

From: Peter Bosworth <contact@morningsidevineyard.com.au>

Sent: Friday, 31 May 2019 10:39 AM

To: Development <Development@brighton.tas.gov.au>

Subject: RE: Zoning enquiry = 711 Middle Tea Tree Rd

Hi Richard

Thanks for sending though the zoning information which has clarified that our property will have two zonings (Agricultural and Rural) under the new Tasmanian Planning Scheme.

The split is sensible and my only comment would be in relation to the Rural zoning for the rear half of the property.

I have attached a Flora and Vegetation Study conducted by Dr Stephen Harris of the hills at the rear half of the property. Dr Harris was formerly the Tasmanian Government Botanist. The Report highlights that the current conservation values mapping for Hammond Tier is incorrect. In particular it comprises a relatively large area of Grassy Blue Gum forest which is habitat for the Swift Parrot. This Report has been provided to DPIPWE but presumably the layers have not been updated yet. As a former DPIPWE manager responsible for setting up Tasmania's Conservation Reserve System and as a former President of the Tasmanian Land Conservancy I am of the opinion that consideration should be given to a Landscape Conservation zoning that reflects this new information.

Along with us the owners of the two adjoining properties to the southeast have expressed an interest with the Tasmanian Government through the Tasmanian Land Conservancy in placing a conservation covenant on the rear portions of our properties to help conserve the conservation values of this area.

I would be happy to discuss this further with you or the Senior Planner if required and thanks again for the detail you have provided.

Regards

Peter

Peter and Brenda Bosworth

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FLORA AND VEGETATION OF A PORTION OF THE HAMMOND TIER

Dr Stephen Harris

Preface

This report was compiled by Dr Stephen Harris at the request of owners of the adjacent properties Morningside, Pressing Matters and Cooper's. The subject of this report is the bush at the back of our properties along the ridge and slopes of a portion of the Hammond Tier.

We are landowners who rely on good practices to either make wine and other produce of the highest quality or just to protect the natural and rural landscapes. We recognize that our obligations not only include careful management of our soils and crops within the actual vineyard and paddock perimeters but also extend to the outer boundaries of our properties. Our blocks include important natural values, confirmed for us in this report, values that we are committed to managing and retaining well into the future.

Peter and Brenda Bosworth

Greg and Michelle Melick

Ken Cooper

Morningside

Pressing Matters

Cooper's



Figure 1. Looking towards Pages Creek across the fertile farmland and vineyards of Morningside and Pressing Matters (on right)



Figure 2. From Morningside vineyard looking toward Hammond Tier. The edge of the bush marks a change towards rocky shallow soils to the west.

Summary

- Hammond Tier lies at the northwest corner of the Coal River Valley in south eastern Tasmania.
- The valley has had a long history of Aboriginal occupation and subsequently from the early 1800s, European settlement and agriculture.
- The valley is typical of many lowland fertile valleys in rural eastern Tasmania that have been heavily cleared in the past.
- The bush block area of Hammonds Tier, and which is the subject of this report, covers 62.1 hectares.
- The vegetation comprises:
 - 33.7 ha of grassy blue gum forest (formally *Eucalyptus globulus* dry forest and woodland).
 - 17.6 ha of sheoak forest (*Allocasuarina verticillata* forest).
 - 9.3 ha of white peppermint forest ((*Eucalyptus pulchella* forest and woodland).
 - 1.5 ha of Lowland grassland (lowland grassland complex).
- *Eucalyptus globulus* dry forest and woodland is a Threatened Native Vegetation Community listed on Schedule 3A of the *Nature Conservation Act 2002*.
- Lowland native grassland communities have been disproportionately impacted by clearing and conversion over the last 200 years so are considered to be of conservation value despite having no formal state listing.
- Lowland native grasslands of Tasmania are however a nationally threatened ecological community listed under the *Environment Protection and Biodiversity Conservation Act 1999*.
- The tiny patch of treeless native grassland on Hammond Tier is a fire/grazing disclimax that would be colonized by eucalypts over time.
- 95 taxa of plants were recorded from the bush block 25 of these being introduced.
- The species composition of the flora reflects the history of land use and management over a long period.

- For at least 30 years the bush block has been recovering from a previously long period of frequent fires, grazing and woodcutting.
- 35 species of birds have been recorded in and just adjacent to the block. 5 of these are introduced. Additionally the blue gum forest may be frequented by the endangered Swift Parrot.
- Ongoing management will involve managing for an appropriate fire regime, some limited weed management and promoting tree regeneration by limiting sheep grazing

Introduction

The area (62.1 ha) which is the subject of this report comprises a portion of the Hammond Tier (see figure 3) that rises from about the 160 m contour up to the flat ridge summit at 307 m above sea level. Occupying moderately fertile but shallow dolerite soils the area is privately owned by three contiguous property owners two of whom have interests in high value agricultural production. Morningside and Pressing Matters are vineyards producing highly acclaimed wines and Cooper's is a lifestyle rural property. Current use of the land occurs on the gently east facing slopes of these properties below the forested slopes of the Hammond Tier.

The bush block at Hammond Tier is regenerating under the management protection of three adjoining landowners. Located in one of the oldest settled agricultural districts in Tasmania, the land had been subjected to stock grazing and a high fire frequency until changes in land management practices dating from around the late 1960s and early 1970s. In the 1940s the Hammond Tier, on the subject properties, was sparsely populated by trees but bush has regenerated to a marked degree.

Richmond was known from the earliest days of Van Diemen's Land settlement as a thriving pastoral and grain growing area in the colonies. At the time of European contact with the Aborigines, the land was open and grassy due to fire management by native people. The regime they practiced was likely continued by the first European settlers in order to maintain grassland for sheep. Cattle were likely kept on the creek flats. The phenomenon of "vegetation thickening" noted across much of Australia and which has been attributed to various causes is evident. In this region the contributory causes are probably reduced fire frequency from about the early 1970s and the reduction in stock numbers in the district. Since 1980, sheep numbers have declined in the district.

