catenata* (White Caladenia), *Caladenia* sp. (Caladenia) and *Diuris sulphurea* (Tiger Orchid). These orchids had a very sparse distribution within the coupe. *Leucopogon juniperinus* (Long-flowered Beard-heath; Poorly Known in Victoria) was largely absent from much of the coupe, but was recorded in the northern and north-western sections, where it was relatively abundant. A population of *Pomaderris aurea* (Golden Pomaderris) was discovered in this north-western section as well; this species is listed as Rare in Victoria (DEPI 2014).

Table 5 Dominant and distinctive flora species recorded in Tombigbee coupe during pre-harvest surveys.

Scientific name	Common name
<i>Eucalyptus sieberi</i>	Silvertop Ash
<i>Persoonia linearis</i>	Narrow-leaf Geebung
<i>Brachyloma daphnoides</i>	Daphne Heath
<i>Kunzea</i> sp. (Scrubby form)	Tangled Burgan
<i>Scaevola ramosissima</i>	Hairy Fan-flower
<i>Hibbertia sericea</i>	Silky Guinea-flower
<i>Patersonia glabrata</i>	Leafy Purple-flag
<i>Craspedia variabilis</i>	Common Billy-buttons
<i>Pteridium esculentum</i>	Bracken
<i>Xanthorrhoea minor</i> subsp. <i>lutea</i>	Small Grass-tree
<i>Leptorhynchus nitidulus</i>	Shiny Buttons
<i>Leucopogon juniperinus</i>	Long-flower Beard-heath

3.3. Sand Pit Coupe

Sand Pit coupe is bounded by Uncle Road to the east with Pines Track located approximately 100 m to the west. The coupe has an elevation above sea level of approximately 115-135 m. Sand Pit coupe is 26 ha in size. The coupe is modelled as comprising Lowland Forest EVC (DELWP 2017).

The vegetation canopy was dominated by young *Eucalyptus sieberi* (Silvertop Ash) with the central portion co-dominated by *Eucalyptus tricarpa* subsp. *tricarpa* (Ironbark). Sand Pit Coupe had very sparse mid and understorey vegetation due to a recent burn which appeared to have removed much of the biomass. The periphery of the coupe was not recently burnt and had more typical Lowland Forest vegetation structure with a sparse upper-midstory and a range of shrubs and herbs in the understorey (Table 6). There were relatively few large old trees and hollow-bearing trees, as well as limited large logs and coarse woody debris on the forest floor. The substrate was predominantly light, loose and sandy with some areas grading to a heavier sandy loam.

3.3.1. Significant flora

A *Chiloglottis* sp. was quite frequent throughout the recently burnt understory. This burn may have resulted in some flora species not being detected where they otherwise might have been, due to a lack of regrowth. *Eucalyptus tricarpa* subsp. *tricarpa* (Ironbark) was a co-dominant canopy species in the central area. Some areas closer to the gullies on the coupe edges appeared to have escaped the recent burn; in these areas *Leucopogon juniperinus* (Long-flowered Beard-heath) was recorded at a relatively high frequency.

Table 6 Dominant and distinctive flora species recorded in Sand Pit coupe during pre-harvest surveys.

Scientific name	Common name
<i>Eucalyptus sieberi</i>	Silvertop Ash
<i>Eucalyptus tricarpa</i> subsp. <i>tricarpa</i>	Ironbark
<i>Cassinia longifolia</i>	Shiny Cassinia
<i>Kunzea</i> sp. (Scrubby form)	Tangled Burgan
<i>Persoonia linearis</i>	Narrow-leaf Geebung
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	Tangled Guinea-flower
<i>Viola betonicifolia</i> subsp. <i>betonicifolia</i>	Showy Violet
<i>Lomandra longifolia</i> subsp. <i>longifolia</i>	Spiny-headed Matt-rush
<i>Pteridium esculentum</i>	Bracken
<i>Xanthorrhoea minor</i> subsp. <i>lutea</i>	Small Grass-tree
<i>Stypandra glauca</i>	Nodding Blue Lily
<i>Leucopogon juniperinus</i>	Long-flower Beard-heath

3.4. Uncle Road Coupe

Uncle Road coupe is bounded by Uncle Road to the west and Lakes - Colquhoun Road to the east, with the Little Mississippi Creek headwaters running from north to south down the center and through the southern end of the coupe. It has an elevation above sea level of approximately 120-140 m. Uncle Road coupe is 28.2 ha in size. The coupe is modelled as comprising Lowland Forest EVC (DELWP 2017).

The vegetation canopy was dominated by young *Eucalyptus sieberi* (Silvertop Ash) and sub-dominants were *Eucalyptus polyanthemos* (Red Box) and *Eucalyptus globoidea* (White Stringybark). It had a fairly consistent midstory comprised mostly of *Allocasuarina littoralis* (Black Sheoak) and a range of shrubs and herbs in the understory (Table 7). There were relatively few large old trees and hollow-bearing trees, as well as limited large logs and coarse woody debris on the forest floor. The substrate was predominantly light, loose and sandy with some areas grading to a heavier sandy loam.

