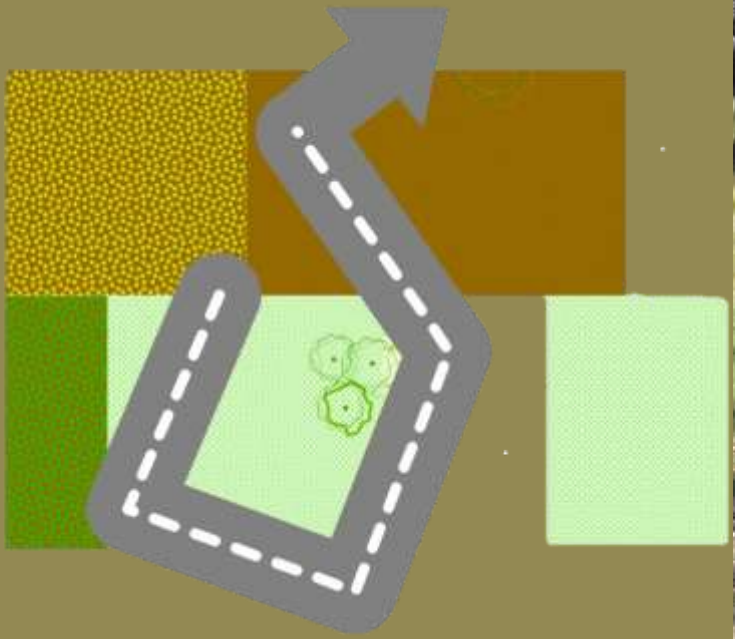
Blayney Shire Council

Roadside Management Guidelines



November 2012

This booklet supplements the Vegetation database (2012), and the Vegetation Assessment Report (2012). It is designed to be used by road maintenance staff, or others involved in roadside corridor management.

Acknowledgement is due to the RTA and Greening Australia for the precursor *Roadside Management Guidelines Book 1 Main Road 55 Lithgow-Mudgee-Dunedoo* (1996) designed and written by Venita Kulinskis; and

Model Guidelines, The NSW Roadside Environment Committee (REC), funded by the RTA; and

Vic Roads *An Environmental Guide for Road Construction and Maintenance 2006*

Special acknowledgement to the Botanic Gardens Trust for use of images in the Threaten Species Guide June 2010. PlantNET; http://plantnet.rbgsyd.nsw.gov.au

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Section 1

Introduction

Road reserves were surveyed in the past to access paddocks and fields, and often included a narrow strip of native vegetation. These road verges are often the last refuge of intact remnant woodlands in many agricultural landscapes, and consequently are of high conservation status. Despite the importance of roadside environments for biodiversity conservation, many are under threat from human disturbance and utilisation. Roads were developed for transportation, and therefore road reserves experience ongoing impacts from road construction and maintenance activities. They also provide service corridors for powerlines, water, sewage, gas, telecommunication and other utilities. In conjunction, many roadsides are affected by grazing from domestic stock, soil erosion, pest plant and animal invasions, firewood and bush rock collection, and chemical drift from adjacent farms.

The immediate aims of vegetation management are to:

- Conserve existing vegetation communities;
- Control of non-native species, particularly noxious weeds;
- Revegetation of cleared areas; and
- Minimise impacts of construction activities.

Medium and long term objectives of vegetation management are to:

- Establish a viable habitat corridors for native fauna through habitat creation and revegetation; and
- Maintain and enhance species richness of both flora and fauna.

How to use this Booklet

This handbook has been created to assist Blayney Shire Council personnel involved in the management of roadside environments in making informed decisions when planning and undertaking works in Council's road reserves.

Section 2 describes the characteristics of the four broad management categories of vegetation in the road reserves within the Council area. These are characterised as Special Management, High, Medium or Low Conservation Value.

Section 3 contains maps of Council maintained roads. Each road has been mapped to show its conservation value. The maps also show the location of Threatened Species, Endangered Ecological and Communities.

Prior to undertaking works check your proposed works area with the maps in Section 3. Determine the conservation value (or values) of the vegetation your works might affect. Check the guidelines for works within the category you have determined in Section 2. Seek advice from Council's Environmental Staff if your proposed works are near a threatened species or"EEC" (Endangered Ecological Community) before proceeding. These will be clearly marked on the map. Check the **Best Practice Guidelines** and complete **the Site Management Environmental Checklist** in Section 7 before commencing works and on completion of works.

Section 4 contains a quick guide to threatened species that may be encountered in Blayney Shire Council area.

Section 5 contains standard notes for weeding, planting and revegetation.

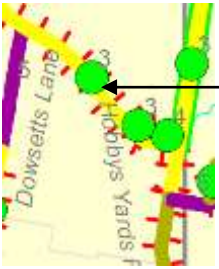
Section 6 contains guidelines for managing other impacts on roadside vegetation.

Section 2

Special Management Road Reserves

Special management areas contain heritage sites, rare and endangered species, endangered ecological communities, or culturally important plantings**.** Examples of culturally important plantings include plants associated with heritage sites and plants of significance to local Aboriginal peoples.

Box Gum Grassy Woodland is considered to be a Critically Endangered vegetation community under Federal legislation. Seen here on Halls Gap Road it is also afforded special protection under the NSW Threatened Species Act 1993.



Special features will be denoted on the map set (section 3) with a symbol:

Seek advice from Council's Environmental Staff before proceeding with works near special items. You will be able to find out exactly what the item is and how its location may affect your planned work.

High Conservation Value Road Reserves-Characteristics

High Conservation Value (HCV) areas are in a relatively undisturbed state, contain a range of vegetation communities with regrowth, are not dominated by weeds, and require low maintenance. Some areas will contain good wildlife habitat**. These areas will be ranked as "2" on the map set. Note no areas were afforded a ranking of "1" in the shire.** If the area is flagged as EEC on the map set it may be afforded special protection under State and/or Federal legislation. Many of these vegetation communities have been extensively cleared in the region (up to 95%) so these HCV roadside remnants are very valuable.

This HCV area (above) is located on Snake Creek Road.

A HCV area in Blayney Shire will have:

- Low grazing intensity
- Tree and shrub regeneration present (seedlings and saplings)
- Infrequent fire regime (more than 10 years between fires)
- Healthy mature trees (no dieback)
- Not dominated by weeds (most remnants contain some weeds)
- No evidence of firewood collection
- No obvious signs of erosion or salinity
- Not susceptible to fertiliser application, herbicide or pesticide drift
- Fallen timber and logs are left on the ground

- Roadside corridor is large (> 15m wide in total is optimum)
- Connected to or in close proximity to other remnant vegetation

High Conservation Value Road Reserves-Maintenance Guidelines

Only do what you have to do and cause as little disturbance as possible

- ***Refer to Section 6 for other specific conditions***
- treat noxious weeds
- treat environmental weeds using a 3-5 year control plan
- **spot spray** weeds in understorey using broadleaf herbicide, spot spray grasses using glyphosate and hand-weed or use cut and paint techniques for isolated weeds. **Do not blanket spray.** Time spraying to treat weeds before seed set
- install signs to indicate high conservation area
- in areas where vegetation needs to be pruned or cleared, ensure all material is left on site or chipped and mulched (if possible) on site; mulch should be spread on bare areas, but not on native vegetation
- plan stockpiles outside HCV areas, remove existing stockpiles.
- eliminate or restrict mowing and slashing, subject to road safety and bushfire management requirements
- limit mowing and slashing to one slasher width or less, and do not slash beyond the table drain
- do not “tidy up”, retain natural features such as logs, leaf litter, fallen timber and rocks
- avoid pushing graded material onto vegetation, grade only the minimum road width required to enable the road formation to drain.
- where possible, maintain groundcover vegetation within table drains
- avoid grading beyond the existing road shoulder **except where essential for drainage purposes,** dispose of excess spoil away from vegetation, import additional fill instead of removing soil from the roadside corridor
- topsoil can contain a good seedbank, so where possible stockpile it for less than 12 months to ensure that the seed in the soil remains viable
- stockpile to a maximum height of 2 metres, so as to preserve seed viability

- undertake revegetation works using appropriate species and local provenance stock.

Regrowth (above) is the "recruitment" of young plants to the vegetation community-it is vital to the long term health of vegetation. Do not overspray and kill young native regrowth (below) that can be obscured amongst grasses.

Medium Conservation Value Road Reserves-Characteristics

Medium Conservation Value (MCV) areas are in a semi-natural condition. They have been modified, with weed incursion and loss of one or more layers (storeys) of vegetation. Trees are often scattered or in clumps, there may be signs of dieback and limited recruitment. There may be areas of bare earth and limited habitat diversity such as logs, rocks and leaflitter. MCV areas provide a good opportunity for revegetation and to create linkages to HCV areas. **MCV areas are ranked "3" on the map set.**

A MCV zone on Neville – Trunkey Road. It has several features of an EEC but has been degraded by weeds and over grading of drains. Note the spoil that has been pushed over the ground layer vegetation and other important habitat components. Ground layer vegetation and fallen timber, leaf litter and rocks are all important habitat features. Do not "tidy up" by removing debris or collecting fallen timber for firewood.

Medium Conservation Value Road Reserves- Maintenance Guidelines

Only do what you have to do and cause as little disturbance as possible
Refer to Section 6 for other specific conditions

- treat noxious weeds
- treat environmental weeds using a 3-5 year control plan
- selective herbicide spraying can be used to control invasive weeds but **spot spray in areas with native regrowth and do not blanket spray**.
- locate regrowth saplings/plants prior to spraying/slashing and flag or mark location to avoid accidental destruction
- slash weeds in growth season and before seed set. Slash up to the back of table drains or to 3 m from pavement edge when there is no drain
- plan new stockpiles away from MCV areas and establish and maintain sediment control structures around existing stockpile sites; manage weeds in these areas
- remove existing stockpiles from the root zones of trees
- avoid pushing graded material onto vegetation, grade only the minimum road width required for safe clearance
- where possible, maintain groundcover vegetation within table drains
- avoid soil compaction and disturbance. Minor compaction of surface soils around trees will kill them slowly over a couple of years
- avoid grading beyond the existing road shoulder, dispose of excess spoil away from vegetation, import additional fill instead of removing soil from the roadside corridor
- do not “tidy up”, retain natural features such as logs, leaf litter, fallen timber and rocks
- in areas where vegetation needs to be pruned or cleared, ensure all material is chipped and mulched on site; mulch should be spread on weeds and bare areas, but not on native vegetation
- no ploughing to occur along roadsides in these areas
- undertake revegetation works using appropriate species and local provenance stock.

