

CAPTAINS CREEK ROAD

BOTANICAL ASSESSMENT

2019

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SUMMARY

The unsealed Captains Creek Road running west to east from Kinglake Central towards Glenburn consists mainly of high quality indigenous vegetation with a diversity of indigenous species from the remnants of forest and riparian vegetation communities with a short section of medium quality along a cleared area within the eastern section. The quality of indigenous vegetation, presence of Critically Endangered and rare species, relatively low levels of invasive weeds, and the link to the adjoining high quality and biodiverse Wombelano Section of Kinglake National Park and Island Creek, confirms Captains Creek Road as having significant roadside vegetation values.

AIM

The aim of this investigation is to better understand the botanical values of this roadside. This evidence should assist future management decisions and support the protection and enhancement of the natural landscape of Captains Creek Road, Kinglake Central/Glenburn.

INTRODUCTION/ASSESSMENT PURPOSE

This is the first known botanical assessment of this estimated seven hectares of Kinglake district roadside vegetation apart from ecological observations over the years within the Kinglake National Park (KNP) area. The assessment includes vegetation structure, species composition, Ecological Vegetation Classes (EVC), locations of any significant or rare plant species, locations of high threat weed species, and quality assessment. The assessment is sponsored by the Upper Goulburn Landcare Network (UGLN) as part of the Ribbons of Remnant Roadside funding by the Victorian State Government's Victorian Landcare Grants Program.

This program seeks to generate better ecological understanding of roadside vegetation and habitat values.



Figure 1: Aerial map of Captains Creek Road.

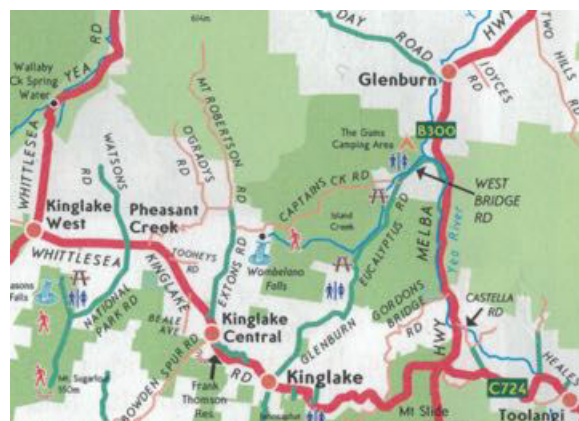


Figure 2: From MSC "Heart of Victoria" map

BACKGROUND

Location

The Kinglake district is set in the southern slopes of the Great Dividing Range in Central Victoria.

Captains Creek Road is located both within Kinglake Central and Glenburn and is north of the main Whittlesea-Kinglake Road. It is 6 km north of the Kinglake township, 26 km north of Whittlesea, 34 km south of Flowerdale, 40 km northwest of Healesville, and 55km south of Yea.



Figure 3: Extract from Rooftop's Mt Disappointment-Kinglake Ranges Forest Activities Map. Captains Creek Road in pink.

Captains Creek Road is 7.3 km long. From the west at Extons Road, at 610m above sea level, it cuts through the 4.5 km central Wombelano Section of KNP (shown in yellow on the site map at Figure 4 below) through to the eastern section where it crosses Island Creek to meet up with Eucalyptus Road at 290m ASL.

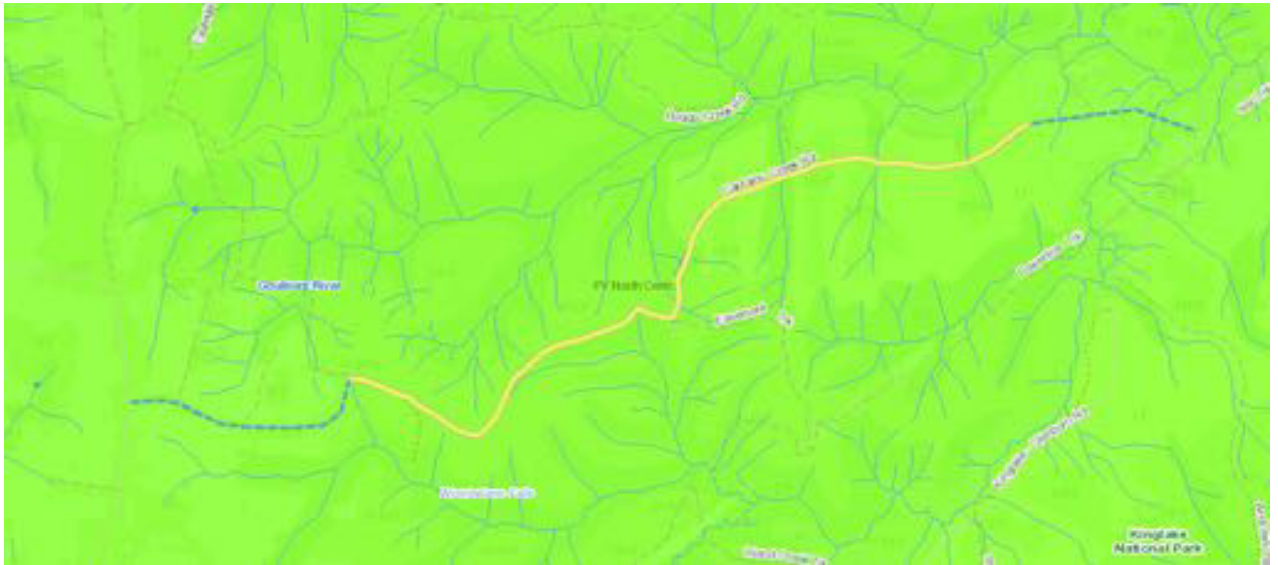


Figure 4: Captains Creek Road, Kinglake Central/Glenburn. KNP Section yellow, MSC Sections dotted blue.

History

Kinglake district is within the traditional land of the Kulin Nation with Wurundjeri people to the south and Taungurong people to the north, so Captains Creek Road (and Wombelano Falls) is considered Taungurong country although there would have been interaction between the two peoples of the Kulin Nation.

Their specific habitation of this area is still yet to be made better known or understood although the Kinglake district, as the area is known today, would have been a desirable place to visit particularly at certain times of the year possibly for trading, ceremonies, and there would have been use of much of the flora (and fauna) for food, clothing, medicine, weapons, and possibly the widely practiced traditional firestick farming. There is much conjecture on the lost opportunities to learn from Aboriginal fire management and the abrupt changes imposed by white settlement, which it is claimed, have lead to less regular but more intense fires, now being exacerbated by climate change.

To increase awareness of the cultural value and history of indigenous flora and fauna the author takes this opportunity to include the known Koori (Aboriginal) use of many of the plants in this area. See Appendix 4 (Koori/Aboriginal Use of Flora) for more detail.



Figure 5: Pre 1750 Captains Creek Road Forest EVC's from NatureKit Biodiversity Index Map.

The above Figure 5 shows the pre-1750 Captains Creek Road area as a mosaic of forest types including, Shrubby Foothill Forest, Herb-rich Foothill Forest, Damp Forest, Lowland Forest, Heathy Dry Forest, and Riparian Forest. From the second half of the 1800's, like much of Kinglake district, the Captains Creek Road area was cleared and settled for agricultural purposes and possibly some logging for timber (which continues today nearby at the northern end of Extons Road), construction, and palings, with the subsequent apparent alteration of the vegetation mix from Forest to a mix of today's remnants of original vegetation mostly along roadsides and in the KNP area, on some private properties amongst the mainly developed areas.

The Captains Creek Road area subsequently was divided into agricultural/residential properties within the western and eastern sections. The central forest section of the road was originally within State Forest, but, that area was subsumed as the Wombelano Block into Kinglake National Park in 1980 (although a 100 acres Wombelano Falls section had previously been added to the care of KNP after the 1928 declaration of the park).

Kinglake district has recorded many bushfires including those in recent history in 1926, 1939, 1962, 1982, 2006, and 2009. The January 2006 fire burnt through the vegetation and destroyed the Wombelano platform viewing area as did the even more catastrophic February 2009 fire which devastated the Kinglake district generally and most of the KNP was burnt out.

Flora values

Kinglake district sits on the boundary of the *Highlands Southern Fall* and *Highlands Northern Fall* Bioregions, which are two of the 28 Bioregions as defined by the Victorian State Government. Bioregions are a landscape-scale approach to classifying the environment using attributes such as climate, geomorphology, geology, soils and vegetation. Within these



bioregions, further classifying areas into Environmental Vegetation Classes (EVC's) can assist with flora identification.

The Threatened Species Management Plan for Kinglake National Park (ABZECO 2010) detailed the State Botanical Significance of the Wombelano Block and the Victorian Rare and Threatened Species (VROT). These species are included in the species lists appendices.

This road is considered to be within the *Highlands Northern Fall Bioregion*.

Situated at approximately 525m ASL on the slopes of the Great Dividing Range, this location influences the vegetation communities contained.

Rainfall also influences the vegetation communities contained and rainfall figures to the west, from Bureau of Meteorology stations Kinglake West Mean Annual Rainfall is 1039.5mm (BOM 1990-2016), Wallaby Creek 1092mm (BOM 1884-2016), and to the east, Glenburn 847.2mm (BOM 1937-2017).

Where rainfall exceeds 900 mm *Eucalyptus* forests are commonly tall (over 30m) with a dense understory of small trees, especially in sheltered valleys.

Desktop assessment using the Department of Environment Land Water & Planning's (DELWP) *Biodiversity Interactive Maps* (BIM) online tool suggested that the pre-1750 Captains Creek Road area (Fig 5) was a mosaic of forest types including, Shrubby Foothill Forest, Herb-rich Foothill Forest (EVC 23), Damp Forest (EVC 29), Lowland Forest (EVC 16), Heathy Dry Forest (20), and Riparian Forest (EVC 18).