The land use throughout the valley and the general area is in a period of rapid change wrought by a combination of various factors. These include fertile soils and an equable climate suited to the growth of a number of high value new agricultural crops

throughout the region, the availability of irrigation water from both the Derwent and Coal River catchments, and the demand for lifestyle blocks within a radius of the renowned tourist centre of Richmond, just over 6 km “as the crow flies” from the study area.

No sheep have been grazed on Morningside since about 2002, while on the Cooper and Melick properties, no sheep have been grazed at all during the tenure of the current owners. Occasionally, sheep escape onto the subject land from adjoining properties as fences are breached. The vineyard on Morningside was first planted in 1980 while vineyard establishment on Pressing Matters was about 2002. A lot of timber was removed for firewood along the top of the ridge until about 1980 (P. Bosworth pers. comm.) because the flat top of the ridge was readily accessible.

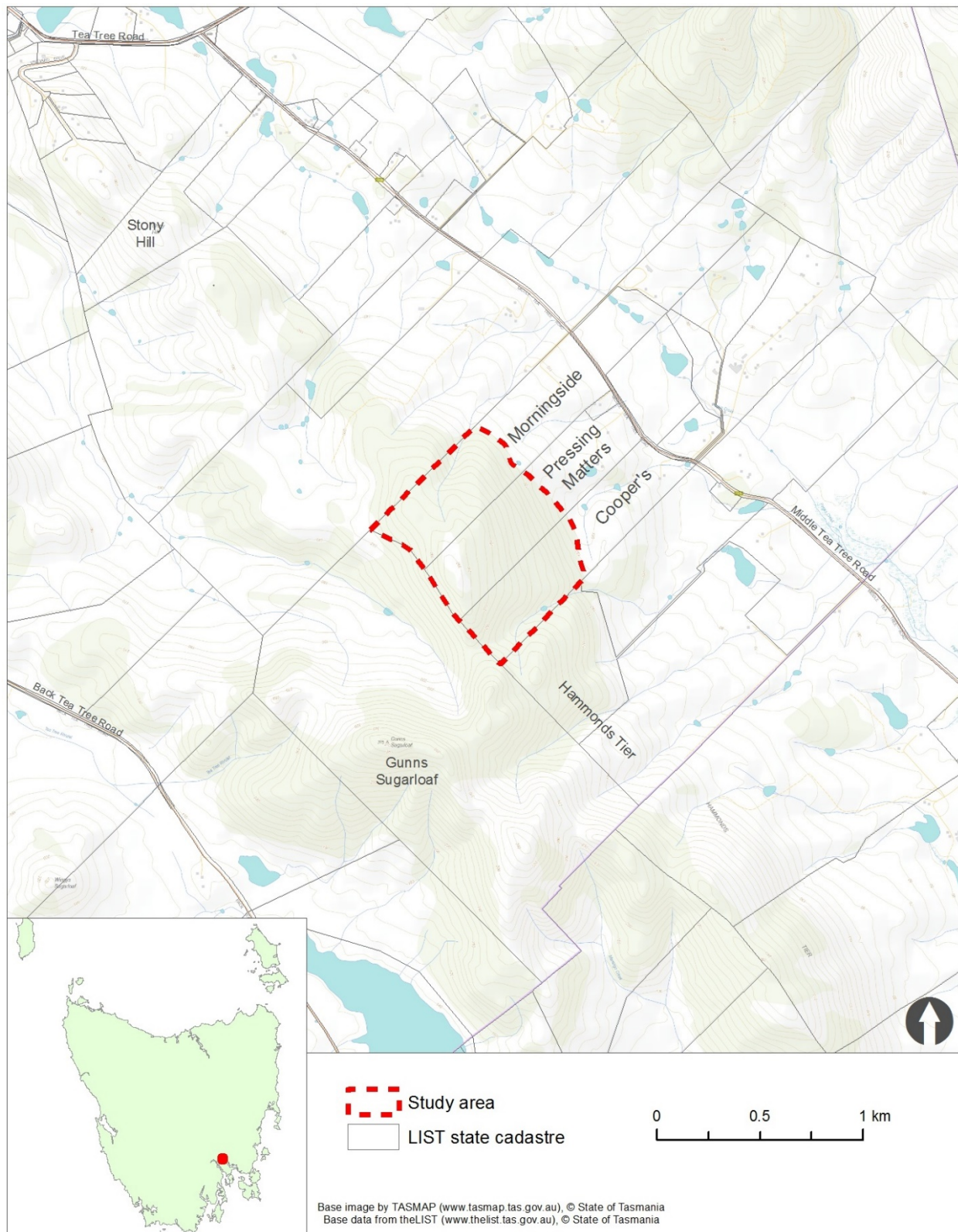


Figure 3. The bushland study area outlined in red and the contiguous responsible properties.

Methods

The area shown in figure 3 was inspected at a reconnaissance level in December 2016 and in February 2017. At the northern side of the study area, an informal transect was walked from the paddock edge uphill and over the ridge almost to the western boundary. The route then continued in a meandering southerly direction along the top of the ridge to almost the southern boundary. At this point a rough farm track was followed around the lower slopes of the block in an easterly and then northerly direction. Along the route, plant species were recorded and some specimens taken for subsequent determination or confirmation at the Tasmanian Herbarium. Features such as the structure of the vegetation, ground cover and changing plant species dominance were recorded. Where required, grid references, compass direction and elevation were all recorded from functions in the Google map application on an iphone 6. Diameters of tree species and evidence of fire history was noted to gain an understanding of the recent historical changes the bush may have been subjected to.

A report from the DPIPWE Natural Values Atlas was accessed to discover flora and fauna records that had been previously made within 5 km of the area. Aerial photographic imagery was obtained to assist in better mapping the current vegetation. The earliest aerial photo imagery dated 1946 was used to compare vegetation at that date with vegetation as it appears on 2015 imagery almost 70 years later.