Low Conservation Value Road Reserves-Characteristics

Low Conservation Value (LCV) areas are highly altered from their natural state. LCV areas are ranked "4" or "5" on the map set. They often have few or no canopy species, low or no recruitment, and are dominated by weedy species. They rarely contain habitat elements such as rocks and logs.

This rank "5" roadside corridor is located on Newbridge Road.

Low Conservation Value Road Reserves- Maintenance Guidelines

Refer to Section 6 for other specific conditions

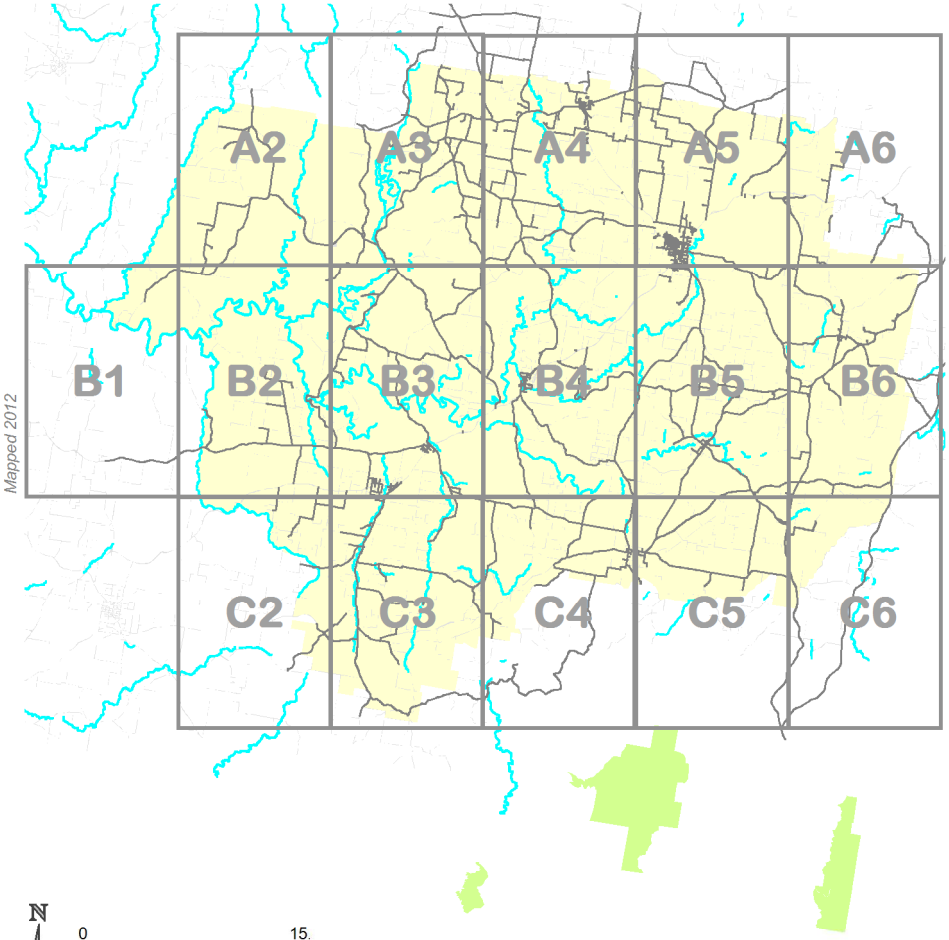
LCV areas are to be maintained to minimise the spread of weeds and exotics, fire and erosion. These are good areas for storage-stockpiles, plant and machinery.

- treat noxious weeds
- treat environmental weeds using a 3-5 year control plan
- Selective herbicide spraying can be used to control invasive weeds but spot spray in areas with any native regrowth.
- locate regrowth saplings/native plants prior to spraying and flag or mark location to avoid accidental destruction
- slash weeds in growth season and before seed set. Slash up to the back of table drains or to 3 m from pavement edge when there is no drain

- spoil from grading and drain clearing will contain weed seed. Under no circumstances reuse this spoil outside the LCV area. Excess spoil should be carted to a recognised landfill site.
- keep machinery within the works area to avoid spreading weeds and contaminated soils.
- practice good hygiene when moving from LCV areas to higher CV areas. Clean weed seed from plant and equipment.

Weed seeds on boots, vehicles and equipment should not be transferred to bushland areas. This poor practice ultimately costs money and time. Machinery should be washed down well away from creeks and good quality vegetation sites, preferably in previously disturbed areas, which already have weed problems.

ROADSIDE MANAGEMENT GUIDELINES MAP SET



Roadside Management Guidelines Map Set Legend

Roadside Corridor Condition Ranking

1 High Conservation Value (HCV) see pages 8-9 for guidelines

2 High Conservation Value (HCV) see pages 8-9 for guidelines

3 Medium Conservation Value (MCV) see pages 10-11 for guidelines

4 Low Conservation Value (LCV) see pages 12-13 for guidelines

5 Low Conservation Value (LCV) see pages 12-13 for guidelines

Threatened Species (TS) Record

Threatened species have special protection under State and federal legislation. Seek advice from Council's Environmental staff before proceeding with works near Threatened Species

Endangered Ecological Community (EEC) Record

EECs have special protection under State and Federal legislation

EEC (Prelim) - seek advice from Council's Environmental staff before proceeding with works in EECs

EEC elements - contains some species typical of EECs

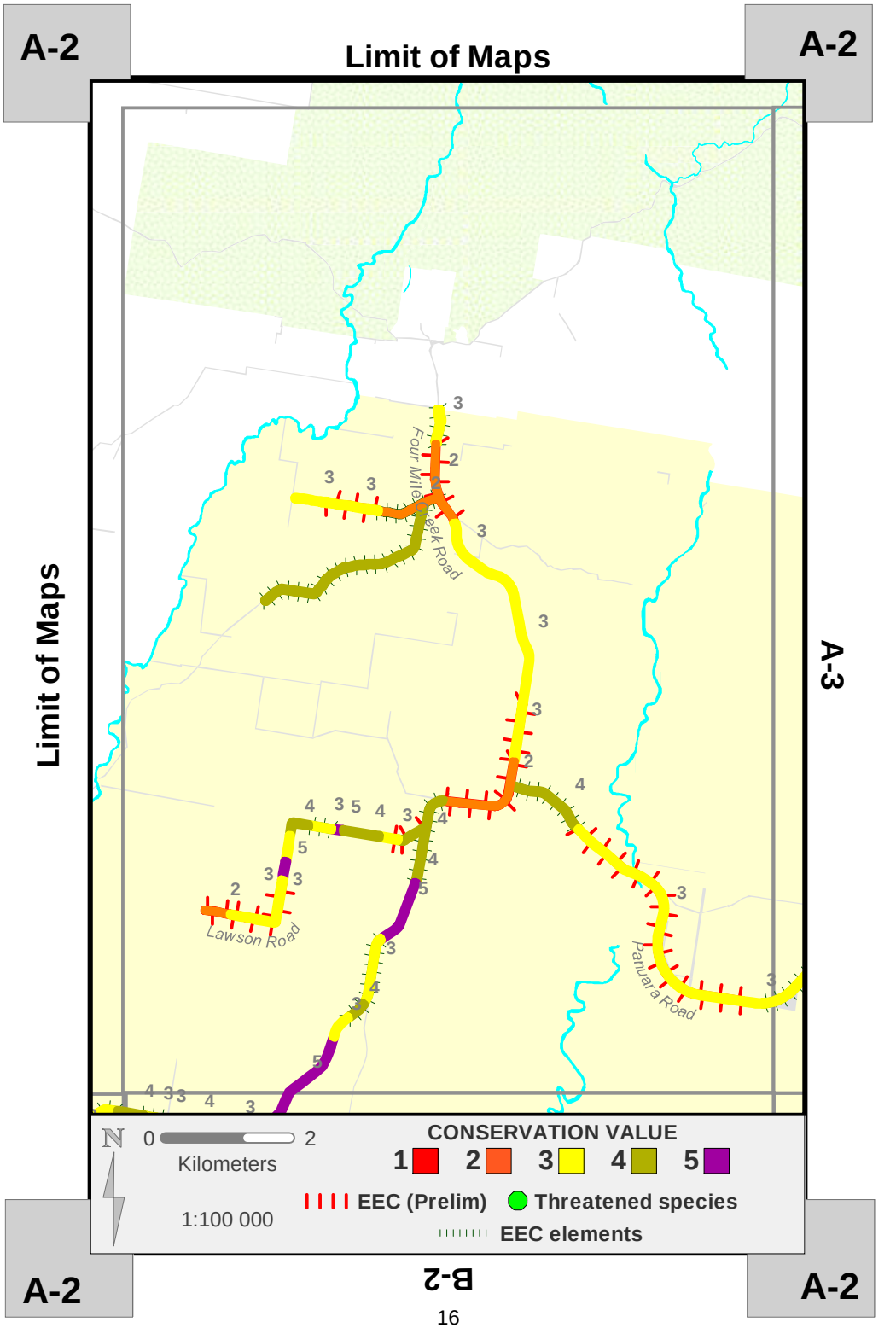
Waterway

Road (other)

