

**Ecological Assessment  
of area proposed for  
rezoning from Rural living  
to residential one**

**Ireland Street**

**Castlemaine**

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# **1. INTRODUCTION**

## ***1.1 Project Background***

Garry and Brenda Cheers, Flora & Fauna Consultants, were commissioned by CPG PO Box 1064 Bendigo 3550 to assess the environmental value of vegetation on site in relation to a proposal to rezone the site. The study area was at the north end of Ireland Street, Castlemaine, and was approximately 12ha in size.

## ***1.2 Proposed development site***

The proposed site to be rezoned was at the north end of Ireland St Castlemaine (See 8 study area location). The vegetation on site consisted of the following Ecological Vegetation Classes (EVC's): Box-Ironbark Forest and Heathy Dry Forest.

# **2. DESCRIPTION OF METHODS**

Both the Flora Information System and the Atlas of Victorian Wildlife were checked for species found within a 5km radius of the study area. The *Environment Protection and Biodiversity Conservation Act 1999* (the 'EPBC Act') on line Environmental Reporting Tool was also checked for possible occurrence of threatened species within a 5km radius of the area.

# **3. FLORA SURVEY METHODS**

## ***3.1 Systematic site assessment and initial evaluation of site quality***

The site was assessed using the Department of Sustainability and Environment's (DSE) Vegetation Quality Field Assessment Method (Habitat Hectares Version 1.3 October 2004). This assessment method differs to the quadrat method as it generates a score between zero and one hundred for each site and also differs in criteria used for the assessment. The DSE Vegetation Quality Field Assessment Method takes the following features into account: large trees; tree canopy cover; under-storey; cover of weeds; regeneration; organic litter; logs (condition score); block size; neighbourhood; distance to core area (viability score). The Ecological Vegetation Class (EVC) benchmarks, developed by Department of Sustainability and Environment were used to provide the basis for this assessment.

In addition to this assessment, a plant species list was compiled for the site giving an indication of biodiversity.

## ***3.2 Limitations of the Survey***

The survey was done in late winter when a proportion of the flora e.g. native grasses were not identifiable to species level. The same applied to some annual weeds. The previous 10-11 dry years have also taken a toll on the native vegetation including shrub

species. Recent rains have improved vegetation in many places in the Goldfields Bioregion and although this site has been grazed for many years there has been some improvement in some areas. Bryophytes have not been surveyed in this report.

## **4. FLORA STUDY OUTCOMES**

### **4.1 *Flora Information System (FIS)***

There were no FIS sites within the study area. Ten rare or threatened species were recorded within a 5km radius surrounding the study area (refer to Table 1). The vegetation condition within the study sites was well below the structure and condition required for many of these species. Also, some of these species are found in EVC's that are not present on site.

**The site was searched for these species but none were found.**

### **4.2 *Environment Protection and Biodiversity Conservation Act Listed Species***

The EPBC Environmental Reporting Tool lists four species or likely habitat for these species within a 5km radius of the study area.

- River Swamp Wallaby-grass (*Amphibromus fluitans*) is confined to permanent swamps principally along the Murray River between Wodonga and Echuca, it is also uncommon to rare in the south (e.g. Casterton, Moe, Yarram). Considering the location of the study area and the lack of permanent swamps, this species was unlikely to be present on site.
- Trailing Hop-bush (*Dodonaea procumbens*) is not recorded locally and habitats on site wouldn't suit this species.
- Clover Glycine (*Glycine latrobeana*) occurs in Grassy Woodlands and this habitat was not on site.
- Spiny Rice-flower (*Pimelea spinescens* ssp. *spinescens*) is also found in Grassy Woodland and Plains Woodlands which were not present on site.

**The site was searched for these species but none were found.**

### **4.3 *Species Found by Survey***

Twenty-three native and four introduced vascular plant species were recorded in the study area. These species were recorded as incidental sightings (see Table 3).

**No threatened species were found on site.**

### **4.4 *Ecological Vegetation Classes (and listed floristic communities)***

Three EVC's, are present in the study area.

#### **EVC 1 Box-Ironbark Forest (BI)**

Box-Ironbark Forest occurs in low rainfall areas on gently undulating rises, low hills and peneplains on infertile, often stony soils derived from a range of geologies. The open overstorey, to 20m tall, consists of a variety of eucalypts, often including one of the Ironbark species.