BIM for 2005 (Fig 6) similarly shows from west to east along Captains Creek Road as Shrubby Foothill Forest (EVC 45), then Herb-rich Foothill Forest (EVC 23), Damp Forest (EVC 29), Lowland Forest (EVC 16), Heathy Dry Forest (EVC 20), Riparian Forest (EVC 18), and ending in Herb-rich Foothill Forest (23). "Depleted" or developed areas are shown in white.

Whilst EVCs act as a useful guide, land use history and major disturbances such as logging, agriculture, mining, human habitation and intense bushfires complicate this process of classifying vegetation communities.



Captains Creek Road still retains large sections of remnant vegetation along the roadsides of varying quality although clearing, mowing, and slashing has reduced the biodiversity in other sections of the roadside. Patches of Pink Heath (*Epacris impressa*), as shown in Fig 7 below, persist in some of these areas surviving the current vegetation management.



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Relevant Authorities and Strategies

Local Government

Although Kinglake district straddles five local government areas, much of the district including Captains Creek Road, Kinglake Central/Glenburn is within the boundaries of and thus administered by Murrindindi Shire Council (MSC). MSC is responsible for the Captains Creek Road reserve and they have recognised its significance by supporting this Botanic Assessment.

Clause 21.05 of the Murrindindi Planning Scheme sets the priorities for environmental protection in the Shire. Objective 3 of this local planning policy *Biodiversity and Native Vegetation* includes the strategy to “retain, protect and enhance native vegetation, including roadside vegetation, remnant vegetation areas, large old paddock trees and revegetation areas.” This is supported by the MSC Rural Roadside Management Plan (2014-18) which details the values, responsibilities, roles etc.

Water Catchment

There is no reticulated water supply system in Kinglake district, however, it straddles two catchments/authorities, Goulburn Broken Catchment Management Authority (GBCMA) and Port Philip and Westernport Catchment Management Authority (PPWCMA). Captains Creek Road falls within the GBCMA being just north of the catchment divide and thus within the GB Regional Catchment Strategy 2012-2019.

Goulburn Broken Catchment Management Authority seeks partnership in waterway management with the community and all levels of government such as the Shire of Murrindindi and local residents and is ultimately responsible/accountable to the State Government.

Parks Victoria

PV is directly and wholly responsible for the management of the Kinglake National Park through which much of Captains Creek Road traverses although there appears to be some overlap of responsibilities for the road maintenance. Not surprisingly, the biodiversity of the district is particularly well represented within the KNP section of the road and adjacent roadsides.



Figure 8: Parks Victoria signage along KNP section.

State Government

Indigenous vegetation is protected by State Government on public land through the Flora and Fauna Guarantee Act 1988 (FFG), with special consideration for rare or threatened species and more broadly through the Planning and Environment Act.

Clauses 12.01 and 52.17 of the Victorian Planning Provisions seek to assist the protection and conservation of Victoria's biodiversity (including native vegetation) by ensuring that clearing of vegetation and habitat which impacts on biodiversity is regulated through Native Vegetation Clearing Regulations.



Federal Government

The Environment Protection Biodiversity Conservation Act, 1999 (EPBC), contains protections for matters of national environmental significance including certain vegetation communities, flora, and fauna. This includes the Nationally Threatened/Critically Endangered *Pomaderris vacciniifolia* (Round-leaf Pomaderris) which is found on this roadside and in the district.

METHODS

This report was compiled by fieldwork in Winter, Spring and early Summer 2018 using visual assessment, field guides research, and report writing. Additional information was gathered via personal communications with some local residents and other stakeholders. Vegetation Quality Assessments were assisted by using VicRoads Roadside Vegetation Assessment sheets.

As the roadside was the focus of the study, most adjacent private properties were not visited so off road species listed are mainly those found in areas immediately adjacent in the national park.

As is a common practice, locations of flora and fauna are not always made clear to avoid potential unlawful or destructive removal.

Disclaimer

Plant identification by flowers was mainly during Winter, Spring and early Summer which covered most species although follow up is suggested during midsummer and Autumn flowering for other species including for some tree species which may be more difficult due to height, lack of flowers and fruit, burnt bark from recent fires, and the ever present possibility of hybrids.

RESULTS

This botanic assessment identified 139 indigenous and 18 exotic flora species from trees through shrubs, ground flora, grasses, and ferns. This is in a structure along and beside this roadside fitting many of the elements of the EVC's of a Shrubby Foothill Forest, Herb-rich Foothill Forest, Damp Forest, Lowland Forest, Heathy Dry Forest, and Riparian Forest, including immediate surrounds particularly including the ecologically significant and biodiverse Wombelano Section of the Kinglake National Park. The KNP adjacent roadside covered approximately 62% of the road length and contained approximately 42% of these species exclusively. The KNP, being a prominent central presence in Captains Creek Road, leads any assessment to practically divide the road into Western Section, Wombelano Section, and Eastern Section.

The assessment also found recent evidence of disturbance including vigorous clearing of significant remnant vegetation sections of the roadside in the western section, apparently for fencing, which narrowly avoided destroying a mature population of the Nationally Threatened/Critically Endangered Species *Pomaderris vacciniifolia* (Round-leaf Pomaderris) (see Fig 9 below).



Figure 9: Flowering *Pomaderris vacciniifolia* on northern roadside in western section.

A complete list of recorded flora is provided alphabetically by species name (including common names), and also within botanical families alphabetically in Appendix 1.

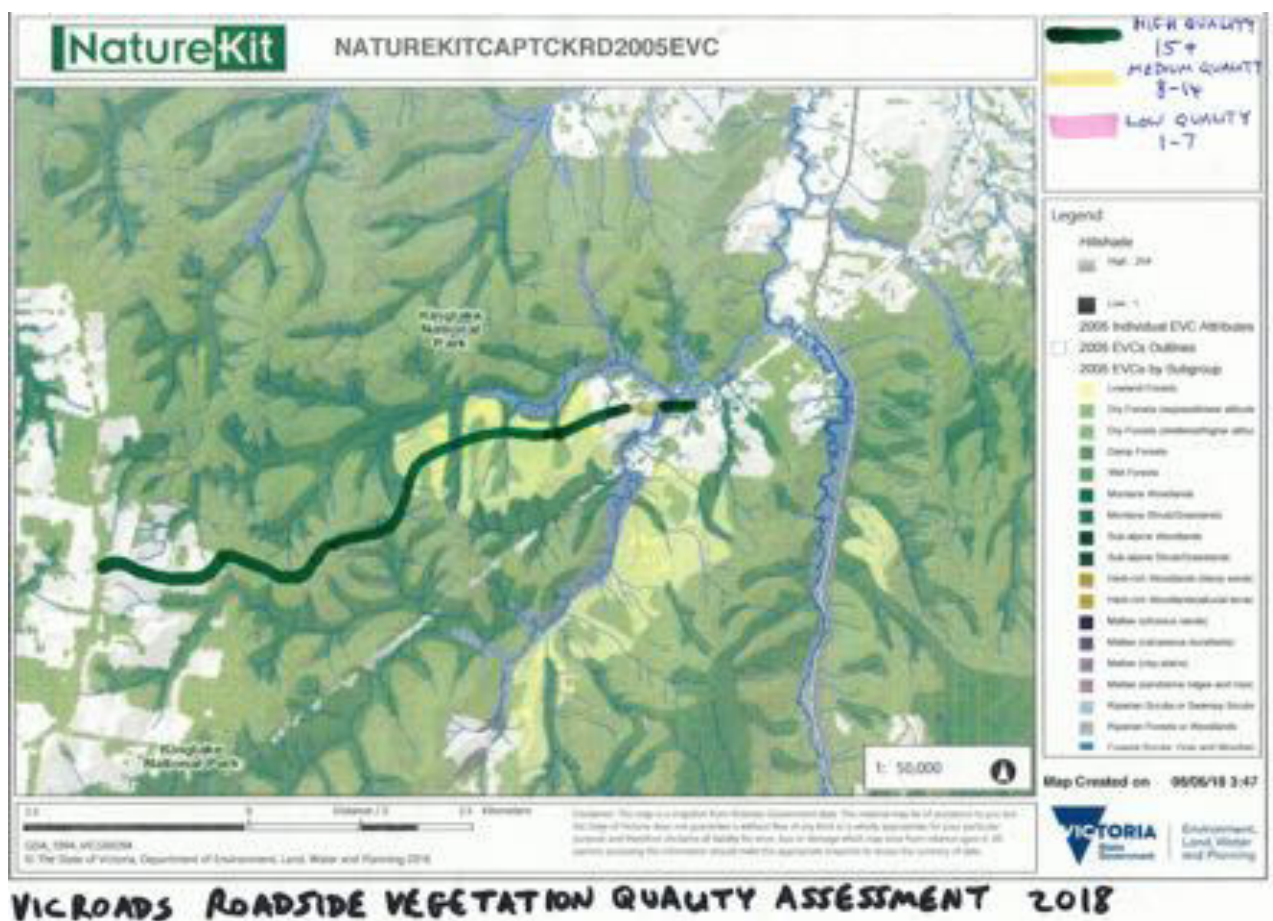


Figure 10: Vegetation Quality Assessment

Vegetation Quality Assessment

Assisted by using VicRoads Roadside Vegetation Assessment sheets, Fig 10 indicates the high, medium and low quality indigenous vegetation of the roadside.

As mentioned previously, the road has been divided practically into three sections.