Blayney LGA

State Forest

National Park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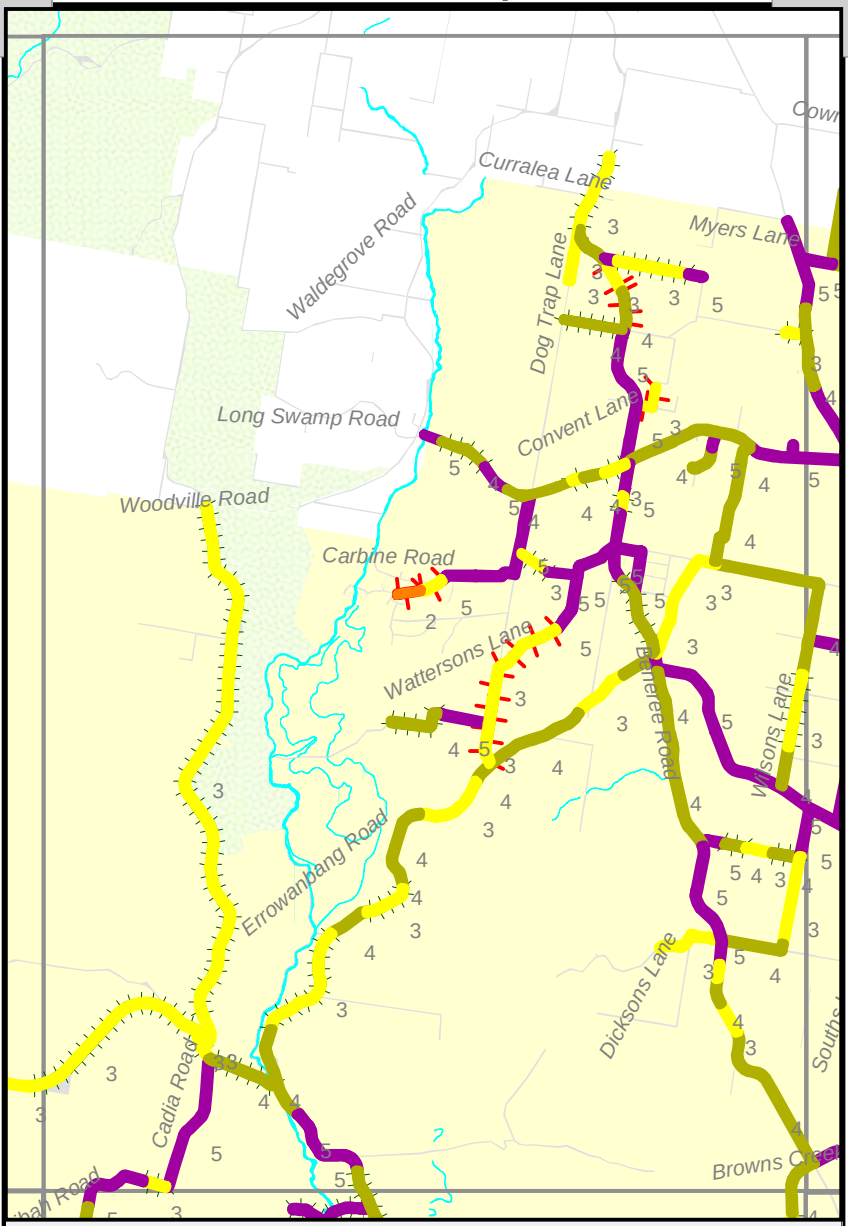

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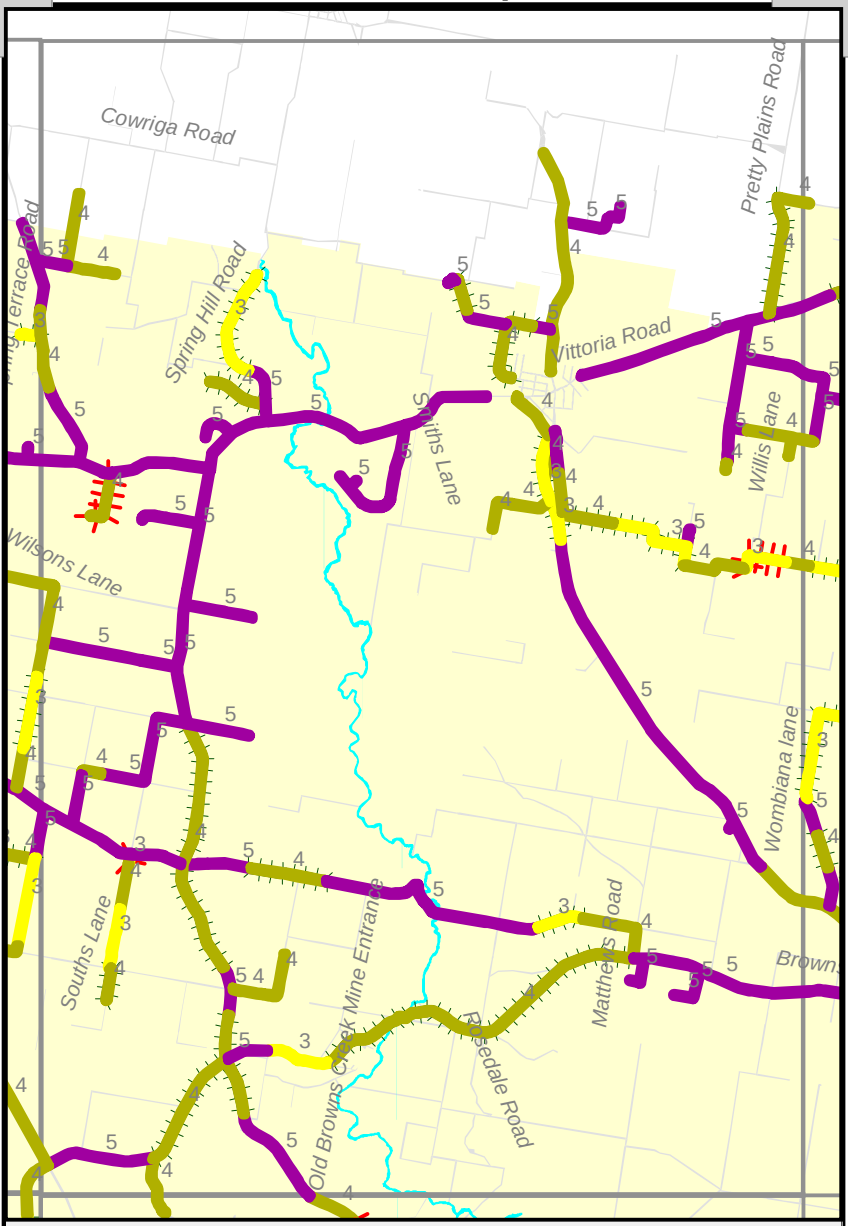

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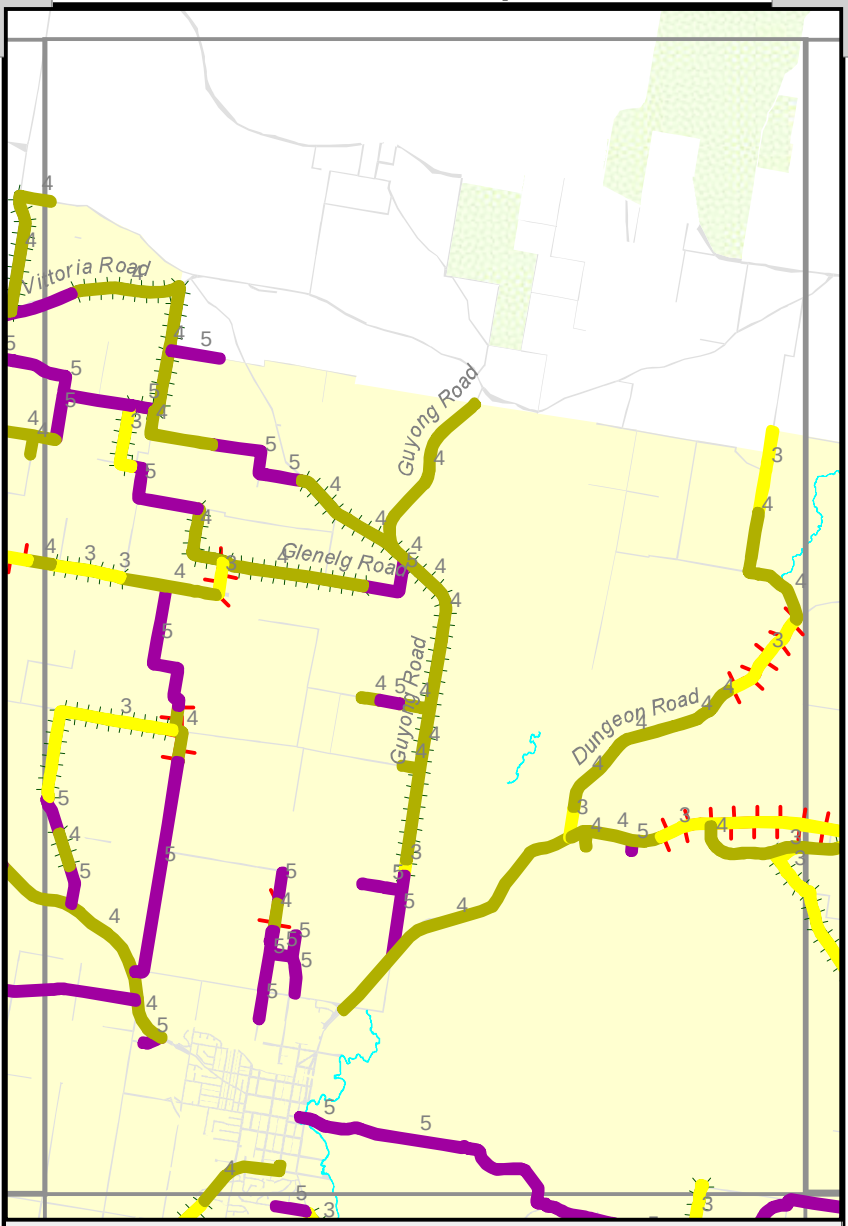