The mid-storey often forms a dense to open small tree or shrub layer over an open ground layer ranging from sparse to a well developed suite of herbs and grasses.

#### **EVC 2 Grassy Dry Forest 22 (GDF)**

Grassy Dry Forest occurs on a variety of gradients and altitudes and on a range of geologies. The over-storey is dominated by a low to medium height forest of eucalypts to 20m tall, sometimes resembling open woodland with a secondary, smaller tree layer including a number of Acacia species. The under-storey usually consists of a sparse shrub layer of medium height. Grassy Dry Forest is characterised by a ground layer dominated by a high diversity of drought-tolerant grasses and herbs, often including a suite of fern species

#### **EVC 3 Heathy Dry Forest 20 (HDF)**

Heathy Dry Forest grows on shallow, rocky skeletal soils on a variety of geologies and on a range of landforms from ridge tops and steep slopes at a range of elevations. The over-storey is a low, open eucalypt forest, poor in form to 20m tall, with an open crown cover. The under-storey is dominated by a low, sparse to dense layer of ericoid-leaved shrubs including heaths and peas. Graminoids are frequently present in the ground layer, but do not provide much cover.

**There were no listed floristic communities on site.**

## **5. FAUNA STUDY OUTCOMES**

### ***5.1 Atlas of Victorian Fauna***

There are no threatened species recorded within the study area. The Atlas of Victorian Fauna lists 20 threatened or vulnerable species within a 5km radius of the study area. The lack of a wetland or suitable dams on site would eliminate 8 species that require water from using the site. Sightings of Barking Owls in the area are of single birds perhaps dispersing from breeding areas. The lack of hollows and structure would limit the use of the study area by this species. Black-chinned Honeyeaters may forage on site if suitable food sources were available. Swift Parrots are unlikely to use the site. The lack of understory and ground cover makes the site unsuitable for Speckled Warbler, Crested Bellbird and Spotted Quail-thrush. The Grey-headed Flying-fox is a vagrant to this part of Victoria and is not likely to use the site. The food source of the Eltham Copper Butterfly larvae is in very low numbers on site. The habitat would not be suitable for Brown Quail. The closest record of Grey-crowned Babbler was at the Castlemaine Golf course but this species no longer occurs there. The Brush-tailed Phascogale record is from 1999. With development that has happened in the area since then it is not likely that this species still survives in the immediate area. Free ranging cats and lack of hollows on site would also limit the use of the sites if it does still survive in the area.

The site is not considered the best 50% or the remaining 50% for any of the species in Table 1.

### ***5.2 Environment Protection and Biodiversity Conservation Act Listed species***

The EPBC Environmental Reporting Tool lists 8 species or likely habitat for these species within a 5km radius of the study area.

1. Murray Cod (*Maccullochella peelii*) require permanent water and this is not present onsite.
2. Macquarie Perch (*Macquaria australasica*) require permanent water and this is not present onsite.
3. Australian Painted Snipe (*Rostratula australis*) requires wetlands. As these habitats in the study area are not suitable these species will not be present.
4. Recent records for Regent Honeyeater (*Xanthomyza phrygia*) in Central Victoria are few and usually associated with large trees with a high nectar flow. As the majority of trees on site are small and the large trees are species that are not often used by this species it is highly unlikely that this species would use the site even if it was present locally.
5. The Striped Legless Lizard (*Delma impar*) habitat is native grasslands, as this habitat is not in the study area this species will not be present.
6. The Spot-tailed Quoll (*Dasyurus maculates*) is presumed extinct in the area.
7. The closest record of Swift Parrot (*Lathamus bicolor*) to the study area is to the west in the vicinity of the Castlemaine Golf Course. It is highly unlikely that Swift Parrots would use the remaining vegetation on site.
8. The Southern Bell Frog (*Litoria raniformis*) can be found in permanent lakes and dams. The dams in the study area are not suitable for this species.

### **5.3 Species found by survey**

Five fauna species were recorded as incidental sightings on site. They were Australian Magpie, Grey Thrush, Red Wattlebird, Magpie Lark and Eastern Grey Kangaroo. No threatened fauna species were recorded on site.