The western section was of high quality particularly along the northern side. Although surrounded by relatively cleared properties, it falls within a significant Depleted EVC of Shrubby Foothill Forest and is further upgraded by the presence of rare and Critically Endangered species.

Not surprisingly, the **Wombelano section** through the KNP is of high quality although there is a short section on the south-eastern side where the road was realigned and which has not yet fully rehabilitated, and where biodiversity quality also varies with increasing density of *Kunzea* sp Upright Form (Forest Burgan) which appears to be tending to dominate some areas of this and surrounding districts (see Figure 11 below).



Figure 11: Abundant *Kunzea* sp (Upright Form) nr Easement Track turnoff in KNP section.

The Eastern section is of medium quality and almost qualifying as low quality in cleared, ploughed, and/or weedy patches along the southern side.

Connectivity

Connectivity of the roadside to the adjacent rural and semirural properties and the Wombelano Section of Kinglake National Park adds to the habitat and biodiversity value as can be seen by the aerial photo in Figure 1. Continuous multi storey vegetation cover is extensive for the almost two thirds of the road within the KNP, and on most of the western section and most of the eastern section (see figures 12 & 13). However, there is less connectivity in the western section apart from along Extons Road and some property boundaries, and in the eastern section from Burgan Track, and from the Island Creek north-south crossing.



Figure 12: Western section looking east.



Figure 13: Eastern section looking west.

This also correlates with the vegetation quality.

Connectivity tends to reduce some of the deleterious fragmentation and edge effects including increased risk of losing sensitive flora (and fauna), reductions in genetic diversity of those sensitive species, increased predation, and competition from species favoured by disturbance.

Biodiversity

As can be seen from the attached lists/appendices of 139 observed indigenous species and the several EVC's, this road is overall deservedly considered an area of high biodiversity with remnants of the original vegetation believed to have existed before white settlement less than 200 years ago.

Structure

There is significant tree cover along most of the roadside with gaps mainly around property entrances in the western section (as figure 14 below).



Figure 14: Southern property entrance in western section.

Also cleared roadside at the eastern end just west of the bridge over Island Creek (as shown in figures 15 below).



Figure 15: Tree cover along eastern section looking west, then east.

Some sections of the road are either regularly slashed, mowed or otherwise disturbed which appears to have heavily reduced shrub coverage and minimised groundcovers in those sections and leaving mainly exotic grasses (See figures 16 below). Multi-layered structures provide more diverse habitat and opportunities for use by a larger number of fauna species.



Figure 16: Clearing at western end of Captains Creek Rd.

Ecological Vegetation Classes (EVC's)

The Department of Environment Land Water and Planning (DELWP) Biodiversity Interactive Maps indicate there are seven EVC's represented along the roadside. See Figures 17 and 18 for more detail.



Figure 17: Pre 1750 EVC's Captains Creek Road area from NatureKit Biodiversity Index Map.

Desktop assessment using the Department of Environment Land Water & Planning's (DELWP) *Biodiversity Interactive Maps* (BIM) online tool suggested that the pre-1750 Captains Creek Road area (Fig 2) was a mixture of forest types including, Shrubby Foothill Forest (EVC 45), Herb-rich Foothill Forest (EVC 23), Damp Forest (EVC 29), Lowland Forest (EVC 16), Heathy Dry Forest (EVC 20), and Riparian Forest (EVC 18).



Figure 18: 2005 EVC's Captains Creek Road area from NatureKit Biodiversity Index Map.

The BIM for 2005 (Fig 18 above) similarly shows from west to east along Captains Creek Road as Depleted Shrubby Foothill Forest (EVC 45), then Herb-rich Foothill Forest (EVC 23),

Damp Forest (EVC 29), Lowland Forest (EVC 16), Heathy Dry Forest (EVC 20), Riparian Forest (EVC 18), and ending in Herb-rich Foothill Forest (EVC 23).

The Threatened Species Management Plan for KNP also observed an HDF/LF Complex intact and extensive stand just north in Captains Creek valley within KNP – a rare EVC.

Whilst EVCs act as a useful guide, land use history and major disturbances such as logging, agriculture, mining, human habitation and intense bushfires complicate this process of classifying vegetation communities.

Trees

Significant indigenous tree cover along most of the road including *Eucalyptus cephalocarpa* (Mealy Stringybark), *Eucalyptus cypellocarpa* (Mountain Grey Gum), *Eucalyptus dives* (Broad-leaved Peppermint), *Eucalyptus goniocalyx* (Long-leaved Box), *Eucalyptus macrorhyncha* (Red Stringybark), *Eucalyptus obliqua* (Messmate), *Eucalyptus radiata* (Narrow-leaved Peppermint), *Acacia dealbata* (larger Silver Wattles), and *Acacia melanoxylon* (larger Blackwoods).



Figure 20: Tree very recently felled at far south-eastern Glenburn end of roadside.



Figure 19: Tall Eucalyptus sp in Eastern Section.



Figure 21: *Daviesia leptophylla* in eastern section.



Figure 22: *Platylodium montanum* ssp *montanum* (Mountain Flat-pea) in western section.



Figure 23: *Acacia dealbata* in eastern section.



Figure 24: *Banksia spinulosa* (Hairpin Banksia) in Wombelano section.



Figure 25: *Pimelea axiflora* in western section.



Figure 26: *Acacia mucronata* in western section.

Shrubs

Wattle shrubs such as *Acacia dealbata* (Silver Wattle), *Acacia gunnii* (Ploughshare Wattle), abundant *Acacia melanoxylon* (Blackwood), *Acacia mucronata* ssp *longifolia* (Narrow-leaf Wattle), abundant *Acacia obliquinervia* (Mountain Hickory Wattle), *Acacia verticillata* ssp



Figure 27: Fruiting *Polyscias sambucifolia* (Elderberry Panax) in Kinglake West.

verticillata (Prickly Moses), *Banksia marginata* (Silver Banksia), *Banksia spinulosa* var *cunninghamii* (Hairpin Banksia), *Bedfordia arborescens* (Blanket-leaf), *Cassinia aculeata* (Dogwood/Common Cassinia), *Coprosma quadrifida* (Prickly Currant-bush), *Correa reflexa* (Common Correa), *Daviesia leptophylla* (Narrow-leaf Bitter-pea), *Daviesia ulicifolia* (Gorse Bitter-pea), *Exocarpus cupressiformis* (Wild Cherry/Ballart), *Gompholobium huegelii* (Common Wedge-pea), rare *Goodia pubescens* (Silky Clovertree), abundant *Goodenia ovata* (Hop Goodenia), *Hakea decurrens* ssp *physocarpa* (Bushy Needlewood), abundant *Kunzea* sp (Upright Form) (Forest Burgan), *Leptospermum continentale* (Prickly Tea-tree), *Lomatia fraseri* (Tree Lomatia), *Monotoca scoparia* (Prickly Broom-heath), *Olearia* spp (Daisy-bushes), abundant *Pimelea axiflora* (Bootlace Bush), other *Pimelea* spp, *Pittosporum bicolor* (Banyalla), abundant *Platylobium montanum* ssp *montanum* (Mountain Flat-pea), *Polyscias sambuccifolia* (Elderberry Panax), *Pomaderris aspera* (Hazel Pomaderris), Critically Endangered *Pomaderris vacciniifolia* (Round-leaf Pomaderris), *Prostanthera lasianthos* (Coranderrk/Victorian Christmas Bush), *Pultenaea gunnii* (Golden Bush-pea), *Pultenaea muelleri* var *muelleri* (Mueller's Bush-pea), and *Spyridium parvifolium* (Dusty Miller).



Figure 28: Abundant *Goodenia ovata*.



Figure 29: *Clematis aristata*.



Figure 30: *Epacris impressa* on northern roadside.



Figure 31: *Lagenophora stipitata*.

Groundflora (including Lilies and Orchids)

Diversity includes Orchids *Caladenia* spp, *Chiloglottis* spp (Bird Orchids), *Pterostylis* spp (Greenhoods), also *Acaena novae-zelandiae* (Bidgee-Widgee), *Acrotriche* spp (Honeypots), *Asperula conferta* (Common Woodruff), *Astroloma humifusum* (Cranberry Heath), *Burchardia umbellata* (Milkmaids), *Comesperma ericinum* (Heath Milkwort), *Coronidium scorpioides* (Button Everlasting), *Dianella* spp (Flax-lilies), *Dichondra repens* (Kidney-weed), *Drosera* spp (Sun-dews), *Epacris impressa* (Common/Pink Heath), *Euchiton japonicus* (Creeping Cudweed), *Euromyrtus ramulissima* ssp *ramulissima* (Rosy Baeckia), *Geranium* spp (Cranes-bill), *Gonocarpus* spp (Raspworts), rare *Grevillea repens* (Creeping Grevillea), *Hovea heterophylla* (Common Hovea), *Hydrocotyle* sp (Pennyworts), *Lagenophora stipitata* (Common Bottle-daisy), *Lobelia* spp (*Lobelia*), *Lomandra filiformis* ssp *filiformis* (Wattle Mat-

rush), *Lomandra longifolia* var *longifolia* (Spiny-headed Mat-rush), *Lomatia ilicifolia* (Holly-leaf Lomatia), *Pimelea* spp (Rice-flowers), *Plantago varia* (Variable Plantain), *Poranthera microphylla* (Small Poranthera), *Senecio* spp (Fireweeds), *Stackhousia monogyna* (Creamy Candles), *Stylidium* spp (Trigger Plants), *Tetratheca ciliata* (Pink Bells), *Tetratheca bauerifolia* (Pink Heath-bells), *Viola* spp (Violets), *Xanthorrhoea australis* (Austral Grass Tree), and *Xanthosia dissecta* (Cut-leaf Xanthosia).