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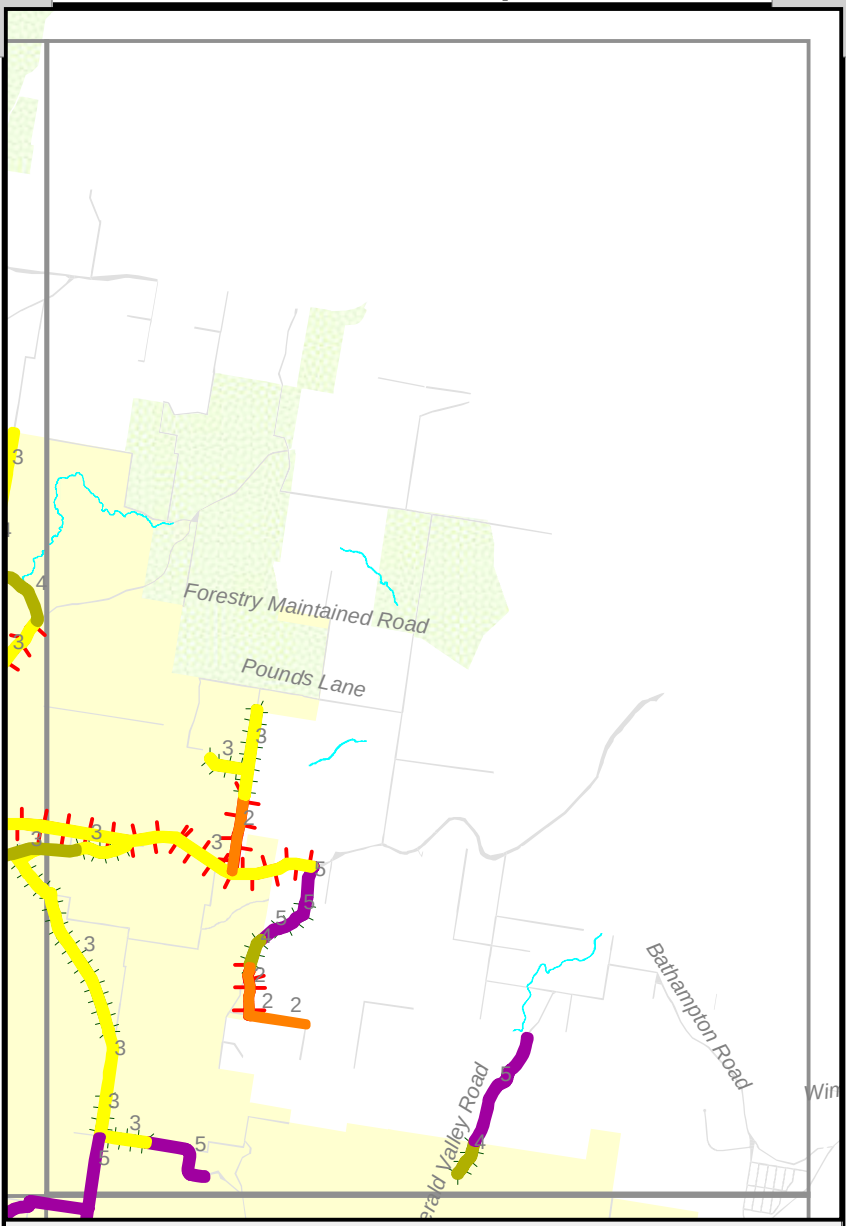