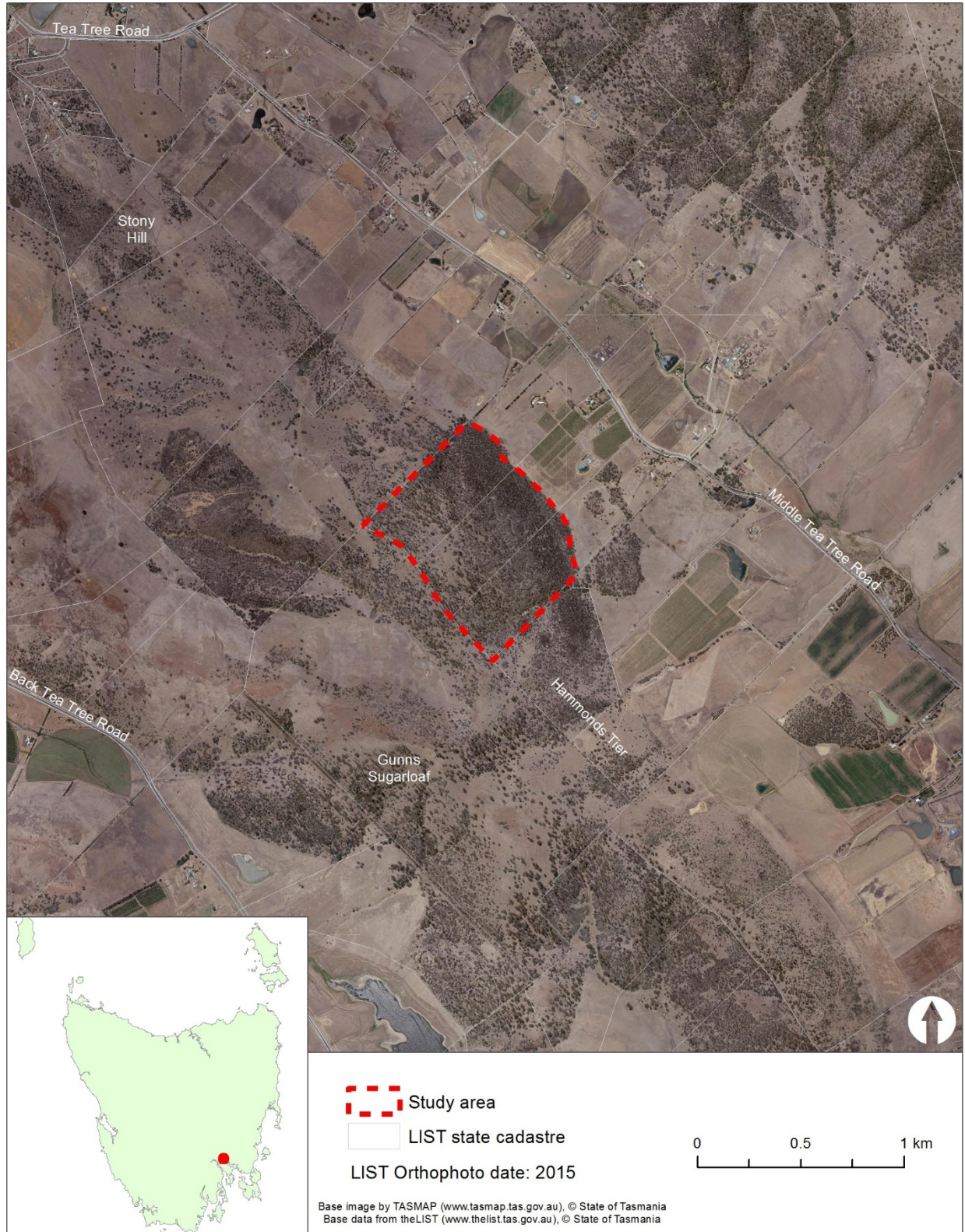


Figure 4. The land use context of the study area.

Results and Discussion

Observations on the vegetation in the study area and its context.

In the rural districts of eastern Tasmania where most of the dry sclerophyll and grassy communities occur, vegetation clearance has had a differential impact on vegetation communities. *Eucalyptus ovata* forest and woodland that occurred along many creek and river flats has been extensively cleared in such rural areas (Duncan and Brown 1985), which is the case along Pages Creek. This has resulted in the vegetation type being listed as threatened. *Eucalyptus viminalis* dry forests have also been heavily cleared and the valley along Middle Tea Tree Road is an example of this. The forest on the lower slopes of this valley are likely to have been an admixture of *Eucalyptus viminalis* and some *Eucalyptus globulus*. Such *Eucalyptus* forest is likely to have been originally extensive along the lower slopes of this valley where now only remnants occur. For example the *E. viminalis* scattered along the road boundary at Morningside. The conservation value of such remnants is limited from a vegetation community perspective but the remaining trees may provide a seed source if revegetation works were planned at suitable sites along the valley. Wallaby grass persists in a paddock north of the Morningside winery although it co-occurs with many exotic herbs.

Inspection of the 1946 and 2015 aerial photo images (figure 5) shows a major difference in tree density. The earlier photo shows an open grassy woodland and forest. The band of sheoak trees now forming the dense forest that is evident on the later photo comprised only scattered trees on the earlier image with a slightly denser patch at the northern end of the block on Morningside. The gully near the north western side of the block appeared to have dense vegetation in both photographs but there are differences in where the denser vegetation occurred. In 1946 the upper reaches of the gully carried the densest vegetation while in 2015, the lower reaches carried the densest vegetation. The gully vegetation stands out more in the earlier photograph because of the contrast with the adjacent open woodland and grassy woodland with which it has a sharp boundary. This suggests a self-reinforcing vegetation boundary created by frequent low

intensity fires interacting with a topographic change. The gully is missed in successive fires. In the contemporary photograph the vegetation has thickened across the study area thereby diminishing the contrast that had existed previously.