**Table 1 - Determination of best/remaining habitat for rare or threatened flora species or threatened fauna species**

Habitat Zones:						
Sites	Species	Conservation status	Steps [1]	Determination of Best 50% / Remaining 50% [2]	Conservation significance [3]	Notes
All Sites	Lanky Buttons	endangered	A-D	No to either no further consideration	Low	Habitat for this species is not present on site
All Sites	Southern Swainson-pea	rare	A-D	No to either no further consideration	Low	Habitat for this species is not present on site
All Sites	Small-flower Grevillea	endangered	A-D	No to either no further consideration	Low	The species was not recorded on site
All sites	Midlands Spider-orchid	endangered	A-D	No to either no further consideration	Low	The majority of habitat on sites too degraded for this species and grazing would have eliminated it from the site many years ago.
All sites	Slender Bitter-cress	vulnerable	A-D	No to either no further consideration	Low	The majority of habitat on sites too degraded for this species.
All sites	Goldfields Grevillea	rare	A-D	No to either no further consideration	Low	The site was searched for this species and it is not present.
All sites	Maroon Leek-orchid	endangered	A-D	No to either no further consideration	Low	The habitats on site are too degraded for this species.
All sites	Silurian Leek-orchid	endangered	A-D	No to either no further consideration	Low	The habitats on site are too degraded for this species.
All sites	Emerald-lip Greenhood	rare	A-D	No to either no further consideration	Low	The majority of habitat on sites too degraded for this species.
All sites	Plume-orchid	rare	A-D	No to either no further consideration	Low	The habitat on sites too degraded for this species.
All sites	Black-chinned Honeyeater	rare	A-D-	No to either no further consideration	Low	Habitat is suitable on sites but it is considered that the species would not make significant use of the site.
All sites	Brush-tailed Phascogale	vulnerable	A-D-F	No to either no further consideration	Low	Lack of hollows would limit the use of sites by this species. There are recorded close but it is considered that this species would not make use of the mostly isolated sites.
All sites	Crested Bellbird	rare	A-D	No to either no further consideration	Low	This species now only recorded in large forest blocks and has disappeared from many of these blocks (per.obs.)
All sites	Superb Parrot	rare	A-D	No to either no further consideration	Low	This may have been a vagrant or an aviary escapee
All sites	Grey-crowned Babbler	endangered	A-D	No to either no further consideration	Low	Grey-crowned Babbler became extinct in the Castlemaine area a number of years ago.
All sites	Brown Treecreeper	rare	A-D	No to either no further consideration	Low	Lack of hollows would limit the use of these sites by this species. The species was not seen on site or during work some years ago on properties to the east.

Habitat Zones:						
Sites	Species	Conservation status	Steps [1]	Determination of Best 50% / Remaining 50% [2]	Conservation significance [3]	Notes
All sites	Grey-headed Flying-fox	vulnerable	A-D	No to either no further consideration	Low	Until recently a vagrant to the Central Victoria. Feeds on blossom but highly unlikely to use the sites on a regular basis.
All sites	Barking Owl	rare	A-D	No to either no further consideration	Low	Lack of hollows and food source would limit the use of sites by this species. It is considered that this species is extinct in the local area.
All sites	Speckled Warbler	vulnerable	A-D	No to either no further consideration	Low	This species requires an intact understorey. Sites are not suitable for this species.
All sites	Brown Quail	Near threatened	A-D	No to either no further consideration	Low	Habitat on site is not suitable for this species.
All sites	Swift Parrot	endangered	A-D	No to either no further consideration	Low	From experience over 12 plus years of Swift Parrot surveys I consider that Swift Parrots are highly unlikely to use any of the sites on a regular basis if they use them at all
All sites	Eltham Copper	endangered	A-D	No to either no further consideration	Low	The food plant for this species is not present on sites or is in very low numbers. There is also no sign of the host ant species.
All sites	Great Egret	vulnerable	A-D	No to either no further consideration	Low	Habitat for this species is not present on site
All sites	Hard Head	vulnerable	A-D	No to either no further consideration	Low	Habitat for this species is not present on site
All sites	Musk Duck	vulnerable	A-D	No to either no further consideration	Low	Habitat for this species is not present on site
All sites	Latham's Snipe	Near threatened	A-D	No to either no further consideration	Low	Habitat for this species is not present on site
All sites	Royal Spoonbill	vulnerable	A-D	No to either no further consideration	Low	Habitat for this species is not present on site
All sites	Nankeen Night Heron	Near threatened	A-D	No to either no further consideration	Low	Habitat for this species is not present on site
All sites	Whiskered Tern	Near threatened	A-D	No to either no further consideration	Low	Habitat for this species is not present on site
All sites	Pied Cormorant	Near threatened	A-D	No to either no further consideration	Low	Habitat for this species is not present on site

[1] From Table 2 in the *Guide for Assessment of Referred Planning Permit Applications* (DSE 2007) specify steps taken in habitat assessment to determine best 50% or remaining 50% of habitat.