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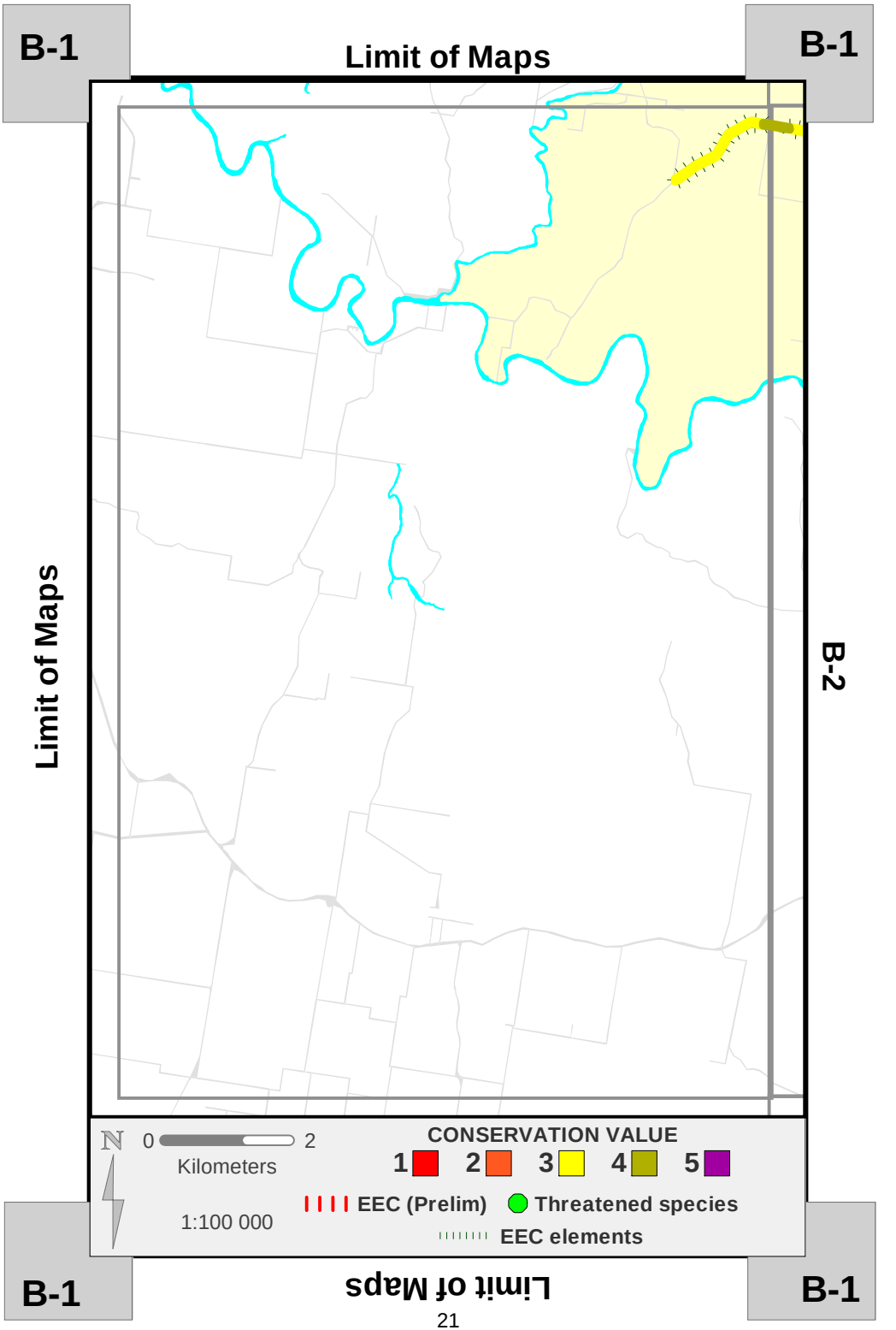
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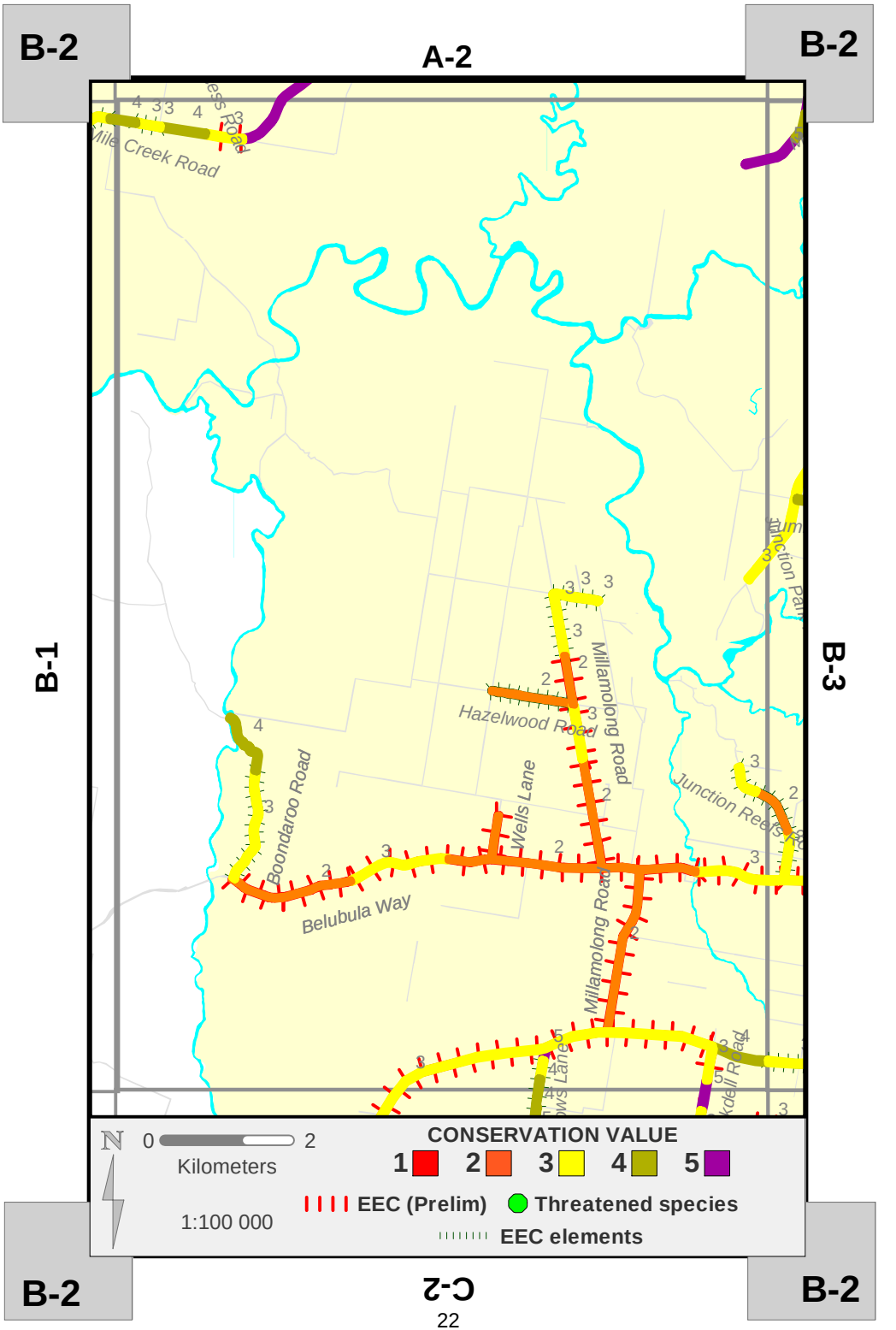
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Creek Road
Millamolong Road
Hazelwood Road
Boondaroo Road
Wells Lane
Belubula Way
Junction Reefs Road
Millamolong Road
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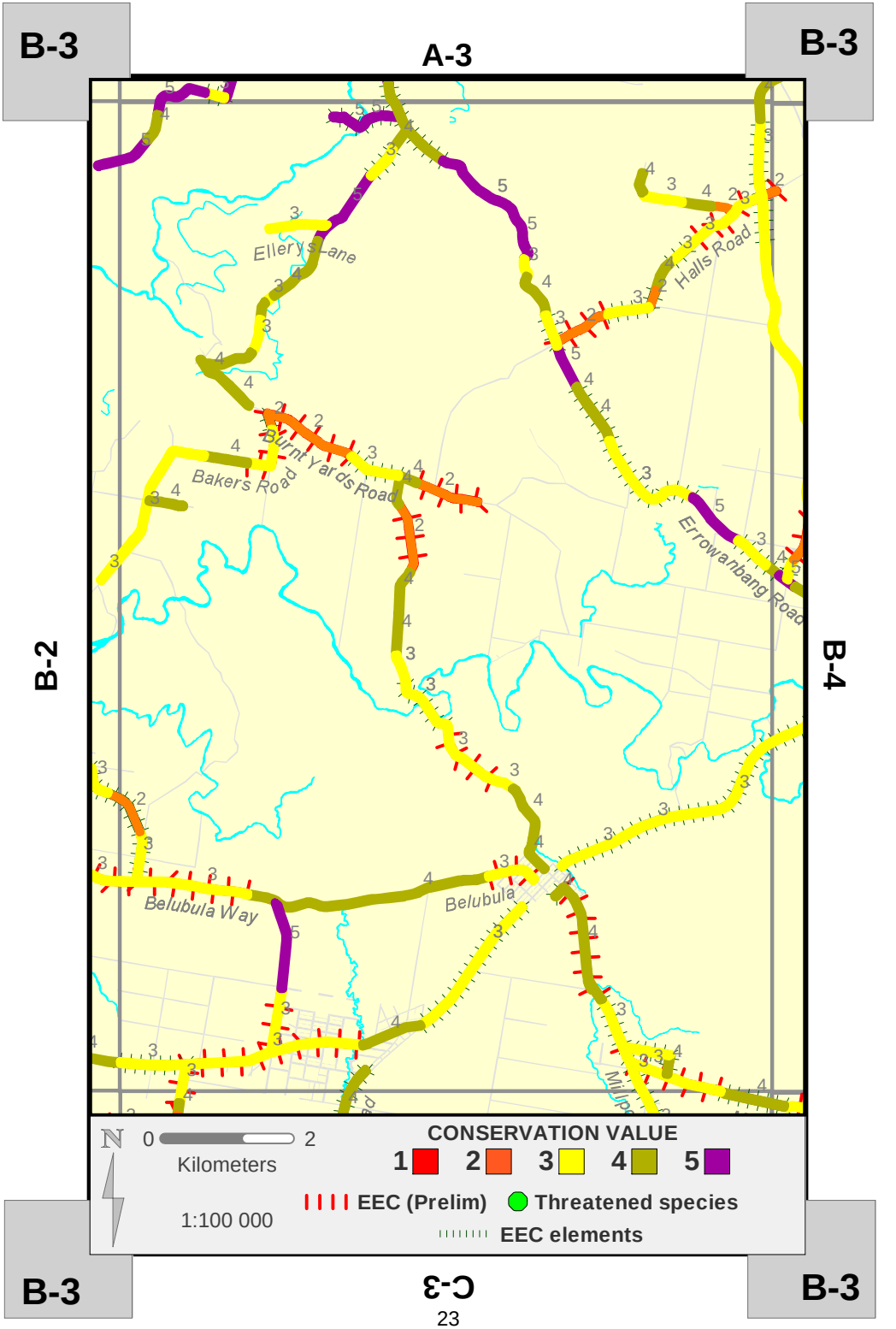
EEC elements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Burnt Yards Road
Baker's Road
Errowanbang Road
Belubula Way
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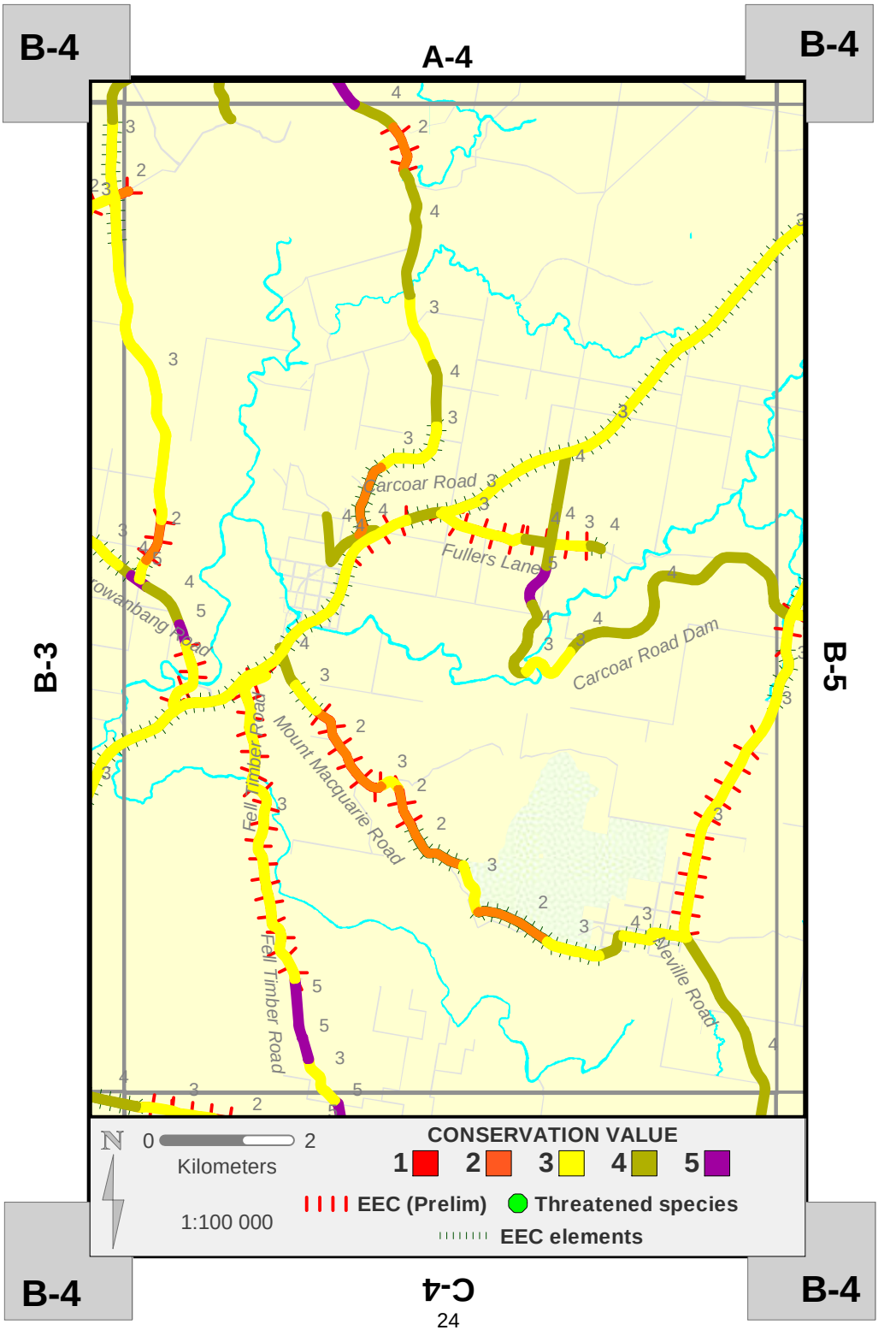
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Carcoar Road
Fullers Lane
Carcoar Road Dam
Mount Macquarie Road
Fell Timber Road
Fell Timber Road
Neville Road