Another clear difference between the 1946 and 2015 images is in the vegetation along the south western boundary, particularly of the Morningside and Pressing Matters blocks. In eastern Tasmania there is commonly a strong contrast between the highly insolated north eastern sides of ridges and hills with the southwestern and southern slopes which receive less sunshine hours and have greater moisture availability. This difference is often reflected in the vegetation. For example a slope with a northerly aspect will tend to be more open forest with perhaps some sheoak, grasses and xeromorphic shrubs in the understorey. The south facing flanks will be likely to have a very shrubby understory overtopped by white gum, and blackwoods. The shrubs will be soft leaved, and ferns will sometimes be present. If there is a history of frequent firing the pattern will be self-reinforcing as the fire will rarely burn down onto the southerly aspect. Less frequent but more intense fires will tend to destroy such boundaries as fires make incursions into the denser vegetation. I consider this is what has happened along this boundary probably aided by fire escapes from the west, leading to a convergence in the appearance of the vegetation on both sides of the ridge. Clues remain however in what may have existed along the northwestern slope. Although the slope is superficially similar to the ridgetop, rare *Eucalyptus viminalis* trees were observed. This is one of the most drought susceptible eucalypts and is more likely to occur near valley bottoms and in more shaded slopes. *Acacia melanoxylon* remains as strongly coppiced patches – remnants of the taller trees possibly once occurring here. Near the top of the south west slope on Cooper's, a single *Olearia lirata* shrub was noted, typical of the mesophyllous shrubs that would have occurred. Patches of *Ozothamnus scutellifolius*, although not especially typical of shaded environments occur now as rare remnants on the slope on rocky outcrops.

The shaded slope would therefore have appeared dark on the earlier photograph until more intense (and less frequent) fires swept through and opened up the vegetation thereby leading to a convergence in the appearance between the ridge top and the southwestern slope, the pattern now evident in the recent image. The only significant

fire that can be recalled by any of the current owners was one driven by a northwesterly in about 1998 that burned towards the south east across the southern corner of Cooper's block (P. Bosworth pers. comm.).

The Flora

Ninety five taxa of plants were recorded from the study area. Seventy three taxa of Dicotyledons were distributed across 39 families, 21 taxa of Monocotyledons were distributed across only 4 families. One fern (Pteridophyte) was recorded. Over a quarter (25) of the species recorded are introduced species. Four species are endemic in Tasmania. No rare or threatened species were noted. There were only two declared weeds noted and these (*Lycium ferocissimum* and *Cirsium arvense*) tended to be mainly limited to a zone along the eastern margins of the bush on the paddock fringes. The Asteraceae (31%) and the Poaceae (33%) are the families with most weeds.

The best represented genera on the study area are the Asteraceae and the Poaceae. This is due to more species in these groups (especially the grasses) being introduced over the course of a long history of grazing and agriculture. Both these genera have wind dispersed species that easily establish in appropriate niches.

Whilst no plant species on the block are rare or threatened, the flora composition tells us about the management history of the block – that high fire frequency over a long period has eliminated many obligate seeding plants, and that the proportion and composition of the introduced flora indicates past farming and grazing practices. The species that are present are as telling as those that are not but would have been expected. For example the lack of any orchid species and rarity of *Themeda triandra* suggest the land was previously subject to fertilizer drift. The rare occurrences of *Themeda triandra*, *Millotia tenuiflora* and pussytails suggest remnants of a species-rich native *Themeda* grassy understorey in this forest.

Orchids are conspicuously absent from the Tier and few obligate seeders are present. Orchids are not visible because of the long land-use history of the area. They are highly susceptible to poisoning by superphosphate and it is likely that at some stage fertilizer

drift may have affected the hill slopes even if it was not directly applied on the hills. Although grasslands are not the most important habitat for orchid species diversity, conservation-wise, those taxa that persist elsewhere in native grasslands are mostly rare and threatened. One application of fertilizer is thought to be enough to eliminate orchids from a site (Jones *et al.* 1999). Similarly, *Themeda* will decline rapidly if fertilizer is applied. Obligate seeders such as taxa in the Fabaceae and Epacridaceae are fewer than would be expected and those that do occur in the area are rare. For example only a small handful of specimens of the *Hibbertia* sp. “Richmond” were noted. This species could be significant in a conservation or a biogeographical sense depending on the outcome of taxonomic revision of this group that is currently underway (de Salas pers. comm.).

Rare and threatened flora and fauna habitat.

There are no previous records of rare or threatened flora or fauna in the vicinity of the actual study area. There are records of rare and threatened species in the district, for example wedge-tailed eagles (Bryant and Jackson 1999). Suitable habitat according to these authors would be present on Hammond Tier for the Eastern barred bandicoot (grassy woodlands, native grasslands, mosaics of pasture and ground cover and shrubby weeds); and the swift parrot (forest and woodland dominated by blue gum, within 10 km of the coast and including slopes and ridges). Bandicoots were observed on Morningside in the 1980s (P. Bosworth pers. comm.) but none have been seen for at least 5 years. Brushtail possum, bettong echidna and Bennetts wallaby occur across the area. Many frogs have been heard in the waterhole on Cooper’s but these have not been identified. The waterhole may be suitable habitat for the nationally vulnerable green and gold frog (*Litoria raniformis*) and a closer search of this waterhole is warranted.

A bird list compiled by Peter Bosworth has been appended. He made possible sightings of swift parrots but these fast moving birds can be difficult to identify.

In all 22 state listed rare and threatened plant species have been recorded by others within 5 km of the study area over many years. Two of them *Dianella amoena* (grassland flaxlily, 17 observations) which is nationally vulnerable has been recorded.