[2] Specify 'best' or 'remaining'.

[3] Conservation significance of the habitat zone based on consideration of threatened species.

(per.obs.) personal observations G Cheers.



## **6. CONSERVATION SIGNIFICANCE**

### ***6.1 EVCs and Quality Zones***

Sites can be seen in Maps – Site Locations.

### ***6.2 Sites 2-5 7 8 and 9 Box-Ironbark Forest (habitat Hectare assessment)***

All Sites are degraded and all are small in size.

**Site 2 Habitat Hectare score = 41 making the conservation significance Medium**

The EVC is depleted and the habitat hectare score is 30-60 making the Conservation significances of this site **Medium**

**Site 3 Habitat Hectare score = 43 making the conservation significance Medium**

The EVC is depleted and the habitat hectare score is 30-60 making the Conservation significances of this site **Medium**

**Site 4 Habitat Hectare score = 45 making the conservation significance Medium**

The EVC is depleted and the habitat hectare score is 30-60 making the Conservation significances of this site **Medium**

**Site 5 Habitat Hectare score = 40 making the conservation significance Medium**

The EVC is depleted and the habitat hectare score is 30-60 making the Conservation significances of this site **Medium**

**Site 7 Habitat Hectare score = 30 making the conservation significance Medium**

The EVC is depleted and the habitat hectare score is 30-60 making the Conservation significances of this site **Medium**

**Site 8 Habitat Hectare score = 35 making the conservation significance Medium**

The EVC is depleted and the habitat hectare score is 30-60 making the Conservation significances of this site **Medium**

**Site 9 Habitat Hectare score = 30 making the conservation significance Medium**

The EVC is depleted and the habitat hectare score is 30-60 making the Conservation significances of this site **Medium**

### ***6.3 Site 1 and-6 Heathy Dry Forest (habitat Hectare assessment)***

All Sites are highly degraded and are small in size.

**Site 1 Habitat Hectare score = 55 making the conservation significance Low**

The EVC is depleted and the habitat hectare score is >0-60 making the Conservation significances of this site **Low**

**Site 6 Habitat Hectare score = 39 making the conservation significance Low**

The EVC is depleted and the habitat hectare score is >0-60 making the Conservation significances of this site **Low**

**Table 2 – Quantification and Significance of Patches of Native Vegetation**

Habitat Site			S1	S2	S3	S4	S5
<b>EVC Name (initials)</b>			<b>HDF</b>	<b>BIF</b>	<b>BIF</b>	<b>BIF</b>	<b>BIF</b>
<b>EVC Number</b>			<b>22</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>
		<b>Max Score</b>	<b>Score</b>	<b>Score</b>	<b>Score</b>	<b>Score</b>	<b>Score</b>
Site Condition	Large Old Trees	10	3	0	0	0	0
	Canopy Cover	5	3	5	3	5	3
	Understorey	25	15	5	15	5	15
	Lack of Weeds	15	13	13	13	13	9
	Recruitment	10	5	0	3	5	1
	Organic Matter	5	3	5	5	5	3
	Logs	5	0	0	0	0	0
Landscape value	Patch Size	10	8	8	1	6	6
	Neighbourhood	10	1	1	0	0	0
	Distance to Core	5	4	4	3	3	3
<b>Habitat points out of 100</b>		<b>100</b>	<b>54</b>	<b>41</b>	<b>43</b>	<b>45</b>	<b>40</b>
<b>Habitat Score (hab points/100)</b>		<b>0.##</b>	<b>0.54</b>	<b>0.41</b>	<b>0.43</b>	<b>0.45</b>	<b>0.40</b>
Area of zone to be cleared (ha)			-	-	-	-	-
<b>Habitat Hectares of loss</b>			<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total area of the Zone Ha)</b>			1.3	0.2	0.6	0.6	0.5
<b>Total HHA in the zone</b>			0.70	0.08	0.26	0.27	0.2
<b>Bioregion</b>			GO	GO	GO	GO	GO
<b>EVC Conservation Status</b>			LC	D	D	D	D
Conservation Significance	BCS x Habitat Score		L	M	M	M	M
	Threatened Species		L	L	L	L	L
	Other Site Attributes		L	L	L	L	L
	<b>Overall site Significance</b>		<b>L</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>M</b>
Number of large old trees on site			2	0	0	0	0