3.4.1. Significant flora

Allocasuarina littoralis (Black Sheoak) was recorded frequently within Uncle Road coupe. It occurred as stands of old mature individuals graded together by areas of less densely positioned younger individuals. Large stands of Black Sheoak, particularly mature trees, are an important food resource for the threatened

Glossy Black Cockatoo (*Calyptorhynchus lathami*), *Caladenia catenata* (White Caladenia) and *Diuris sulphurea* (Tiger Orchid) were recorded scattered through the coupe, along with *Chiloglottis* sp. (Wasp Orchid) being present as a relatively frequent member of the coupe ground flora. Interestingly, *Eucalyptus polyanthemos* (Red Box) was present as an uncommon mid-storey tree. *Leucopogon juniperinus* (Long-flowered Beard-heath) occurred predominantly in dryer, less densely vegetated areas away from the gully in the centre of the coupe. Also recorded was an individual *Ozothamnus argophyllus* (Spicy Everlasting) in the northern part of the coupe; this species is listed as Rare in Victoria (DEPI 2014).

Table 7 Dominant and distinctive flora species recorded in Uncle Road coupe during pre-harvest surveys.

Scientific name	Common name
<i>Eucalyptus sieberi</i>	Silvertop Ash
<i>Eucalyptus polyanthemos</i>	Red Box
<i>Eucalyptus globoidea</i>	White Stringybark
<i>Kunzea</i> sp. (Scrubby form)	Tangled Burgan
<i>Allocasuarina littoralis</i>	Black Sheoak
<i>Olearia lirata</i>	Showy Daisy-bush
<i>Acacia falciformis</i>	Large-leaf Hickory-wattle
<i>Elaeocarpus reticulatus</i>	Blue Oliveberry
<i>Pteridium esculentum</i>	Bracken
<i>Xanthorrhoea minor</i> subsp. <i>lutea</i>	Small Grass-tree
<i>Persoonia linearis</i>	Narrow-leaf Geebung
<i>Leucopogon juniperinus</i>	Long-flower Beard-heath
<i>Banksia marginata</i>	Silver banksia
<i>Hibbertia sericea</i>	Silky Guinea-flower
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	Tangled Guinea-flower

3.5. Roll On Coupe

Roll On coupe is situated just north of the East Gippsland Rail Trail and approximately 100 m west of Seaton Track at an elevation above sea level of approximately 120-135 m. Roll On coupe is 31 ha in size. The coupe is modeled as comprising Lowland Forest EVC (DELWP 2017).

The vegetation canopy was dominated by young *Eucalyptus sieberi* (Silvertop Ash) with some areas supporting *Eucalyptus croajingolensis* (Gippsland Peppermint) and *Eucalyptus globoidea* (White Stringybark) as co-dominants. There was a sparse upper-midstory and a range of shrubs and herbs in the understory (Table 10). There were relatively few large old trees and hollow-bearing trees, as well as limited large logs and coarse woody debris on the forest floor. The substrate was predominantly light, loose and sandy with some areas grading to a heavier sandy loam.

3.5.1. Significant flora

Glossodia major (Wax-lip Orchid) and *Caladenia catenata* (White Caladenia) occurred in a grouping within the coupe, which likely indicated the presence of a subterranean fungi species providing these orchids with their required mycorrhizal relationship. The *Chiloglottis* sp. (Wasp Orchid) was a regular component of the

ground flora throughout much of the coupe. *Eucalyptus tricarpa* subsp. *tricarpa* (Ironbark) was a sub-dominant member of the canopy layer. *Leucopogon juniperinus* (Long-flowered Beard-heath; Poorly Known in Victoria) was scattered intermittently throughout most of the coupe area.

Table 8 Dominant and distinctive flora species recorded in Roll On coupe during pre-harvest surveys.

Scientific name	Common name
<i>Eucalyptus sieberi</i>	Silvertop Ash
<i>Eucalyptus croajingolensis</i>	Gippsland Peppermint
<i>Eucalyptus globoidea</i>	White Stringybark
<i>Kunzea</i> sp. (Scrubby form)	Tangled Burgan
<i>Philotheca trachyphylla</i>	Rock Wax-flower
<i>Hibbertia sericea</i>	Silky Guinea-flower
<i>Cassinia longifolia</i>	Shiny Cassinia
<i>Pteridium esculentum</i>	Bracken
<i>Xanthorrhoea minor</i> subsp. <i>lutea</i>	Small Grass-tree
<i>Hibbertia obtusifolia</i>	Grey Guinea-flower
<i>Leucopogon juniperinus</i>	Long-flower Beard-heath
<i>Persoonia linearis</i>	Narrow-leaf Geebung
<i>Stypandra glauca</i>	Nodding Blue Lily
<i>Sannantha pluriflora</i>	Tall Baeckea

4. Plates



Plate 1 Three *Leucopogon juniperinus* recorded in Yazoo coupe, listed as Poorly Known in Victoria.



Plate 2 Stand of *Allocasuarina littoralis* in Uncle Road coupe.



Plate 3 Several *Chiloglottis* sp. recorded in Sand Pit coupe; these are most likely *Chiloglottis curvivalvia*.



Plate 4 Recently burned area near the centre of Sand Pit coupe.



Plate 5 Pomaderris aurea recorded in Tombigbee coupe; listed as Rare in Victoria.



Plate 6 Leucopogon juniperinus recorded in Tombigbee coupe; listed as Poorly Known in Victoria.



Plate 7 *Diuris sulphurea* (Tiger Orchid) recorded in Tombigbee coupe.



Plate 8 *Glossodia major* (Wax-lip Orchid) recorded in Roll On coupe.

5. References

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