Glycine latrobeana (clover glycine, 2 observations) which is nationally vulnerable has been recorded. The *Glycine* is unlikely to ever be found on the study area as it is an obligate seeder that would have been disadvantaged by the high fire frequency in past times. Some of the rare or vulnerable state listed plants recorded within 5 km of the study site may well be found with some diligent searching. It would be worth continuing to search for the rare species of *Asperula*, *Austrostipa*, *Scleranthus* and *Vittadinia*. Some of these species were recorded on the eastern side of the valley to the north of the study area in around 2013 (M. Wapstra pers.comm.). Some of the taxa warrant consideration for downlisting according to notesheets on the DPIPWE website. Therefore further searching should be carried out with a selective list of likely worthwhile search targets.

The Vegetation Communities

The vegetation appearing on the TASVEG map in the Natural Values Atlas was incorrect and a new map has been produced. There are four vegetation communities. These are:

1. *Eucalyptus globulus* dry forest and woodland.

The stronghold of this community is in southeastern Tasmania. Out of the total of 19,800 ha in Tasmania, 18,300 ha occurs in the South East Bioregion. Of this, 29% (5,400 ha) in the South East is reserved. Of the total Tasmanian extent, 29% occurs in all Tasmanian reserves. In the Brighton local government area 400 ha of the community occurs, 2% of the Tasmanian total extent, but 10% (40 ha) is reserved. Much of this community occurs on private land therefore any expansion of the reserved area will depend on the cooperation of private landowners.

The patch on the study area is 33.7 ha. That is more than twice the average mapped patch size for this community. It is substantially bigger than most patches (71% of patches) that are much less than 10 ha. Without assessing the condition of the patch against the TASVEG VCA benchmarks, I subjectively judged it to be in good condition.

At the time of the earlier aerial photo image only a scattering of large trees existed with a clearly grassy understorey. In the past some gaps in the tree canopy could justifiably have been mapped as native grassland according to earlier aerial photos but regeneration of

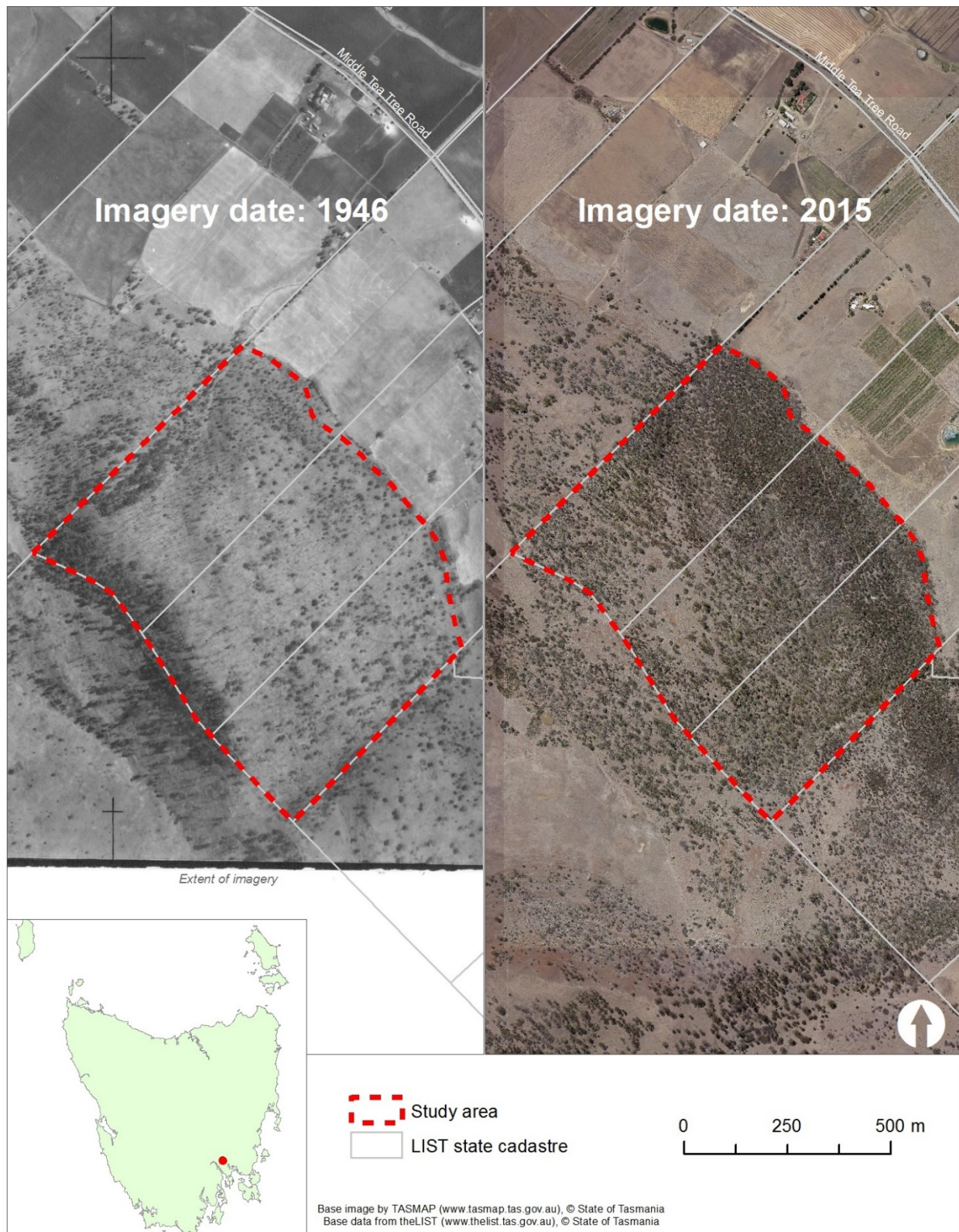


Figure 5. Aerial photography nearly 70 years apart.

trees has been occurring since stock exclusion and a decrease in fire frequency since the early 1970s.