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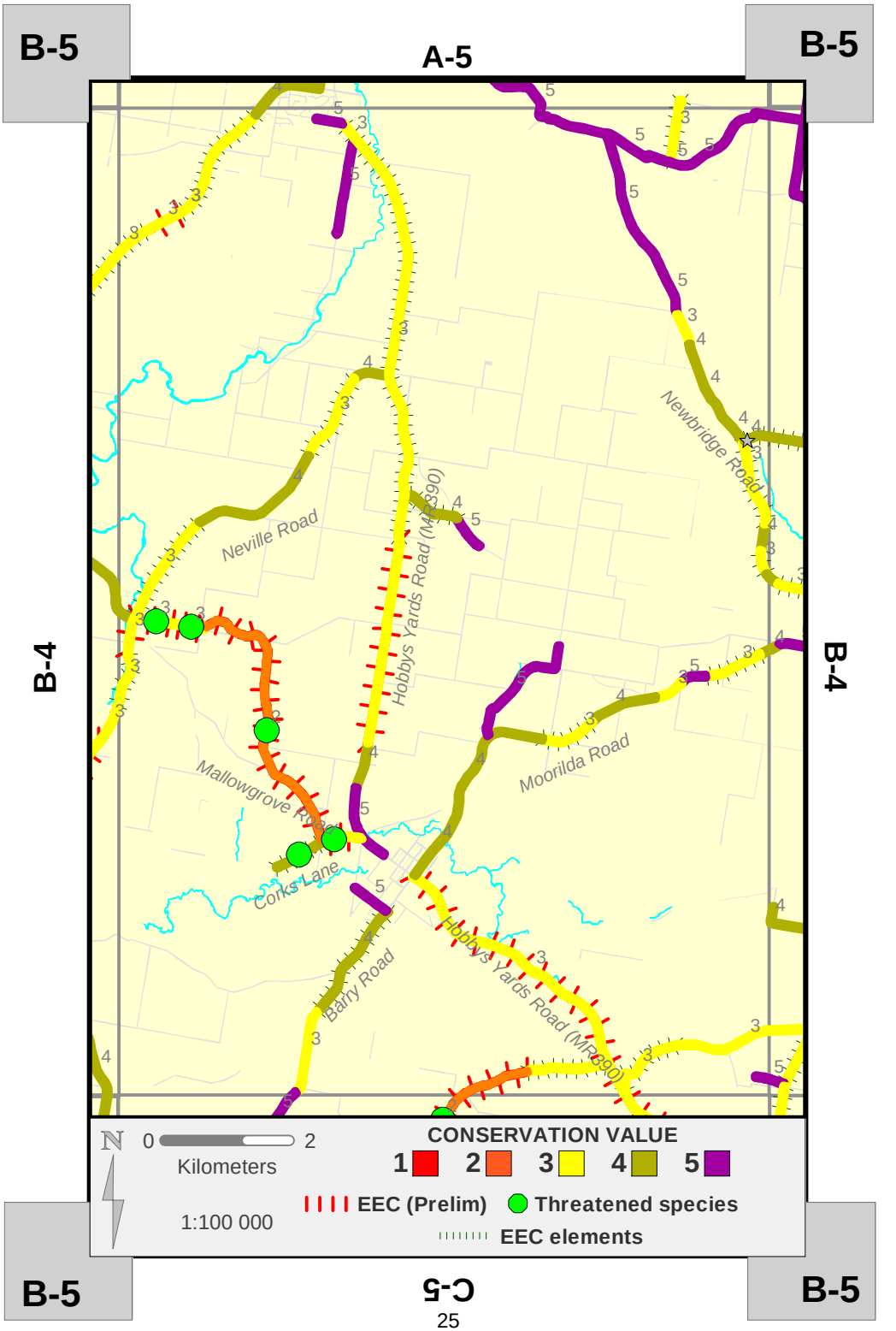
Threatened species
EEC elements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Neville Road
Hobbys Yards Road (MR390)
Newbridge Road
Mallowgrove Road
Moorilda Road
Corks Lane
Barry Road
Hobbys Yards Road (MR390)
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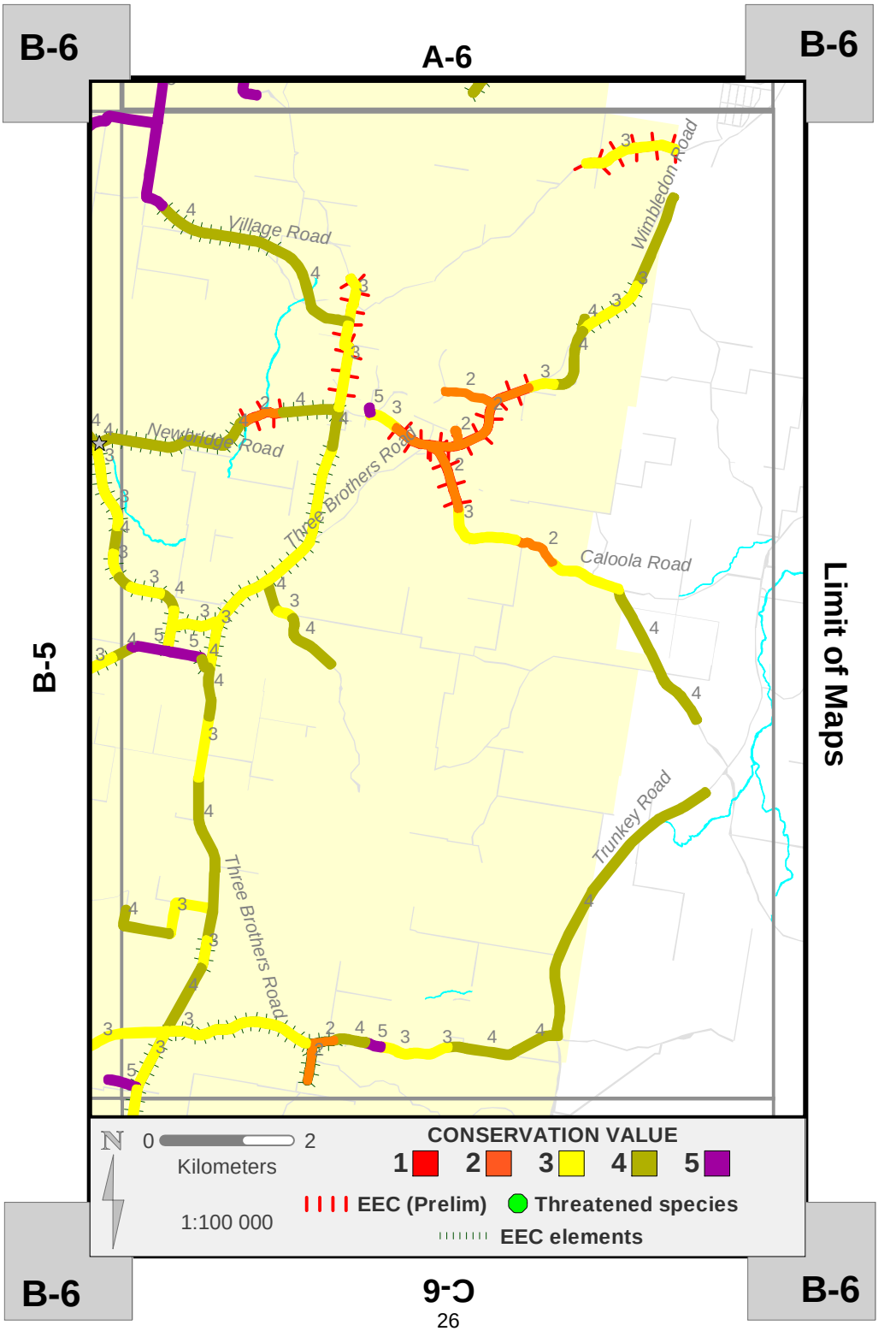
Threatened species
EEC elements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Caloola Road
Trunkey Road
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Threatened species
EEC elements
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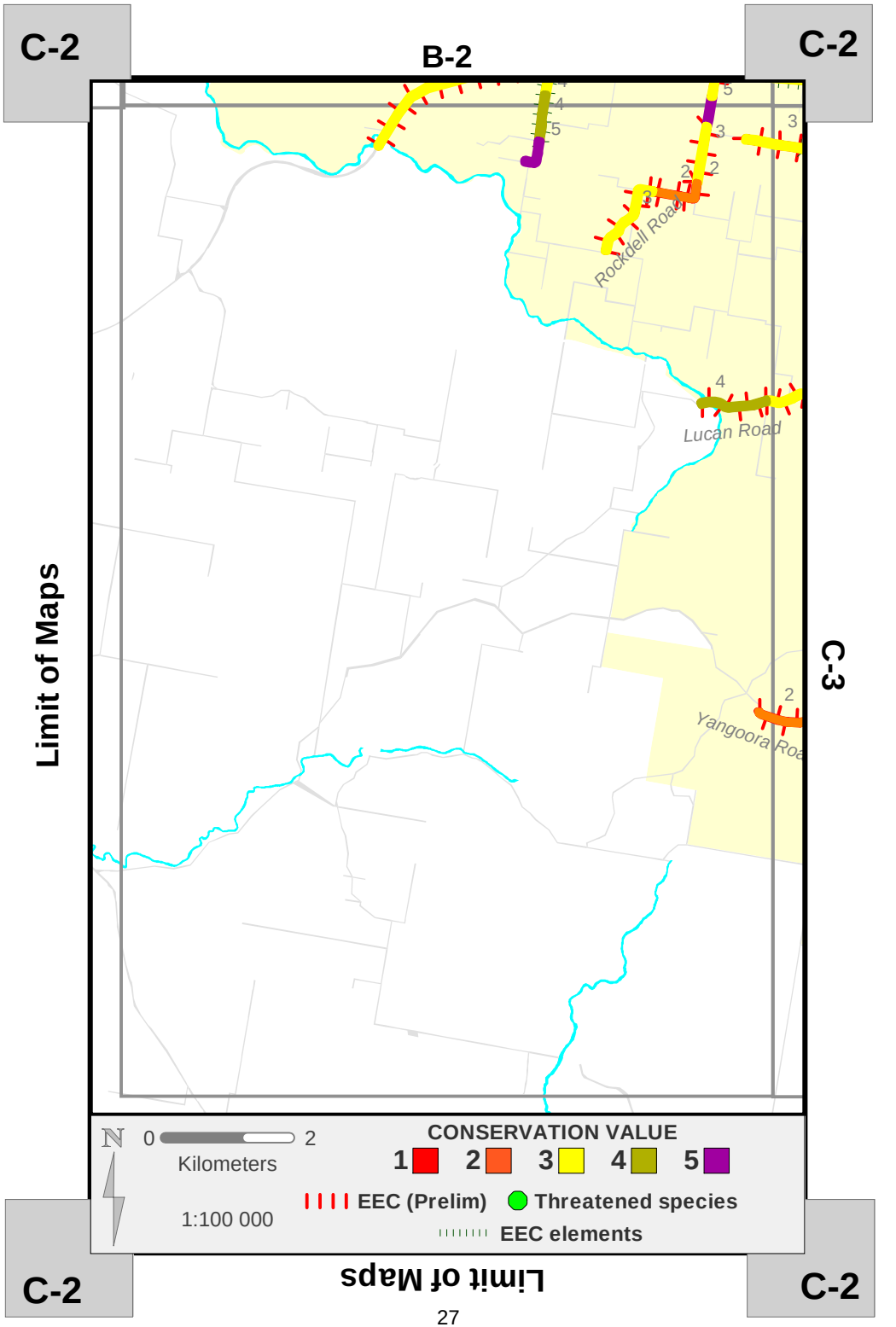
B-6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Yangoora Road
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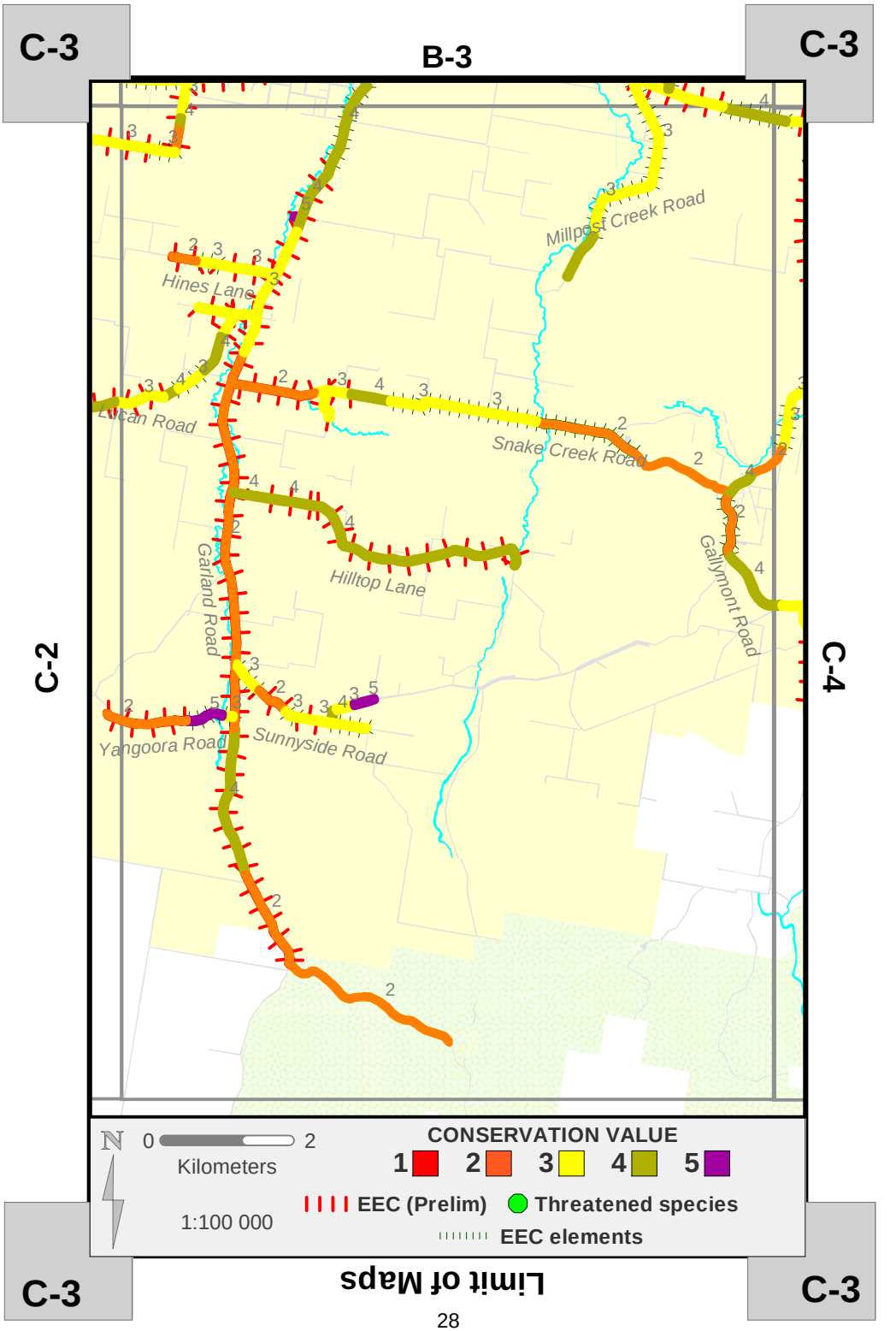