Figure 32: *Drosera aberrans*



Figure 33: *Tetratheca ciliata*



Figure 34: *Viola hederacea*



Figure 35: *Gahnia radula* (Thatch Saw-sedge) on eastern section roadside



Figure 36: *Tetratheca bauerifolia* on Wombelano section roadside.



Figure 37: Grass on western roadside.

Grasses and Grass-like Forms

Microlaena stipoides (Weeping Grass), *Poa ensiformis* (Purple-sheathed Tussock Grass), *Poa morrissii* (Velvet Tussock Grass), *Poa sieberiana* (Grey Tussock-grass), *Tetrarrhena junceus* (Forest Wire-grass), other sedge and grass-like lifeforms include *Gahnia sieberiana* (Red-fruited Saw-sedge), abundant *Gahnia radula* (Thatch Saw-sedge), *Lepidosperma laterale* (Variable Sword-sedge), and *Lepidosperma* spp (Rapier-sedges).

Climbers

Rare *Billardiera scandens* (Apple-Berry)

Clematis aristata (Mountain Clematis), and/or *Clematis glycinoides* (Forest Clematis), *Hardenbergia violacea* (Purple Coral-pea), and *Comesperma volubile* (Love Creeper).



Figure 38: *Hardenbergia violacea* on southern roadside east of Island Creek

Ferns

Apart from the widespread Bracken Fern (*Pteridium esculentum*), ferns are mostly found in or around the adjoining Wombelano Section of the Kinglake National Park such as *Asplenium bulbiferum* (Mother Spleenwort), *Blechnum flabellifolium* (Necklace Fern), *Calochlaena dubia* (Common Ground-fern), *Histiopteris incisa* (Bat's Wing Fern), *Lindsaea linearis* (Screw Fern), *Cyathea australis* (Rough Treefern), and *Dicksonia Antarctica* (Soft Treefern)



Figure 39: *Histiopteris incisa* (Bat's Wing Fern) in Stony Creek Conservation Reserve.

Fungi, lichens, mosses, and mistletoes

These life forms are often cryptic to identify and not always found or easily identified on roadsides. Deserves further exploration at a more appropriate time of the year such as around May for fungi.



Figure 39A: Some of many fauna hollows at ground level.

Habitat

The remaining sections of habitat along this roadside are sufficient to allow for a diversity of wildlife particularly with connectivity to bushland on adjacent private property areas and to conservation reserves. There are also a few trees and large logs along the roadside that contain ground level hollows (see above photos) with some apparently being used particularly by Wombats. Hollow bearing trees were harder to observe, but, some larger trees have survived the clearing and logging to provide habitat including Mountain Grey Gum and Peppermints.

Wildlife observed is detailed in Indigenous Fauna below and in Appendix 2.



Indigenous Fauna

Flora as habitat is very important so fauna sightings are included in this assessment. Assisted by cameras set up by Landcare and local residents, a wide variety of animals have been observed (see figures 40, 42 and 43 below). Birdlife including Lyrebirds, Powerful Owl, King Parrot, Eastern Yellow Robin, Golden Whistler, and Yellow-tailed Black Cockatoo, also Long-nosed Bandicoot, Echidna, Mountain Brush-tailed Possum, Brush-tailed Phascogale, Bush Rat, Agile Antechinus, Sugar Glider (see Fauna list in Appendix 2 and UGLN Facebook page for more photos and details).

Captains Creek Road in the Wombelano Falls Section is usually included in the annual Lyrebird survey in early July during mating season confirming Lyrebird habitation of the area. One of the two site indicators along the roadside is shown in figure 41 below.

Observations in KNP in recent years (1988 to date from Nature Kit) have also identified Lesser Long-eared Bats, Central Highlands Spiny Crayfish, Burrowing Crayfish, Mountain Galaxias (including in Island Creek), Brush-tailed Phascogale, Greater Glider, and Tree Dragon within a kilometre of Captains Creek Road. Apparent evidence of Burrowing Crayfish along the roadside is shown below.

Possible Spotted-tailed Quoll observations and vocalisations have been reported on at least two nearby properties in Kinglake Central in recent years.



Figure 40: Burrowing Crayfish (of the Engaeus species) habitat.



Figure 41: Lyrebird Survey Site indicator on KNP Section.



Figure 42: Phascogale tapoatafa (Brush-tailed Phascogale)



Figure 43: *Perameles nasuta* (Long-nosed Bandicoot)

Pest Plants

High threat weed species for this district include small/emergent Broom, Blackberry, and Pine saplings which have been found scattered occasionally along this road.

Lower threat weed species mentioned in the Appendix include the grass *Dactylis glomerata* (Cocksfoot), and *Myosotis sylvatica* (Forget-me-nots) particularly at the Extons Road end of the Western section (Figure 44 below).



Figure 44: Weedy *Myosotis sylvatica* on western end of the western section.

Pest Animals

Rabbits, Foxes and Sambar Deer have all been sighted in the area. Evidence of degradation of vegetation by Deer has been observed (also see photos at end).

DISCUSSION

Rare or Threatened Species

Many of the species along this road are listed as Protected Flora in Victoria under the FFG Act, including *Acacia mucronata* var. *mucronata*, *Acacia obliquinervia*, *Acacia verticillata*, *Cassinia aculeata*, *Epacris impressa*, *Grevillea repens*, *Hardenbergia violacea*, *Prostanthera lasianthos*, *Pomaderris vacciniifolia*, *Senecio* spp, *Stylidium* spp, all Orchids, all *Baeckia*, all *Epacridaceae* (Heaths), all *Grevillias*, all *Prostantheras* (Mint-bushes), all *Stylidium* (Trigger Plants), all *Xanthorrhoea* (Grass-trees), and all ferns other than *Pteridium esculentum* (Bracken). This limited protection only applies to public land except for *Pomaderris vacciniifolia* which is State FFG listed, and also Critically Endangered and protected by the federal EPBC Act with significant penalties. *P.vacciniifolia* is found on the northern roadside and in the adjacent KNP.

Also, several Victorian species observed along the roadside are listed as rare including *Goodia pubescens*, *Grevillea repens*, and *Billardiera scandens*. Tolsma et al on Recovery from 2009 Bushfires reported in 2012 that *Grevillea repens* populations along and above road embankments are potentially threatened by road widening (evident from the closeness of road grading sighted during this survey), and that *Goodia pubescens* needed to be protected from fire until viable seed store was re-established which appeared to be occurring.

Land use Threats and Opportunities

The significant fragmentation of bushland since white settlement, consequent disturbances such as weed invasions, probable changed fire regimes leading to more severe bushfires as in 2006 and 2009 have all contributed to the changes to the vegetation community of the area. However, the evolutionarily developed characters of indigenous vegetation appear to have assisted survival of these processes and contributed to the roadside biodiversity as have previous carefully regulated and monitored roadside burns (see figure 45) apparently achieved their objectives of reduced fire risk and regeneration of indigenous flora. Regeneration from pre-fire reports of as few as 150 known plants of Critically Endangered *Pomaderris vacciniifolia* to at least some thousands has been widely observed since the 2009 bushfires in the Kinglake district (personal observation and pers. comm. Kinglake Landcare Group members).



Figure 45: Ecological burning of roadside at Kinglake West.

The proximity of the Kinglake National Park traversing across the centre of Captains Creek Road also greatly assists the dispersion of plant species and biodiversity.

Successful ecological burning in recent years along selected local roadsides appears to have produced good results in fire protection and regeneration of indigenous groundflora as long

as due regard is given to re-establishment of rare species such as *Goodia pubescens* which have been observed as scattered to abundant along Captains Creek Road during this survey.

Climate change is making the fire threat increasingly more severe as the southeast of Australia will continue to get hotter and drier and with more extremes of temperature, rainfall, and winds, even if strong remedial action is belatedly taken.

Pest Plants

Increased attention by the Upper Goulburn Landcare Network using Conservation Volunteers Australia and school students, MSC specialist contractors, and Kinglake Landcare members in recent years appear to have drastically reduced high threat weed species such as Broom and Blackberry on this roadside.

Scattered/occasional emergent Blackberry and Broom plants observed along the roadside were being followed up by specialist contractors during this survey (including the Broom shown in Figure 46). This is important to prevent re-establishment of these invasive pest plants amongst this biodiverse landscape.

Lower threat weed species mentioned in the Appendix include the grass *Dactylis glomerata* (Cocksfoot), and *Myosotis sylvatica* (Forget-me-nots) at the Western end.

Finally, Horse riding occurs along this road and care must be taken to prevent the spread of weeds from this activity, particularly in the Wombelano section.



Figure 46: Weedy *Genista monspessulana* (Broom) west of Island Ck in the Eastern section.

Pest Animals

Rabbits, Foxes and Sambar Deer have all been sighted in the area. Evidence of degradation of vegetation by Deer has been observed (also see photos in Fauna section). Reports from many districts including Kinglake suggests that the escalation of Deer numbers is becoming a very serious threat to indigenous flora communities alongside the already serious rabbit and fox problems which are at least recognised and being tackled, albeit with mixed results.

Dumping

Roadside dumping appears to be relatively limited with used tyres being the exception (figure 47). However, green waste and soil dumping can often be the cause of weed

infestations including from succulents and garden escapees, which often become invasive (figure 48). Soil disturbance including soil excavation from road works and maintenance (figures 49 and 50) can similarly inadvertently cause weed infestation and smother indigenous vegetation if guidelines are not followed.



Figure 47: Dumped waste on western section roadside.



Figure 48: Soil dumping in high quality western section roadside.

RECOMMENDATIONS

Community/Residents

The level of awareness of their vegetation community by local residents/landowners in the district is varied and as local community groups are the closest organisations to the people by their very nature, so workshops on “your local environment” with advice to residents re value of their roadsides should be considered.