This is a listed threatened community under Schedule 3A of the *Nature Conservation Act 2002*. It is habitat for the swift parrot, a nationally listed species (Critically Endangered, *Environment Protection and Biodiversity Conservation Act 1999*)

2. *Eucalyptus pulchella* forest and woodland

The state stronghold of this community is in the South East Bioregion. A 9.3 ha patch occurs on the study area. The total community extent in Tasmania is 137,700 ha of which 37 % is in all the Tasmanian reserve estate. The total in all reserves is 50,900 ha. In the South East Bioregion 128,900 ha occurs of which 38% is reserved .In the Brighton Local government area, 90 ha is reserved of the 1100 ha occurring there (8%).

This patch occurs in the centre of its range in south-eastern Tasmania and typically occupies dry slopes and hills on dolerite. The understorey of this community is little different from that under the blue gum forest, with the same species occurring across the block. The understorey is a mix of native and exotic grasses and inter-tussock herbs. No formal vegetation condition assessment has been carried out but a subjective evaluation suggests a good condition.

3. *Allocasuarina verticillata* forest.

A 17.6 ha patch of this community occurs in the study area. On a statewide basis there is 19,200 ha of this community, 40% of which is in reserves. Of the 2,900 ha occurring in the South East bioregion, 61% is reserved (1800 ha). The high reservation figures for this community are due to the high proportion occurring in coastal reserves.

On the earlier black and white photograph, the *Allocasuarina* forest did not exist except there were scattered trees evident which are likely to have been the parent trees for establishment of a dense cohort of seedlings. This cohort was likely to have established around these parent trees around the time of the cessation of stock grazing and removal of stock from the Tier. The cohorts of younger trees have coalesced into a dense band of trees along the lower eastern slopes of the Tier. The cohort of younger trees have variable diameters but are undergoing the self-thinning process. There are dead out-

competed trees that have fallen haphazardly on the ground and which contribute to the fuel loading of this community. There is a distinct browse line at around 1 m above ground level throughout the bush area. Hare and wallaby were observed on the block. *Dodonea viscosa* has some smaller branches broken as also observed on some *Allocasuarina verticillata* and *Acacia dealbata*. Wallaby are able to pull branches down in their paws for browsing. Native animals are suppressing the growth of any sheoak germinants except where seedlings are protected in “cages” formed by fallen tree branches. But this is not a problem for the perpetuation of the stand itself as it will germinate in dense stands of seedlings if burned in a fire, thus overwhelming native browsers. Occasional seedlings are able to grow where they are protected in cages formed by the heads of some fallen trees.

The understorey composition is consistent with an old stock run left to revegetate. The ground litter comprises, apart from leaf material, stems of *Allocasuarina* 10-20 cm diameter that result from wind throw rather than fire. The plants along these lower slopes are shallow rooted in light brown slightly acidic (pH 5.5) friable loam with many scattered dolerite stones on the surface. Sub-dominant tree species in this forest include *Dodonea viscosa*, *Bursaria spinosa* and *Acacia dealbata*. Species in the understorey are sparse and include *Anagallis arvensis*, *Lepidosperma*, *Austrostipa*, and *Einadia nutans*.

No formal assessment of vegetation condition was carried out but a subjective assessment suggests the community is in good condition.

4. Lowland grassland complex.

The area now mapped as grassland (1.5 ha) represents only a small piece of more extensive grassland 60-70 years ago and is gradually being slowly encroached upon by regenerating trees and shrubs. In time the remnant of treeless grassland will transition into eucalypt forest.

The community is not well reserved but is not listed as threatened at the state level. This community is, on a statewide basis largely in a degraded condition and includes areas that result from the modification of other grassy communities such as grassy forest and woodland (Lowland Grassland Review Expert Group 2008). This is the case with the

small area on the Hammond Tier. The patch on Hammond Tier appears to fit the Lowland *Themeda triandra* (kangaroo grass) Grassland facies and fits the environmental envelope