**Table 3– Quantification and Significance of Patches of Native Vegetation**

Habitat Site			S6	S7	S8	S9
EVC Name (initials)			HDF	BIF	BIF	BIF
EVC Number			22	61	61	61
		Max Score	Score	Score	Score	Score
Site Condition	Large Old Trees	10	8	0	4	0
	Canopy Cover	5	5	5	5	5
	Understorey	25	5	5	5	5
	Lack of Weeds	15	9	13	9	13
	Recruitment	10	5	6	0	0
	Organic Matter	5	3	3	5	3
	Logs	5	0	0	3	0
Landscape value	Patch Size	10	1	1	1	1
	Neighbourhood	10	0	0	0	0
	Distance to Core	5	3	3	3	4
<b>Habitat points out of 100</b>		<b>100</b>	<b>39</b>	<b>30</b>	<b>35</b>	<b>30</b>
<b>Habitat Score (hab points/100)</b>		<b>0.##</b>	<b>0.39</b>	<b>0.30</b>	<b>0.35</b>	<b>0.30</b>
Area of zone to be cleared (ha)			-	-	-	-
<b>Habitat Hectares of loss</b>			-	-	-	-
<b>Total area of the Zone Ha)</b>			0.2	0.1	0.2	0.03
<b>Total HHA in the zone</b>			0.08	0.03	0.07	0.01
<b>Bioregion</b>			GO	GO	GO	GO
<b>EVC Conservation Status</b>			LC	D	D	D
<b>Conservation Significance</b>	<b>BCS x Habitat Score</b>		L	M	L	M
	<b>Threatened Species</b>		L	L	L	L
	<b>Other Site Attributes</b>		L	L	L	L
	<b>Overall site Significance</b>		L	M	L	M
<b>Number of large old trees to be removed</b>			5L-1VL	0	1L	0

## 7. CONCLUSIONS AND RECOMMENDATIONS

### 7.1 Conclusions

The areas of vegetation on site are Box-Ironbark Forest of medium conservation significance and Heathy Dry Forest of low conservation significance. The study area has been used for grazing and fire wood collection for a long period of time. At the time of assessment Eastern Grey Kangaroos were grazing on the study area and surrounding cleared paddocks. Development of the site will have a minimal effect on the fauna that may be using the area.