It is suggested that State and local government give continuing support to community groups such as Landcare that currently help to protect and enhance the ecology of the area with, for example, plantings, weed control, placing of nest boxes for habitat where tree hollows are limited.

Local Government

In recent years, it is considered that MSC has had a greater awareness and made progress with weed control through specialist contractors with working knowledge of indigenous and weedy species.

Scattered/occasional small emergent Blackberry and Broom plants that were observed along the roadside should continue to be followed up by specialist contractors to prevent re-establishment of these invasive pest plants.

The recent placement of a part time Environment Officer in

Kinglake is a welcome practical improvement.

Also, MSC should ensure that there is clear coordination

with PV of responsibility on the road maintenance and works on such a biodiverse roadside.



Figure 49: Roadside grading in KNP Section



Figure 50: Road grading up to rare *Grevillea repens* (Creeping Grevillea) in the KNP section.

Local government is the closest level of government to the people and the managing authority of local roads such as Captains Creek Road, so there appears to be a need for further cooperative advice to residents through workshops, and sponsoring community initiatives such as Landcare flora and fauna walks, workshops, and botanical tours to raise the level of awareness of local residents. It is suggested that local government give continuing support to community groups such as Landcare that currently help to protect and enhance the ecology of the area with, for example, plantings, weed

control, placing of nest boxes for habitat where tree hollows are limited. Also, MSC could actively promote the welcome recent expansion of the green waste delivery at the Kinglake Transfer Station from peak bushfire periods to an all year round free service to further reduce illegal dumping and also reduce resident burn offs. Finally, carefully regulated and monitored ecological/bushfire prevention burns of roadside should be considered as previous examples have apparently achieved their objectives of reduced fire risk and regeneration of indigenous flora.

Importantly, to ensure that any road widening or drainage works does not degrade remnant roadside vegetation especially species such as Critically Endangered *Pomaderris vacciniifolia* and rare *Grevillea repens* and *Goodia pubescens*.

State Government

In recent years, changes to legislation in Victoria transferred the responsibility for noxious weeds on roadside to Local Government from a former State responsibility. However, this transfer of responsibilities was not apparently accompanied by sufficient resources to enable that to effectively happen, especially for rural shires with large areas of responsibility and limited growth areas compared to many urban local governments with either established facilities or growth areas with complementary significant developer funding.

Parks Victoria manages the adjacent Kinglake National Park and a scarcity of resources for community education, weed control, pest control, etc. can have a limiting effect on their ability to more effectively protect and enhance the flora and fauna of the district, and thus indirectly connectivity with Captains Creek Road. Also, PV must ensure that there is clear coordination of responsibility with MSC on the road maintenance and works on such a



biodiverse roadside. As the above photo 50 shows, good maintenance standards ensure continued biodiversity.

There have been some recent successes with a Fox control program in the district in cooperation with DELWP, Parks Victoria, Upper Goulburn Landcare Group, and interested landowners, managers, and residents.

Most other State agencies such as DELWP are administered from outside the Kinglake District which, combined with funding restraints, can potentially limit their local activities and enforcement of the FFG Act etc.

Road maintenance, and particularly limited funding and sometimes inappropriate nature of vegetation maintenance of the nearby VicRoads (Melba Highway, Whittlesea-Kinglake Road, and Kinglake-Glenburn Road) can also affect local roads such as Captains Creek Road including its habitat connectivity.

It is suggested that State government give continuing support to community groups such as Landcare that currently help to protect and enhance the ecology of the area with, for example, plantings, weed control, placing of nest boxes for habitat where tree hollows are limited.

Finally, the recent successful land claim by the Taungerong people over a large area extending to this Upper Goulburn catchment area may be a continuing opportunity for State Government cooperation with the Taungerong in the management of Crown land in the area, such as the Wombelano section of KNP surrounding Captains Creek Road, similar to the cooperation with Wurundjeri south of the Divide.



APPENDIX I FLORA SPECIES (alphabetical by species and also by family)

Indigenous Flora

<i>Acacia dealbata</i>	Silver Wattle
<i>Acacia gunnii</i> KNP	Ploughshare Wattle
<i>Acacia melanoxylon</i> (A)	Blackwood
<i>Acacia mucronata</i> ssp <i>longifolia</i> (A)	Narrow-leaf/Variable Sallow Wattle
<i>Acacia obliquinervia</i> (A)	Mountain Hickory Wattle
<i>Acacia verticillata</i> ssp <i>verticillata</i> (A)	Prickly Moses
<i>Acaena novae-zelandiae</i>	Bidgee-widgee
<i>Acrotriche prostrata</i> KNP	Trailing Ground-berry
<i>Acrotriche serrulata</i> KNP	Honey Pots
<i>Asperula conferta</i>	Common Woodruff
<i>Asplenium flabellifolium</i> KNP	Necklace Fern
<i>Astroloma humifusum</i> KNP	Cranberry Heath
<i>Banksia marginata</i> KNP	Silver Banksia
<i>Banksia spinulosa</i> var <i>cunninghamii</i> KNP (A)	Hairpin Banksia
<i>Bedfordia arborescens</i>	Blanket-leaf
<i>Billardiera scandens</i> Rare	Common Apple-berry
<i>Blechnum cartilagineum</i> KNP	Gristle Fern
<i>Blechnum nudum</i> KNP	Fishbone Water-fern
<i>Boronia nana</i> var <i>hyssopifolia</i> ? KNP	Dwarf Boronia
<i>Burchardia umbellata</i>	Milkmaids
<i>Caladenia</i> spp KNP	Caladenia Orchids
<i>Calochlaena dubia</i> KNP	Common Ground-fern
<i>Cassinia aculeata</i>	Dogwood/Common Cassinia
<i>Cassytha</i> sp	Dodder
<i>Chiloglottis valida</i> KNP	Common Bird-orchid
<i>Chiloglottis</i> spp	Bird Orchids
<i>Clematis aristata</i>	Austral/Mountain Clematis
<i>Clematis glycinoides</i> var <i>glycinoides</i>	Forest Clematis
<i>Comesperma ericinum</i> KNP	Heath Milkwort
<i>Comesperma volubile</i>	Love Creeper
<i>Coprosma quadrifida</i>	Prickly Currant-bush
<i>Coronidium scorpioides</i> KNP	Button Everlasting
<i>Correa reflexa</i> KNP	Common Correa
<i>Cyathea australis</i>	Rough Tree-fern
<i>Cyperaceae</i> spp KNP	Sedge
<i>Daviesia leptophylla</i>	Narrow-leaf Bitter-pea
<i>Davesia ulicifolia</i>	Gorse Bitter-pea
<i>Dianella caerulea</i> ? KNP	Paroo Lily
<i>Dianella laevis</i> var <i>aspera</i> ? KNP	Rough Flax-lily
<i>Dianella revoluta</i> var <i>revoluta</i>	Black-anther Flax-lily



<i>Dianella tasmanica</i>	Tasman Flax-lily
<i>Dichondra repens</i>	Kidney-weed
<i>Dicksonia antarctica</i> KNP	Soft Tree-fern
<i>Drosera aberrans</i> KNP	Scented Sundew
<i>Drosera auriculata</i>	Tall Sundew
<i>Drosera hookeri</i> KNP	Sundew
<i>Entolasia marginata</i> ?KNP	Bordered Panic
<i>Epacris impressa</i> (A)	Common/Pink Heath
<i>Eucalyptus cephalocarpa</i>	Mealy Stringybark
<i>Eucalyptus cypellocarpa</i>	Mountain Grey Gum
<i>Eucalyptus dives</i>	Broad-leafed Peppermint
<i>Eucalyptus goniocalyx</i>	Long-leafed Box, Bundy
<i>Eucalyptus macrorhyncha</i> KNP	Red Stringybark
<i>Eucalyptus obliqua</i>	Messmate Stringybark
<i>Eucalyptus radiata</i>	Narrow-leafed Peppermint
<i>Euchiton japonicus</i>	Creeping Cudweed
<i>Euomyrtus ramulissima</i> ssp <i>ramulissima</i> (A)KNP	Rosy Baeckea
<i>Exocarpos cupressiformis</i>	Wild Cherry/Cherry Ballart
<i>Gahnia sieberiana</i>	Red-fruited Saw-sedge
<i>Gahnia radula</i> (A)	Thatch Saw-sedge
<i>Galium leiocarpum</i> KNP	Maori Bedstraw
<i>Geranium potentilloides</i>	Soft Crane's-bill
<i>Geranium</i> sp	Crane's-bill
<i>Gompholobium huegelii</i> KNP	Common Wedge-pea
<i>Gonocarpus humilis</i> KNP	Shade Raspwort
<i>Gonocarpus tetragynus</i>	Common Raspwort
<i>Goodenia ovata</i> (A)	Hop Goodenia
<i>Goodia pubescens</i> (A) Rare in Vic	Silky Clovertree
<i>Grevillea repens</i> KNP Rare in Vic	Creeping Grevillea
<i>Hakea decurrens</i> ssp <i>physocarpa</i>	Bushy Needlewood
<i>Hardenbergia violacea</i>	Purple Coral-pea
<i>Histiopteris incisa</i> KNP	Bat's Wing Fern
<i>Hovea heterophylla</i>	Common Hovea
<i>Hydrocotyle hirta</i> KNP	Hairy Pennywort
<i>Hydrocotyle</i> sp	Pennywort
<i>Juncus</i> spp	Rushes
<i>Kunzea</i> sp (Upright form) (A)	Forest Burgan
<i>Lagenophora stipitata</i>	Common Bottle-daisy
<i>Lepidosperma filiforme</i> KNP	Common Rapier-sedge
<i>Lepidosperma laterale</i>	Variable Sword-sedge
<i>Lepidosperma semiteres</i> KNP	Wire Rapier-sedge
<i>Leptorhynchos nitidulus</i> ?KNP	Shiny Buttons
<i>Leptospermum continentale</i>	Prickly Tea-tree
<i>Leptotheca gaudichaudi</i> var <i>gaudichaudi</i> KNP	Pale Tree-fern Moss