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Gallymont Road
Yangoora Road
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Threatened species
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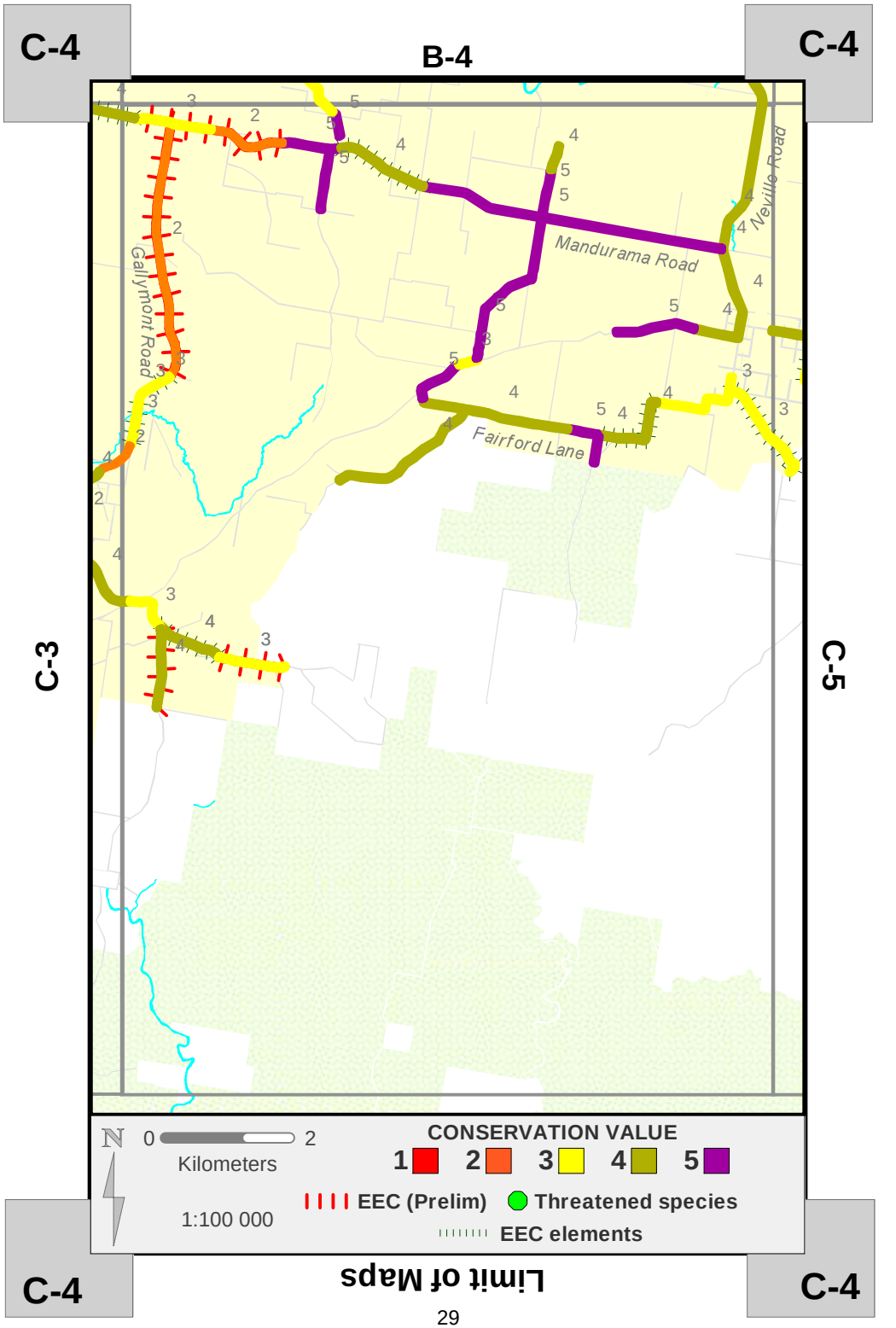
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EEC (Prelim)
Threatened species
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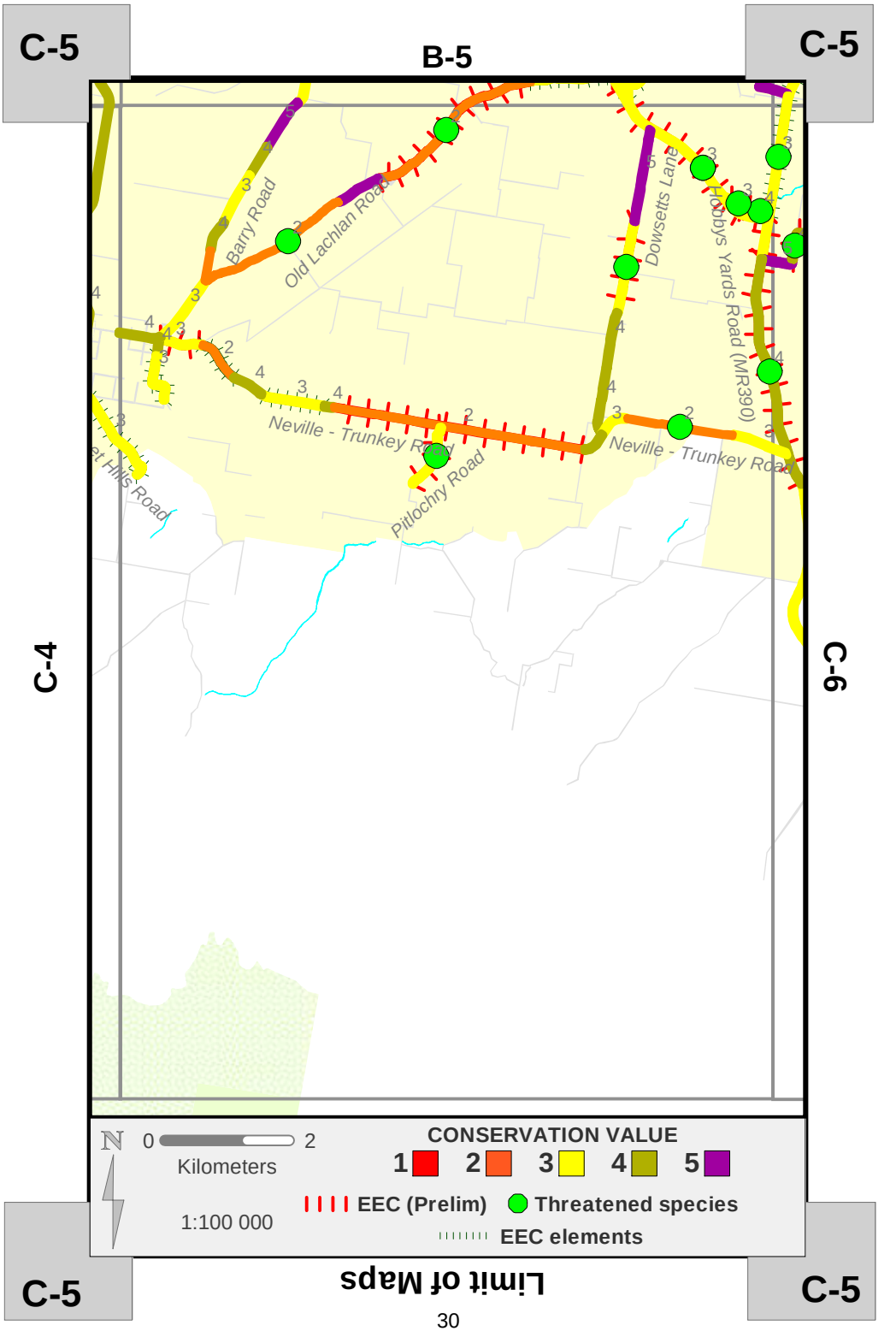
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Dowsetts Lane
Hobbys Yards Road (MR390)
Neville - Trunkey Road
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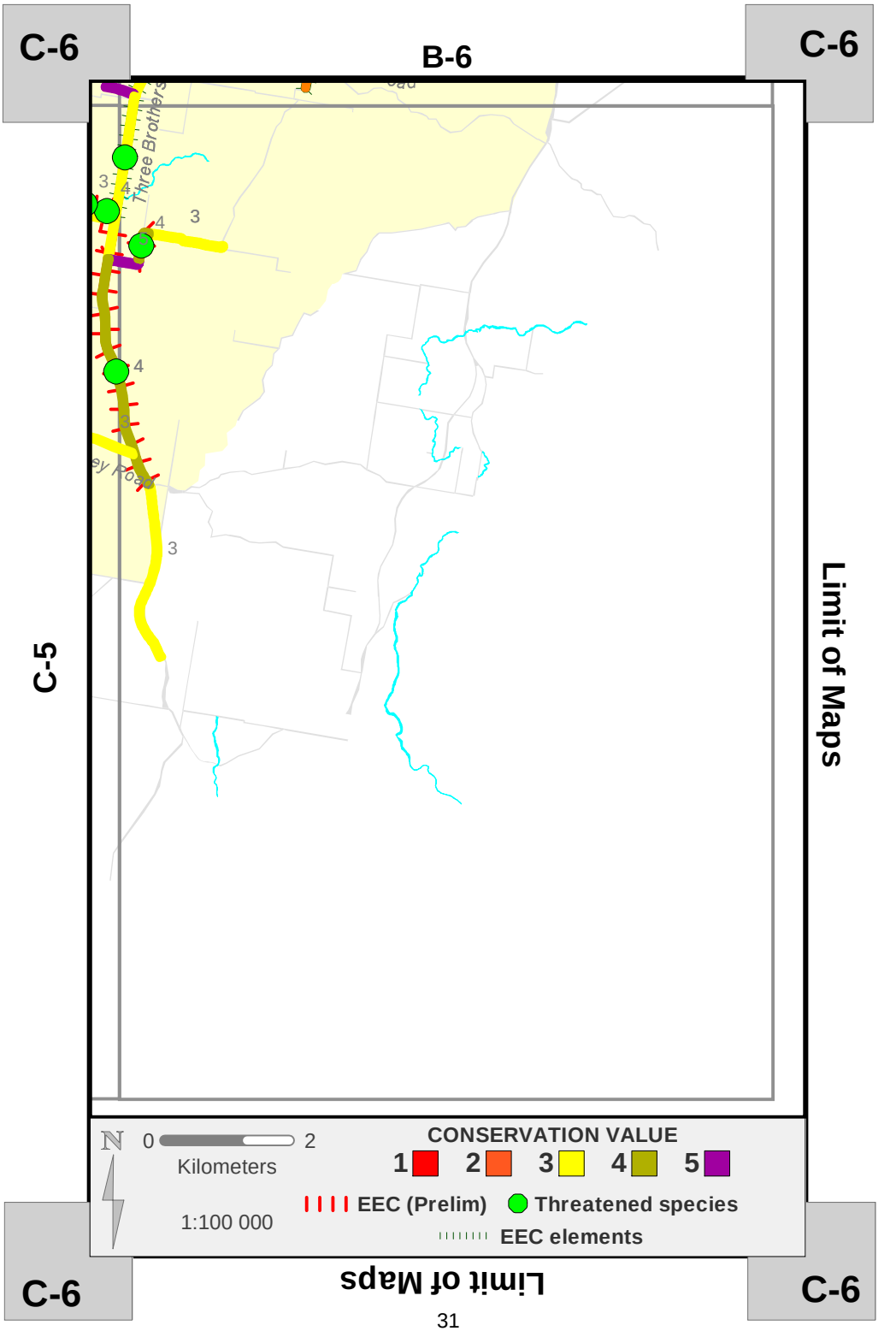
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CONSERVATION VALUE
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EEC (Prelim)
Threatened species
EEC elements