### 7.2 Recommendations

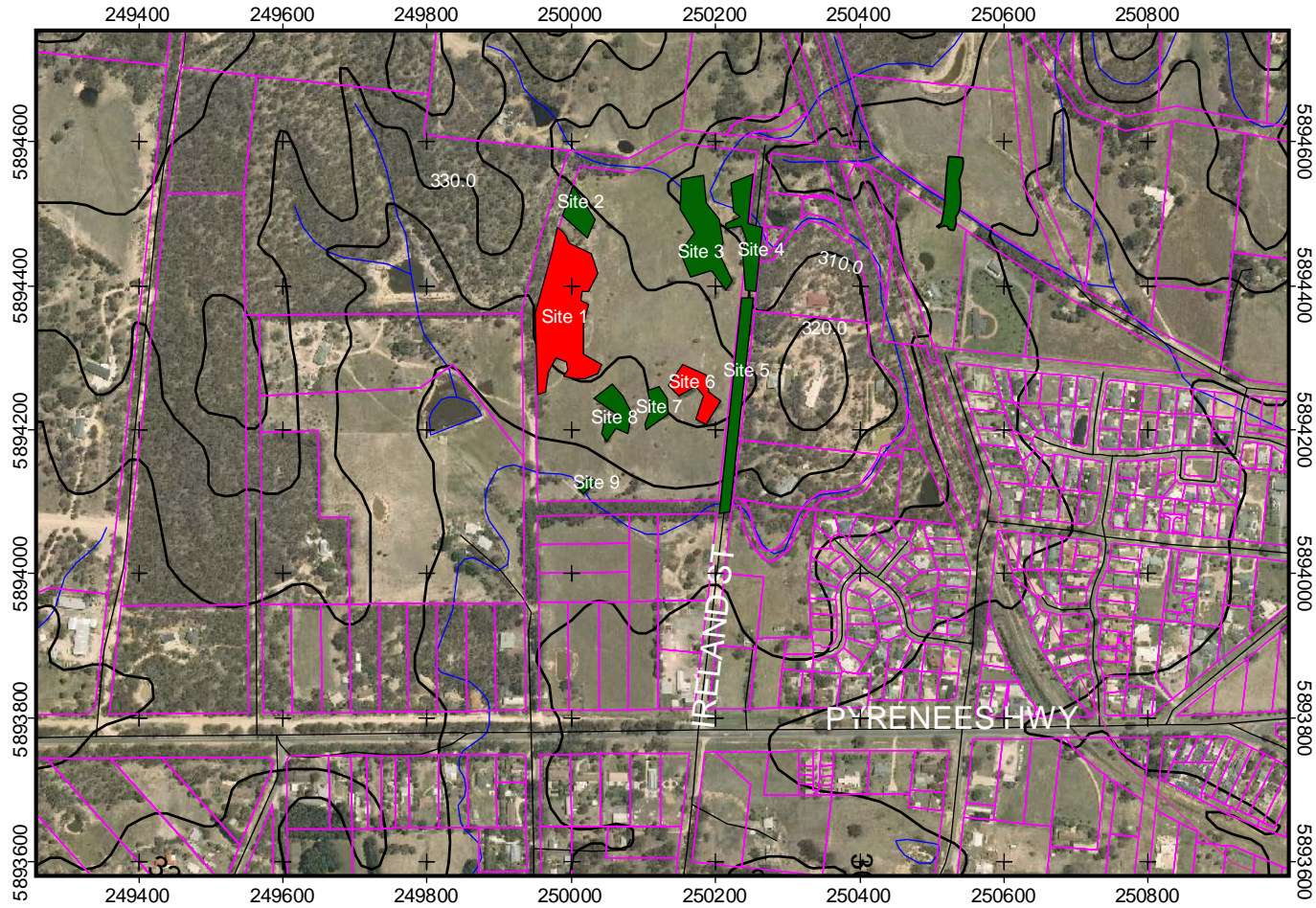
- It is recommended that rezoning proceeds.
- If native vegetation is removed, appropriate offsets must be found.

Table 4 - Plant species recorded in site

Scientific Name	Common name	Origin	AROTS	VROTS
<i>Acacia acinacea</i> s.s.	Gold-dust Wattle			
<i>Acacia genistifolia</i>	Spreading Wattle			
<i>Acacia paradoxa</i>	Hedge Wattle			
<i>Acacia pycnantha</i>	Golden Wattle			
<i>Asparagus asparagoides</i>	Bridal Creeper	*		
<i>Austrostipa mollis</i>	Supple Spear-grass			
<i>Austrostipa scabra</i>	Rough Spear-grass			
<i>Brachyloma daphnoides</i>	Daphne Heath			
<i>Briza maxima</i>	Large Quaking-grass	*		
<i>Bromus</i> spp.	<i>Bromus</i> ssp.	*		
<i>Cassinia arcuata</i>	Drooping Cassinia			
<i>Daviesia ulicifolia</i>	Gorse Bitter-pea			
<i>Eucalyptus goniocalyx</i> s.s.	Bundy			
<i>Eucalyptus microcarpa</i>	Grey Box			
<i>Eucalyptus polyanthemos</i>	Red Box			
<i>Gonocarpus tetragynus</i>	Common Raspwort			
<i>Goodenia geniculata</i>	Bent Goodenia			
<i>Hakea decurrens</i>	Bushy Needlewood			
<i>Hypochoeris radicata</i>	Cat's Ear	*		
<i>Lomandra filiformis</i>	Wattle Mat-rush			
<i>Lomandra multiflora</i> ssp. <i>multiflora</i>	Many-flowered Mat-rush			
<i>Melaleuca decussata</i>	Totem-poles			
<i>Ozothamnus obcordatus</i>	Grey Everlasting			
<i>Philotheca verrucosa</i>	Wax-flower			
<i>Pimelea linifolia</i>	Slender Rice-flower			
<i>Rytidosperma pallida</i>	Silvertop Wallaby-grass			
<i>Rytidosperma setacea</i>	Bristly Wallaby-grass			