<i>Leucopogon ericoides</i> ?	Pink Beard-heath
<i>Lindsaea linearis</i> KNP	Screw Fern
<i>Lobelia gibbosa</i> var <i>gibbosa</i> ?KNP	Tall Lobelia
<i>Lobelia simplicicaulis</i> ?KNP	Narrow Lobelia
<i>Logania albiflora</i> ?KNP	Narrow-leaf Logania
<i>Lomandra filiformis</i> ssp <i>filiformis</i>	Wattle Mat-rush
<i>Lomandra longifolia</i> var <i>longifolia</i>	Spiny-headed Mat-rush
<i>Lomandra multiflora</i> ?KNP	Many-flowered Mat-rush
<i>Lomatia fraseri</i> KNP	Tree Lomatia
<i>Lomatia ilicifolia</i>	Holly-leaf Lomatia
<i>Microlaena stipoides</i> var <i>stipoides</i>	Weeping Grass
<i>Monotoca scoparia</i>	Prickly Broom-heath
<i>Olearia argophylla</i>	Musk Daisy-bush
<i>Olearia erubescens</i> KNP	Moth Daisy-bush
<i>Olearia lirata</i>	Snowy Daisy-bush
<i>Olearia myrsinoides</i> KNP	Silky Daisy-bush
<i>Opercularia varia</i> ? KNP	Variable Stinkweed
<i>Persoonia chamaepeuce</i> ? KNP	Dwarf Geebung
<i>Pimelea axiflora</i> (A)	Bootlace Bush
<i>Pimelea aff linifolia</i> ?KNP	Slender Rice-flower
<i>Pimelea curviflora</i> var <i>aff subglabrata</i> ?KNP Rare	Curved Rice-flower
<i>Pimelea linifolia</i> KNP	Slender Rice-flower
<i>Pittosporum bicolor</i>	Banyalla
<i>Plantago varia</i>	Variable Plantain
<i>Platylobium montanum</i> ssp <i>montanum</i> (A)	Mountain Flat-pea
<i>Poa ensiformis</i>	Purple-sheathed Tussock Grass
<i>Poa morrisii</i>	Velvet Tussock-grass
<i>Poa sieberiana</i>	Grey Tussock-grass
<i>Polyscias sambucifolia</i>	Elderberry Panax
<i>Pomaderris aspera</i>	Hazel Pomaderris
<i>Pomaderris vacciniifolia</i> Critically Endangered	Round-leaf Pomaderris
<i>Poranthera microphylla</i> KNP	Small Poranthera
<i>Prostanthera lasianthos</i>	Coranderk/Victorian Xmas Bush
<i>Pteridium esculentum</i> (A)	Austral Bracken
<i>Pterostylis longifolia</i> KNP	Tall Greenhood
<i>Pterostylis sp aff parviflora</i> ? KNP	Rare Redtip Greenhood
<i>Pultenaea gunnii</i>	Golden Bush-pea
<i>Pultenaea muelleri</i> var <i>muelleri</i> KNP	Muellers Bush-pea
<i>Rorippa gigantea</i> ? KNP	Long-style Bitter-cress
<i>Senecio glomeratus</i>	Annual Fireweed
<i>Senecio</i> spp	Fireweeds
<i>Spyridium parvifolium</i>	Dusty Miller
<i>Stackhousia monogyna</i>	Creamy Candles
<i>Stellaria flaccida</i>	Forest Starwort



<i>Stylidium armeria</i>	Thrift-leaved Triggerplant
<i>Stylidium graminifolium</i> KNP	Grass Trigger-plant
<i>Tetradthea bauerifolia</i> KNP	Heath Pink-bells
<i>Tetradthea ciliata</i>	Pink Bells
<i>Tetrarrhena juncea</i>	Forest Wiregrass
<i>Veronica</i> aff <i>gracilis</i> KNP	Slender Speedwell
<i>Viola cleistogamoides</i> ? KNP	Hidden Violet
<i>Viola hederacea</i>	Ivy-leaf Violet
<i>Wahlenbergia gracilis</i> (A) in Western Section	Sprawling Bluebell
<i>Xanthorrhoea australis</i> ? KNP	Austral Grass-tree
<i>Xanthosia dissecta</i> KNP	Cut-leaf Xanthosia

Notation

KNP – observed only in Kinglake National Park (Wombelano Block) and within 1 km of Captains Creek Road

A – Abundant

***** - Exotic Flora

? - previously recorded in the area but not observed during this assessment

Exotic Flora

<i>Acetosella vulgaris</i>	Sheep Sorrel
<i>Anagallis arvensis</i>	Scarlet Pimpernel
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass
<i>Arctotheca calendula</i>	Capeweed
<i>Callitriche stagnalis</i>	Common Water-starwort
<i>Centaurea</i> sp	Centaury
<i>Cotoneaster</i> sp	Cotoneaster
<i>Dactylis glomerata</i> (A)	Cocksfoot
<i>Galium aparine</i>	Cleavers
<i>Genista monspessulana</i>	Montpellier Broom/Cape Broom
<i>Hypochaeris radicata</i>	Cats-ears
<i>Myosotis sylvatica</i>	Wood Forget-me-not
<i>Pinus radiata</i>	Monterey/Radiata Pine
<i>Plantago lanceolata</i>	Narrow Plantain/Ribwort
<i>Plantago major</i>	Greater Plantain
<i>Rubus fruticosus</i> spp agg	European Blackberry spp
<i>Sonchus</i> spp	Sow-thistle
<i>Taraxacum officinale</i>	Dandelion

FERNS AND ALLIES

Aspleniaceae

Asplenium flabellifolium KNP

Necklace Fern

Blechnaceae



Blechnum cartilagineum KNP

Blechnum nudum KNP

Histiopteris incisa KNP

Cyatheaceae

Cyathea australis

Dennstaedtiaceae

Pteridium esculentum (A)

Dicksoniaceae

Calochlaena dubia KNP

Dicksonia antarctica KNP

Lindsaceae

Lindsaea linearis KNP

CONIFERS

Pinaceae

**Pinus radiata*

MONOCOTYLEDONS

Asparagaceae

Lomandra filiformis ssp *filiformis*

Lomandra longifolia var *longifolia*

Lomandra multiflora?KNP

Colchicaceae

Burchardia umbellata

Cyperaceae

Gahnia radula (A) at Eastern Section

Gahnia sieberiana

Lepidosperma filiforme KNP

Lepidosperma laterale

Lepidosperma semiteres KNP

Gentianaceae

**Centaurium* sp

Hemerocallidaceae

Dianella caerulea? KNP

Dianella laevis var *aspera*?KNP

Dianella revoluta var *revoluta*

Dianella tasmanica

Juncaceae

Juncus spp

Orchidaceae

Caladenia spp KNP

Chiloglottis valida KNP

Chiloglottis spp

Pterostylis longifolia KNP

Pterostylis sp aff *parviflora* KNP Rare

Poaceae

Gristle Fern

Fishbone Water-fern

Bat's Wing Fern

Rough Tree-fern

Austral Bracken

Common Ground-fern

Soft Tree-fern

Screw Fern

Monterey/Radiata Pine

Wattle Mat-rush

Spiny-headed Mat-rush

Many-flowered Mat-rush

Milkmaids

Thatch Saw-sedge

Red-fruited Saw-sedge

Common Rapier-sedge

Variable Sword-sedge

Wire Rapier-sedge

Centaury

Paroo Lily

Rough Flax-lily

Black-anthered Flax-lily

Tasman Flax-lily

Rushes

Caladenia Orchids

Common Bird-orchid

Bird Orchids

Tall Greenhood

Redtip Greenhood



* *Anthoxanthum odoratum*
* *Dactylis glomerata*
Entolasia marginata?KNP
Microlaena stipoides var *stipoides*
Poa ensiformis
Poa morrissii
Poa sieberiana
Tetrarrhena juncea
Xanthorrhoeaceae
Xanthorrhoea australis KNP

Sweet Vernal-grass
Cocksfoot
Bordered Panic
Weeping Grass
Purple-sheathed Tussock-grass
Velvet Tussock-grass
Grey Tussock-grass
Forest Wire-grass

Austral Grass-tree

DICOTYLEDONS

Araliaceae

Hydrocotyle hirta KNP
Hydrocotyle sp
Polyscias sambucifolia

Hairy Pennywort
Pennywort
Elderberry Panax

Asteraceae

**Arctotheca calendula*
Bedfordia arborescens
Cassinia aculeata
Coronidium scorpioides KNP
Euchiton japonicus
**Hypochaeris radicata*
Lagenophora stipitata
Leptorhynchos nitidulus ?KNP
Olearia argophylla
Olearia erubescens KNP
Olearia lirata
Olearia myrsinoides KNP
Senecio glomeratus
Senecio spp
**Sonchus* spp.
**Taraxacum officinale*
Xanthosia dissecta KNP

Capeweed
Blanket-leaf
Dogwood/Common Cassinia
Button Everlasting
Creeping Cudweed
Cat's-ears/Flatweed
Common Bottle-daisy
Shiny Buttons
Musk Daisy-bush
Moth Daisy-bush
Snowy Daisy-bush
Silky Daisy-bush
Annual Fireweed
Fireweeds
Sow-thistle
Dandelion
Cut-leaf Xanthosia