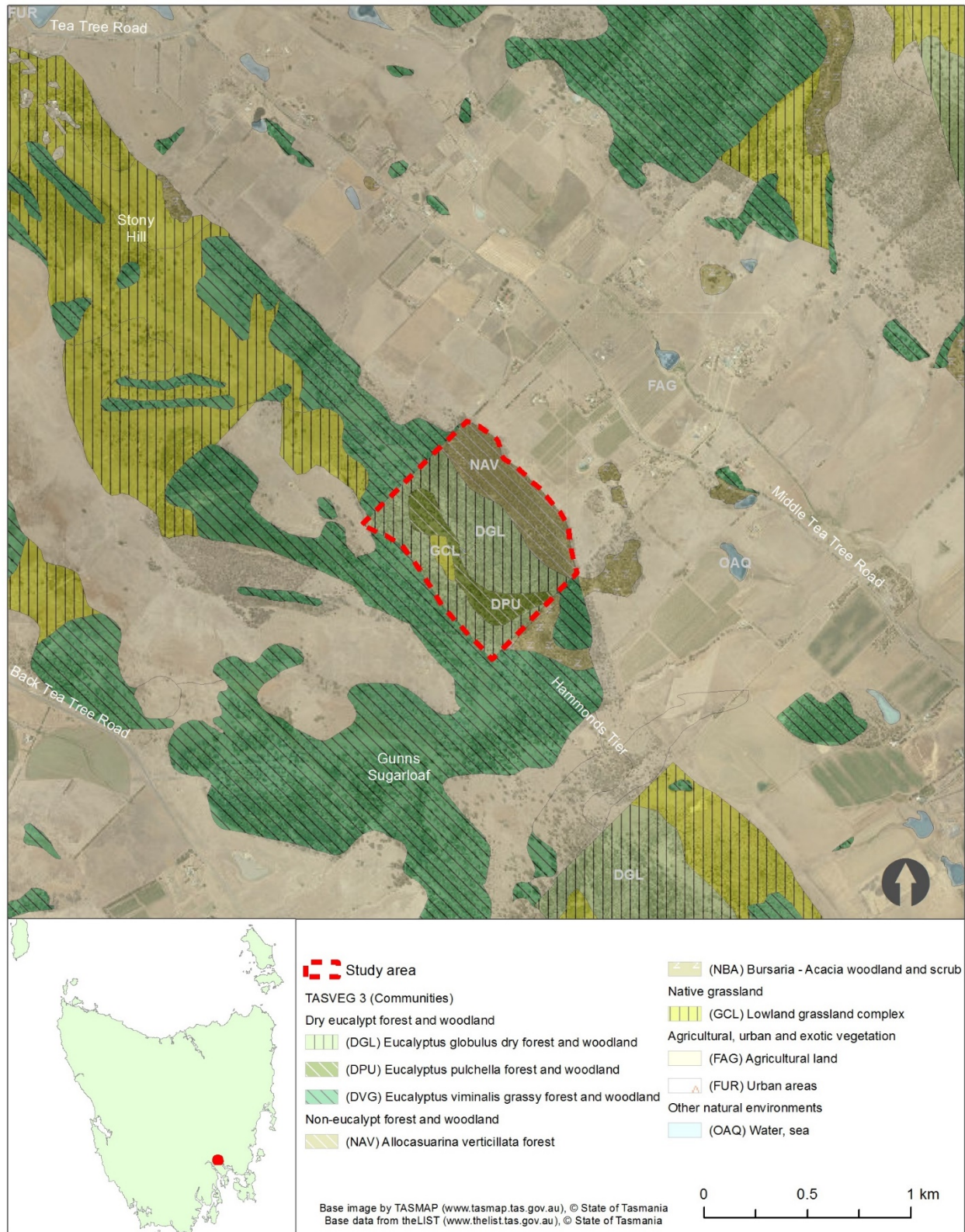


Figure 6. The remapping of the study area shows boundaries of four vegetation communities. Surrounding vegetation typing may be inaccurate in some cases.

ascribed to it (Department of Energy and Environment, Australian Government). The community occurs as scattered fragments, having lost more than 83% of its extent across its range since European settlement. The condition of the community is fair to good.

Management Considerations.

Ongoing management will involve some weed treatment, in particular of *Lycium ferocissimum* near the bush boundary of the block and treating the scattered occurrences of slender thistle (*Cirsium arvense*) wherever they occur. No fuel reduction burning is required in the next 5 years but this advice may be varied according to conditions such as fuel build-up. Small numbers of sheep may be run occasionally on the study area but generally, domestic stock will continue to be largely excluded from the property. No control of native herbivores is planned because there appears for the most part to be successful regeneration of trees and shrubs, although this varies across the study area.

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Acknowledgements

Peter and Brenda Bosworth were of great help in preparing this report. Miguel de Salas of the Tasmanian Herbarium identified some of the plant specimens collected from the area, Inga Playle prepared the maps from my rough sketches and Eve Lazarus extracted a Natural Values Atlas report.



Figure 7. The endemic sedge *Lepidosperma inops*



Figure 8. Even-aged regenerating cohort of sheoak probably dates from last major fire.



Figure 9. Abundant windthrow of thinning sheoak on shallow soils.



Figure 10. Older umbrageous sheoak. Younger cohort surrounds the older tree but does not grow directly under the canopy.



Figure 11. Illustrating variable nature of the understorey in the sheoak forest.



Figure 12. Grassy blue gum forest with wattle mid layer.



Figure 13. Floriferous grassland on the ridge with *Wahlenbergia* sp., *Centaureum erythraea* and *Craspedia glauca*



Figure14. A canopy gap view to the north east from slopes above Morningside.



Figure 15. *Ptilotus spathulatus* –in Tasmania this species is found in native grassland and represents a large genus spread across continental Australia.



Figure 16. A portion of the native grassland with eucalypt downers indicating it was occupied by trees in the past.



Figure 17. No evidence of tree regeneration is apparent on this particular heavily grazed portion of the tier.



Figure 18. *Lysimachia arvensis* var *caerula* – an uncommon introduced plant.



Figure 19. Ridge-top forest – blue gum in the background with mid layer sparse shrubs of *Bursaria spinosa* and *Acacia dealbata*

APPENDIX A. LIST OF PLANTS FROM PORTION OF THE HAMMOND TIER

Nomenclature follows de Salas et al. (2016) except for *Lysmachia arvensis* var *caerulea* which I have chosen to maintain as a distinct variety *quare sequitur* *Lysmachia arvensis* is used *sensu stricto*. The *i* denotes introduced in Tasmania, *e* denotes endemic in Tasmania.

DICOTYLEDONEAE

AMARANTHACEAE

<i>Ptilotus spathulatus</i>	pussytails
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APIACEAE

<i>Daucus glochidiatus</i>	australian carrot
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<i>Hydrocotyle foveolata</i>	pennywort
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ASTERACEAE

<i>i</i> <i>Arctotheca calendula</i>	cape daisy
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<i>Brachyscome decipiens</i>	field daisy
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<i>Cassinia aculeata</i> subsp. <i>aculeata</i>	dollybush
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<i>i</i> <i>Cirsium arvense</i> var. <i>arvense</i>	Californian thistle
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<i>e</i> <i>Craspedia glauca</i>	common billybuttons
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<i>Euchiton involucratu</i> s	star cottonleaf
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<i>Euchiton japonica</i> s	cottonleaf
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<i>i</i> <i>Hypochaeris radicata</i>	cat's ear
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<i>Lagenophora stipitata</i>	blue bottledaisy
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<i>Leptorhynchos squamatus</i> subsp. <i>squamatus</i>	scaly buttons
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<i>Millotia tenuifolia</i> var. <i>tenuifolia</i>	soft bowflower
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<i>Olearia lirata</i>	shrubby daisybush
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<i>e Ozothamnus scutellifolius</i>	scaly everlasting-bush
<i>Senecio linearifolius</i>	fireweed groundsel
<i>Senecio phelleus</i>	fireweed
<i>i Sonchus oleraceus</i>	milk thistle
<i>i Taraxacum officinale</i>	dandelion
BORAGINACEAE	
<i>Cynoglossum suaveolens</i>	sweet hounds-tongue
<i>i Mysotis discolor</i>	forget-me-not
BRASSICACEAE	
<i>i Capsella bursa-pastoris</i>	shepherds purse
<i>Lepidium pseudotasmanicum</i>	shade peppercress
<i>i Sisymbrium orientale</i>	indian hedge mustard
CAMPANULACEAE	
<i>Wahlenbergia sp.</i>	bluebells
CARYOPHYLLACEAE	
<i>i Cerastium glomeratum</i>	mouse-ear chickweed
<i>i Stellaria pallida</i>	small chickweed
CASUARINACEAE	
<i>Allocasuarina verticillata</i>	sheoak
CHENOPODIACEAE	
<i>Einadia nutans</i>	climbing saltbush
CONVOLVULACEAE	
<i>Dichondra repens</i>	kidney weed