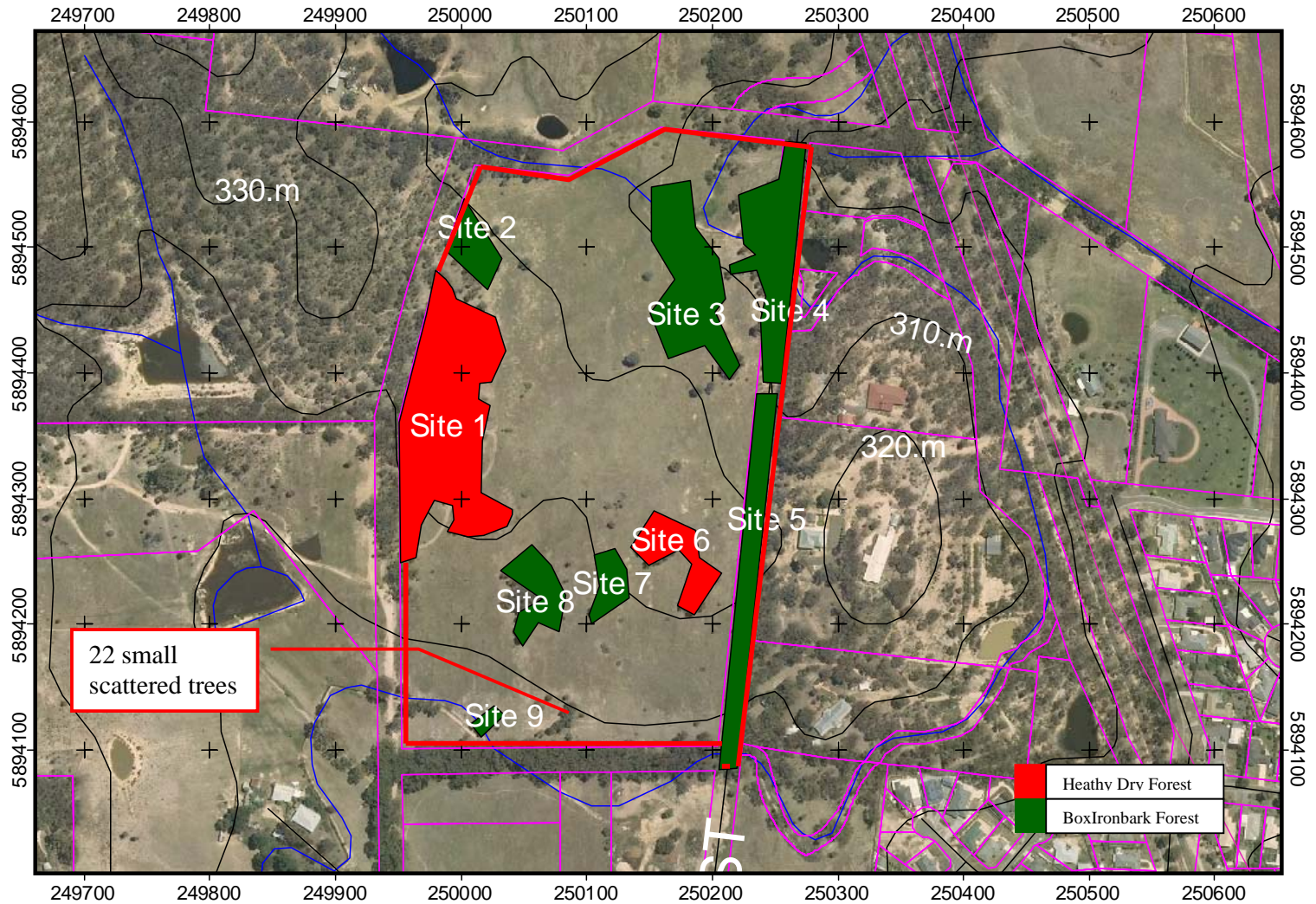
## 8. MAPS

### Study Area location





## Site Locations





## 9. Photos

Photo 1 site 1



Photo 2 Site 2





Photo 3 site 6



Photo 4 site 7





Photo 5 site 8



Photo 6 site 9