Boraginaceae

**Myosotis sylvatica*

Wood Forget-me-not

Brassicaceae

Rorippa gigantea? KNP

Long-style Bitter-cress

Campanulaceae

Lobelia gibbosa var *gibbosa*?KNP
Lobelia simplicicaulis?KNP
Wahlenbergia gracilis (A) in Western Section

Tall Lobelia
Narrow Lobelia
Sprawling Bluebell

Carophyllaceae



<i>Stellaria flaccida</i>	Forest Starwort
Celastraceae	
<i>Stackhousia monogyna</i>	Creamy Candles
Convolvulaceae	
<i>Dichondra repens</i>	Kidney Weed
Droseraceae	
<i>Drosera aberrans</i> KNP	Scented Sundew
<i>Drosera auriculata</i>	Tall Sundew
<i>Drosera hookeri</i> KNP	Sundew
Elaeocarpaceae	
<i>Tetratheca bauerifolia</i> KNP	Heath Pink-bells
<i>Tetratheca ciliata</i>	Pink Bells
Ericaceae	
<i>Acrotriche prostrata</i> KNP	Trailing Ground-berry
<i>Acrotriche serrulata</i> KNP	Honey Pots
<i>Astroloma humifusum</i> KNP	Cranberry Heath
<i>Epacris impressa</i> (A)	Common/Pink Heath
<i>Leucopogon ericoides</i> ?	Pink Beard-heath
<i>Monotoca scoparia</i>	Prickly Broom-heath
Fabaceae	
<i>Daviesia leptophylla</i>	Narrow-leaf Bitter-pea
<i>Daviesia ulicifolia</i>	Gorse Bitter-pea
* <i>Genista monspessulana</i>	Montpellier Broom/Cape Broom
<i>Gompholobium huegelii</i> KNP	Common Wedge-pea
<i>Goodia pubescens</i> (A) Rare in Vic	Silky Clovertree
<i>Hardenbergia violacea</i>	Purple Coral-pea
<i>Hovea heterophylla</i>	Common Hovea
<i>Platylobium montanum</i> ssp <i>montanum</i> (A)	Mountain Flat-pea
<i>Pultenaea gunnii</i>	Golden Bush-pea
<i>Pultenaea muelleri</i> var <i>muelleri</i> KNP	Muellers Bush-pea
Geraniaceae	
<i>Geranium potentilloides</i>	Soft Crane's Bill
<i>Geranium</i> sp	Cranes-bill
Goodeniaceae	
<i>Goodenia ovata</i> (A)	Hop Goodenia
Haloragaceae	
<i>Gonocarpus humilis</i> KNP	Shade Raspwort
<i>Gonocarpus tetragynus</i>	Common Raspwort
Lamiaceae	
<i>Prostanthera lasianthos</i>	Corranderk/Victorian Christmas-bush
Lauraceae	
<i>Cassytha</i> sp	Dodder
Loganiaceae	
<i>Logania albiflora</i> ?KNP	Narrow-leaf Logania



Mimosaceae

Acacia dealbata
Acacia gunnii KNP
Acacia melanoxylon (A)
Acacia mucronata ssp *longifolia* (A)
Acacia obliquinervia (A)
Acacia verticillata ssp *verticillata* (A)

Silver Wattle
Ploughshare Wattle
Blackwood
Narrow-leaf/Variable Sallow Wattle
Mountain Hickory Wattle
Prickly Moses

Myrtaceae

Eucalyptus cephalocarpa
Eucalyptus cypellocarpa
Eucalyptus dives
Eucalyptus goniocalyx
Eucalyptus macrorhyncha KNP
Eucalyptus obliqua
Eucalyptus radiata
Euromyrtus ramulissima ssp *ramulissima* (A)KNP
Kunzea sp (Upright form) (A)
Leptospermum continentale

Mealy Stringybark
Mountain Grey-gum
Broad-leafed Peppermint
Long-leaf Box, Bundy
Red Stringybark
Messmate Stringybark
Narrow-leafed Peppermint
Rosy Baeckea
Forest Burgan
Prickly Tea-tree

Pittosporaceae

Billardiera scandens Rare
Pittosporum bicolor

Common Apple-berry
Banyalla

Phyllanthaceae

Poranthera microphylla KNP

Small Poranthera

Plantaginaceae

**Callitriche stagnalis*
**Plantago lanceolata*
**Plantago major*
Plantago varia
Veronica sp aff *gracilis*? KNP

Common Water-starwort
Narrow Plantain/Ribwort
Greater Plantain
Variable Plantain
Slender Speedwell

Polygalaceae

Comesperma ericinum KNP
Comesperma volubile

Heath Milkwort
Love Creeper

Polygonaceae

**Acetosella vulgaris*

Sheep Sorrel

Primulaceae

**Anagallis arvensis*

Scarlet Pimpernel

Proteaceae

Banksia marginata KNP
Banksia spinulosa var *cunninghamii* KNP (A)
Grevillea repens KNP Rare in Vic
Hakea decurrens ssp *physocarpa*
Lomatia fraseri KNP
Lomatia ilicifolia
Persoonia chamaepeuce? KNP

Silver Banksia
Hairpin Banksia
Creeping Grevillea
Bushy Needlewood
Tree Lomatia
Holly-leaf Lomatia
Dwarf Geebung

Ranunculaceae

Clematis aristata

Austral/Mountain Clematis

Clematis glycinoides var *glycinoides*

Forest Clematis

Rhamnaceae

Pomaderris aspera

Hazel Pomaderris

Pomaderris vacciniifolia Critically Endangered

Round-leaf Pomaderris

Spyridium parvifolium

Dusty Miller

Rosaceae

Acaena novae-zelandae

Bidgee-widgee

**Cotoneaster* sp

Cotoneaster

**Rubus fruticosus* spp agg

European Blackberry Species

Rubiaceae

Asperula conferta

Common Woodruff

Coprosma quadrifida

Prickly Currant-bush

**Galium aparine*

Cleavers

Galium leiocarpum KNP

Maori Bedstraw

Opercularia varia? KNP

Variable Stinkweed

Rutaceae

Boronia nana var *hyssopifolia*?KNP

Dwarf Boronia

Correa reflexa KNP

Common Correa

Santalaceae

Exocarpos cupressiformis

Wild Cherry/Cherry Ballart

Stylidiaceae

Stylidium armeria

Thrift-leaved Trigger-plant

Stylidium graminifolium KNP

Grass Trigger-plant

Thymeleaceae

Pimelea axiflora (A)

Bootlace Bush

Pimelea aff linifolia?KNP

Slender Rice-flower

Pimelea curviflora var *aff subglabrata*?KNP Rare

Curved Rice-flower

Pimelea linifolia

Slender Rice-flower

Violaceae

Viola cleistogamoides? KNP

Hidden Violet

Viola hederacea

Ivy-leaf Violet

Notation

A - abundant

KNP - found within 1 km of Captains Creek Road
and within Kinglake National Park (Wombelano Block)

* - Exotic Flora

? – previously recorded in the area but not observed during this assessment

APPENDIX 2 – FAUNA SPECIES OBSERVED OR RECORDED



Figure 51: Superb Lyrebird.

Indigenous fauna

Agile Antechinus
 Brown Thornbill
 Brush-tailed Phascogale
 Central Highlands Spiny Crayfish
 Common Bronzewing
 Burrowing Crayfish of the Engaeus species
 Crimson Rosella
 Eastern Grey Kangaroo
 Eastern Rosella
 Eastern Whipbird
 Eastern Yellow Robin
 Echidna (see photo)
 Fan-tailed Cuckoo
 Galahs
 Golden Whistler
 Gould's Long-eared Bat KNP
 Greater Glider KNP
 Grey Fantail



Figure 52: Swamp Wallaby and Young.

Grey Shrike-thrush
 King Parrots
 Kookaburra
 Lace Monitor
 Lesser Long-eared Bat
 Long-nosed Bandicoots
 Magpie
 Magpie Lark
 Mountain Brush-tailed Possum
 Mountain Galaxias
 Platypus
 Red Wattlebird
 Restless Flycatcher
 Silvereye
 Skink spp
 Southern Boobook KNP
 Spotted Pardalote
 Striated Pardalote
 Striated Thornbill
 Suphur-crested Cockatoo
 Superb Fairy-wren
 Superb Lyrebirds (see photo)
 Swamp Wallabies (see photo)
 Victorian Smooth Froglet
 White-browed Scrubwren
 White-eared Honeyeater
 White-naped Honeyeater
 White-throated Treecreeper
 Wombats
 Yellow-faced Honeyeater

Exotic Fauna

Brown Trout
 Feral Cats
 Indian Mynas
 Rabbits
 Red Foxes (see above)
 Sambar Deer (see below)



Figure 53: Echidna.



Figure 54: Red Fox.



Figure 55: Sambar Deer.