CRASSULACEAE

Crassula decumbens var. *decumbens* creeping stonecrop

Crassula tetramera stonecrop

DILLENACEAE

Hibbertia sp. Richmond “Dolerite” guineaflower

DROSERACEAE

Drosera auriculata tall sundew

EPACRIDACEAE

Astroloma humifusum native cranberry

Epacris impressa common heath

Lissanthe strigosa subsp. *subulata* peachberry heath

EUPHORBIACEAE

Poranthera microphylla small poranthera

FABACEAE

Bossiaea prostrata creeping bossia

FUMARIACEAE

i Fumaria muralis fumitory

GENTIANACEAE

i Centaurium erythraea common centaury

GERANEACEAE

i Erodium cicutarium common storksbill

Geranium potentilloides var. *potentilloides* mountain cranesbill

GOODENIACEAE

Goodenia lanata native-primrose

HALORAGACEAE

Gonocarpus tetragynus common raspwort

MIMOSACEAE

Acacia dealbata subsp. *dealbata* silver wattle

Acacia mearnsii black wattle

Acacia melanoxylon blackwood

MYRTACEAE

Eucalyptus globulus subsp. *globulus* blue gum

i Eucalyptus pulchella white peppermint

Eucalyptus viminalis white gum

PITTOSPORACEAE

Bursaria spinosa subsp. *spinosa* prickly box

PLANTAGINACEE

i Plantago coronopus subsp. *coronopus* salt plantain

POLYGALACEAE

Comesperma volubile blue lovecreeper

POLYGONACEAE

Rumex sp. dock

PRIMULACEAE

i Lysimachia arvensis var. *arvensis* loosestrife

i Lysimachia arvensis var. *caerulea* Gouan. loosestrife

RANUNCULACEAE

<i>e Clematis gentianoides</i>	ground clematis
<i>Ranunculus lappaceus</i>	australian buttercup
ROSACEAE	
<i>Acaena x anserovina</i>	sheeps-burr
RUBIACEAE	
<i>Galium gaudichaudii</i> subsp. <i>parviflorum</i>	rough besdstraw
<i>i Galium murale</i>	bedstraw
RESEDACEAE	
<i>i Reseda luteola</i>	wild mignonette
SANTALACEE	
<i>Exocarpos cupressiformis</i>	native cherry
SAPINDACEAE	
<i>Dodonaea viscosa</i>	broadleaf hopbush
SCROPHULARIACEAE	
<i>i Parentucellia latifolia</i>	bartsia
SOLANACEAE	
<i>i Lycium ferocissimum</i>	African boxthorn
<i>i Solanum nigrum</i>	deadly nightshade
STYLIDIACEAE	
<i>Stylidium graminifolium</i>	trigger plant
THYMELACEAE	
<i>Pimelea humilis</i>	dwarf riceflower
URTICACEAE	

Urtica sp.

nettle

MONOCOTYLEDONAEA

CYPERACEAE

e Lepidosperma inops

fan sedge

Lepidosperma laterale

variable sword sedge

Schoenus apogon

common bog sedge

Schoenus nitens

shiny bog sedge

LILIACEAE

Bulbine bulbosa

golden bulbine-lily

Dianella brevicaulis

shortstem flaxlily

Dianella revoluta var *revoluta*

spreading flaxlily

Wurmbea dioica subsp. *dioica*

early nancy

POACEAE

i Aira elegantissima

delicate hair-grass

Austrostipa blackii

crested spear-grass

Austrostipa stiposa

Tasmanian spear-grass

i Briza minor

shivery grass

Dichelacne crinita

plume grass

i Lolium perenne

perennial ryegrass

i Phalaris sp.

canary grass

Poa rodwayi

velvet tussockgrass

Poa sieberiana var *sieberiana*

grey tussockgrass

Rhytidosperra caespitosum

common wallabygrass

Rhytidosperma setaceum

wallabygrass

Themeda triandra

kangaroo grass

XANTHORRHOACEAE

Lomandra longifolia

saggs

PTERIDOPHYTA

ADIANTACEAE

Cheilanthes austrotenuifolia

green rockfern

**APPENDIX B. BIRD LIST FOR
THE VICINITY OF HAMMOND
TIER.**

**Compiled by Peter Bosworth,
Morningside.**

Yellow Throated Honeyeater

Crescent Honeyeater

Eastern Spinebill

Yellow Rumped Thornbill

Blue Wren

Grey Fantail

Spotted Pardalote

Tree Martin

Yellow Wattlebird

Little Wattlebird

Yellow Tailed Black Cockatoo

Sulphur Crested Cockatoo

Grey Butcherbird

Scarlet Robin

Forest Raven

Black Faced Cuckoo Shrike

Kookaburra

Noisy Miner

Swamp Harrier

Brown Falcon

Wedge Tailed Eagle

Swift Parrot [?]

Green Rosella

Australian Magpie

Tawny Frogmouth

Southern Boobook Owl

Horsefield's Bronze Cuckoo

Silvereye

Masked Lapwing

Brown Quail

Welcome Swallow

Dusky Woodswallow

Common Blackbird

Common Starling

House Sparrow

European Goldfinch