APPENDIX 3 – VICROADS ROADSIDE VEGETATION ASSESSMENT SHEET

The roadsides were assessed and rated high (15+), medium (8-14), and low (1-7) quality roadside vegetation, reflecting the various characters shown on the attached sheet including diversity of indigenous flora species (also see Vegetation Quality Figure 10)

Handwritten notes: LHS, RHS

Roadside Assessment Sheet		Location	Assessment Date	Assessor
1-6	7-14	15+	15+	15+
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35
36	37	38	39	40
41	42	43	44	45
46	47	48	49	50
51	52	53	54	55
56	57	58	59	60
61	62	63	64	65
66	67	68	69	70
71	72	73	74	75
76	77	78	79	80
81	82	83	84	85
86	87	88	89	90
91	92	93	94	95
96	97	98	99	100
101	102	103	104	105
106	107	108	109	110
111	112	113	114	115
116	117	118	119	120
121	122	123	124	125
126	127	128	129	130
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166	167	168	169	170
171	172	173	174	175
176	177	178	179	180
181	182	183	184	185
186	187	188	189	190
191	192	193	194	195
196	197	198	199	200
201	202	203	204	205
206	207	208	209	210
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226	227	228	229	230
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236	237	238	239	240
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251	252	253	254	255
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261	262	263	264	265
266	267	268	269	270
271	272	273	274	275
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286	287	288	289	290
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306	307	308	309	310
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531	532	533	534	535
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596	597	598	599	600
601	602	603	604	605
606	607	608	609	610
611	612	613	614	615
616	617	618	619	620
621	622	623	624	625
626	627	628	629	630
631	632	633	634	635
636	637	638	639	640
641	642	643	644	645
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651	652	653	654	655
656	657	658	659	660
661	662	663	664	665
666	667	668	669	670
671	672	673	674	675
676	677	678	679	680
681	682	683	684	685
686	687	688	689	690
691	692	693	694	695
696	697	698	699	700
701	702	703	704	705
706	707	708	709	710
711	712	713	714	715
716	717	718	719	720
721	722	723	724	725
726	727	728	729	730
731	732	733	734	735
736	737	738	739	740
741	742	743	744	745
746	747	748	749	750
751	752	753	754	755
756	757	758	759	760
761	762	763	764	765
766	767	768	769	770
771	772	773	774	775
776	777	778	779	780
781	782	783	784	785
786	787	788	789	790
791	792	793	794	795
796	797	798	799	800
801	802	803	804	805
806	807	808	809	810
811	812	813	814	815
816	817	818	819	820
821	822	823	824	825
826	827	828	829	830
831	832	833	834	835
836	837	838	839	840
841	842	843	844	845
846	847	848	849	850
851	852	853	854	855
856	857	858	859	860
861	862	863	864	865
866	867	868	869	870
871	872	873	874	875
876	877	878	879	880
881	882	883	884	885
886	887	888	889	890
891	892	893	894	895
896	897	898	899	900
901	902	903	904	905
906	907	908	909	910
911	912	913	914	915
916	917	918	919	920
921	922	923	924	925
926	927	928	929	930
931	932	933	934	935
936	937	938	939	940
941	942	943	944	945
946	947	948	949	950
951	952	953	954	955
956	957	958	959	960
961	962	963	964	965
966	967	968	969	970
971	972	973	974	975
976	977	978	979	980
981	982	983	984	985
986	987	988	989	990
991	992	993	994	995
996	997	998	999	1000

Handwritten notes: 16, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66, 69, 72, 75, 78, 81, 84, 87, 90, 93, 96, 99, 102, 105, 108, 111, 114, 117, 120, 123, 126, 129, 132, 135, 138, 141, 144, 147, 150, 153, 156, 159, 162, 165, 168, 171, 174, 177, 180, 183, 186, 189, 192, 195, 198, 201, 204, 207, 210, 213, 216, 219, 222, 225, 228, 231, 234, 237, 240, 243, 246, 249, 252, 255, 258, 261, 264, 267, 270, 273, 276, 279, 282, 285, 288, 291, 294, 297, 300, 303, 306, 309, 312, 315, 318, 321, 324, 327, 330, 333, 336, 339, 342, 345, 348, 351, 354, 357, 360, 363, 366, 369, 372, 375, 378, 381, 384, 387, 390, 393, 396, 399, 402, 405, 408, 411, 414, 417, 420, 423, 426, 429, 432, 435, 438, 441, 444, 447, 450, 453, 456, 459, 462, 465, 468, 471, 474, 477, 480, 483, 486, 489, 492, 495, 498, 501, 504, 507, 510, 513, 516, 519, 522, 525, 528, 531, 534, 537, 540, 543, 546, 549, 552, 555, 558, 561, 564, 567, 570, 573, 576, 579, 582, 585, 588, 591, 594, 597, 600, 603, 606, 609, 612, 615, 618, 621, 624, 627, 630, 633, 636, 639, 642, 645, 648, 651, 654, 657, 660, 663, 666, 669, 672, 675, 678, 681, 684, 687, 690, 693, 696, 699, 702, 705, 708, 711, 714, 717, 720, 723, 726, 729, 732, 735, 738, 741, 744, 747, 750, 753, 756, 759, 762, 765, 768, 771, 774, 777, 780, 783, 786, 789, 792, 795, 798, 801, 804, 807, 810, 813, 816, 819, 822, 825, 828, 831, 834, 837, 840, 843, 846, 849, 852, 855, 858, 861, 864, 867, 870, 873, 876, 879, 882, 885, 888, 891, 894, 897, 900, 903, 906, 909, 912, 915, 918, 921, 924, 927, 930, 933, 936, 939, 942, 945, 948, 951, 954, 957, 960, 963, 966, 969, 972, 975, 978, 981, 984, 987, 990, 993, 996, 999, 1000

Handwritten notes: 16, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66, 69, 7



APPENDIX 4 – KOORIE (Aboriginal) USE OF FLORA

Many of the plants found around Captains Creek Road area are species used by Aboriginal people across Victoria. From Beth Gott including from Use of Victorian Plants by Koories, in the Flora of Victoria Volume 1, detailed below are uses of these local species and also indigenous names applied where known:

-for fibre, adhesives, and implements

Acacia spp bark for buckets; *Acacia dealbata* (Moy-yan) resin for adhesives, inner bark for string, bark for buckets, and wood for axe handles; *Acacia melanoxylon* (Burnnalook) inner bark for string, wood for woomeras, shields, and throwing sticks, and bark infusion for rheumatic joints; *Acacia verticillata* bark for string fishing lines; *Banksia* spp. cones for strainers and fire carriers; *Exocarpos cupressiformis* (Ballee) wood used for spear throwers and bullroarers; *Dianella* spp (Murmbal) for basketmaking; *Eucalyptus* spp. (especially stringybarks) inner bark for string, bags, and nets, and suitable species for heavy spears and digging tools; *Hedycarya angustifolia* (Djelwuck) wood for firedrills and spear ends; *Juncus* spp stems for baskets and string; *Kunzea* sp(Burgan) wood for spears, clubs, and boomerangs; *Lepidosperma* spp. leaves for baskets; *Lomandra longifolia* (Kurawan) leaves for baskets and net bags; *Melaleuca* spp. paperbark for swaddling; *Pimelea axiflora* bark as string for fine nets and bootlaces; *Poa ensiformis* (Bowat) leaves and stems for string and baskets; *Pomaderris aspera* wood for pegs stretching animal skins; *Prostanthera lasianthos* (Coranderrk) stems for fire drill; and *Xanthorrhoea* spp (Baggup/Mymurrung) resin from leaf bases for adhesives, stems as a base for fire-drills and spears, and leaves for cutting meat.

and for food, medicine, and fish-poisons from all parts of plants including seeds, flowers, roots, and leaves - *Acacia dealbata* (Moy-yan) gum for food and also applied to sores and wounds, and bark infusion for indigestion; *Acrotriche* spp small drupes eaten or soaked in water or sucked for nectar; *Arthropodium* spp tubers probably eaten; *Banksia* spp flowers steeped in water for nectar; *Billardiera scandens* (Garawang) berries eaten raw; *Burchardia umbellata* tubers eaten; *Cassytha* spp edible fruit, probably eaten; *Coprosma quadrifida* (Morr) berries eaten raw; *Cyathea australis* (Pooeet) and *Dicksonia antarctica* (Kombadik) heart of the stems, and *Cyathea* stalks of young leaves as a tonic; *Eucalyptus* spp. flowers for nectar, sugary lerps on some spp, seed soaked and ground, and gum for toothache; *Exocarpos* spp succulent fruiting pedicel eaten raw; *Exocarpos cupressiformis* (Ballee) sap as cure for snakebite (Tasmania?); *Geranium* spp.(Terrat) tubers for food; *Kunzea* sp (Burgan) leaves burned to repel insects; *Lomandra* spp. flowers for nectar; *Orchidaceae* tubers of most species for food; *Mentha* spp used as lining for earth ovens; *Polyscias sambucifolia* fleshy fruit edible, probably used; *Pteridium esculentum* rhizomes cooked and beaten for food (and in Qld young stem for insect bites); *Rubus* spp. fleshy fruits; *Sambucus* spp. whitish drupes eaten raw; *Solanum* spp. ripe berries eaten, but, some *Solanum* species are highly toxic; *Thysanotus* spp tubers; *Urtica incisa* leaves and young stems cooked (in SA), poultices of leaves and stems for sprains (and in NSW as a poultice for rheumatism), and *Xanthorrhoea* spp (Baggup/Mymurrung) tubers of young plants and leaf bases, eaten; flowers for nectar.



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Extra Photos:



Figure 57: *Daviesia leptophylla* at the eastern end of Captains Creek Road.



Figure 58: Critically Endangered *Pomaderris vacciniifolia* at western section of Captains Creek Rd.



Figure 59: Abundant *Acacia obliquinervia* in western section.



Figure 60: Rare *Goodia pubescens* at western section of Captains Creek Road.



Figure 61: Island Creek in the eastern section - north, east and south facing views.



Figure 62: *Olearia lirata*



Figure 63: Burnt tree trunk from 2006/2009 fires.



Figure 64: UGLN supervised Conservation Volunteers Australia planting in the western section.



Figure 65: *Hakea decurrens* ssp *physocarpa* at western section.



Figure 66: *Stackhousia monogyna* (Creamy Candles) at western section.



Figure 67: Eastern section looking east across Island Creek Bridge.