Section 4 Threatened Species

Profile information derived from BGTG and DECCW species profiles.

Eucalyptus Aggregata

Black Gum

NSW TSCA: Vulnerable
ROTAP: 3RCa

Eucalyptus aggregata is a small to medium-sized woodland tree and grows in grassy woodlands on alluvial soils in moist sites along creeks on broad, cold and poorly-drained flats and hollows (Brooker & Kleinig 1983, Hill 2002). It commonly occurs with *Eucalyptus rubida (Candlebark), E. viminalis (Ribbon Gum), and E. pauciflora (White Sally, Snow Gum),* with a grassy understorey of River Tussock Poa labillardieri (Field 2007). Most populations of E. aggregata are located on private land or road verges and travelling stock routes.

Eucalyptus aggregata Deane & Maiden Tree to 18 m high; bark persistent, grey to grey-black, fibrous-flaky, throughout.

Juvenile leaves opposite or disjunct, elliptic or ovate to broad-lanceolate, dull green.

Adult leaves disjunct, narrow-lanceolate to lanceolate, 5–12 cm long, 1–2 cm wide, green, glossy, concolorous. Umbellasters 7-flowered;

peduncle terete, 3–4 mm long; pedicels terete, 0–2 mm long. Buds ovoid, 3–5 mm long, 2–3 mm diam., scar present; calyptra hemispherical or conical, shorter than to as long as and as wide as hypanthium.

Fruit conical to hemispherical, 2–4 mm long, 3–5 mm diam.; disc flat or raised; valves exserted.

REFERENCES

Brooker MIH & Kleinig DA (1983) Field Guide to Eucalypts Volume 1. Inkata Press.

Field DL (2007) The importance of ecological factors in determining the pattern of interspecific hybridization in fragmented landscapes of Eucalyptus aggregata. PhD Thesis, University of Wollongong.

Hennessy K, Page C, McInnes K, Jones R, Bathols J, Collins D, Jones R (2004) 'Climate change in New South Wales. Part 1: Past climate variability and projected changes in average climate'. CSIRO Marine and Atmospheric Research, Aspendale, Victoria.

Hill KD in Harden GJ ed. (2002) Eucalyptus in Flora of New South Wales Revised Edition Volume 2. University of NSW Press, Sydney.

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Ecological Community

EEC on Wallaces Road.

Description (NPWS, 2002a, 2002b) *This ecological community can occur as either woodland or derived grassland – by definition, this is grassy woodland from which the trees have been removed. It has a ground layer of native tussock grasses and herbs, and a sparse, scattered shrub layer. White Box (Eucalyptus albens), Yellow Box (E. melliodora) and/or Blakely's Red Gum (E. blakelyi) dominate the community in areas where a tree layer still occurs. The density of trees is not relevant to the existence of the EEC. Where White Box, Yellow Box or Blakely's Red Gum trees have been killed, and the overstorey is now dominated by other species (e.g. White Cypress Pine), the EEC still exists as a degraded sites.*

EEC on Halls Gap Road

Montane Peatlands and Swamps

of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions

Swampy Meadow EEC Blayney Shire

From OEH description: Montane Peatlands and Swamps comprises a dense, open or sparse layer of shrubs with soft-leaved sedges, grasses and forbs. It is the only type of wetland that may contain more than trace amounts of Sphagnum spp., the hummock peat-forming mosses. Small trees may be present as scattered emergents or absent. The Montane Peatlands community is associated with accumulated peaty or organic-mineral sediments on poorly drained flats in the headwaters of streams. It occurs on undulating tablelands and plateaux, above 400-500 m elevation, generally in catchments with basic volcanic or fine-grained sedimentary substrates or, occasionally, granite.

"Swampy Meadow" EEC Blayney Shire

Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland

in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregions

Snow Gums on Pounds Lane

NSW Scientific Committee - final determination: Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland typically forms an open-forest, woodland or open woodland that transitions into grassland at low tree cover. The canopy is dominated by Eucalyptus pauciflora (Snow Gum), E. rubida (Candlebark), E. stellulata (Back Sallee) and E. viminalis (Ribbon Gum), either as single species or in combinations. Other more localized Eucalyptus species may also occur within this community such as E. aggregata and E. parvula. A shrub layer may be present and sub-shrubs are often a component of the ground stratum; characteristic species include Hymenanthera dentata and Melichrus urceolatus. The ground layer is dominated by grasses and other herbaceous species including Themeda australis, Poa spp., Austrostipa spp., Austrodanthonia spp., Leptorhynchos squamatus, Chrysocephalum apiculatum, and Asperula conferta. This community may also occur as secondary grassland where the dominant trees have been removed but the ground stratum remains.

Photo D Keith Namoi CMA

Section 5 Weeds

Notes: Please refer to Weed Management and Control Measures Plan if one has been developed for your proposed works area.

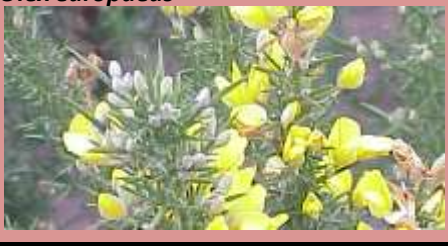
Noxious weeds unit to be notified prior to ANY slashing occurring

Commonly encountered noxious and environmental weeds are listed below.

Weed Class	Common Name	Scientific Name
Noxious 4	**African boxthorn** Intricately branched shrub to 4 m high with long, rigid branches; lateral branches leafy, ending in stout spines.	***Lycium ferocissimum*** 
Noxious 4	**African Lovegrass** densely tufted, perennial species, grows up to 1.2 m in height, generally erect but stems may bend at lower nodes, giving plant a weeping habit, narrow bright green to blue-green leaf blades,leaves hairless, tough to break, with distinct parallel veins	***Eragrostis curvula***  Photo Forest & Kim Starr

Weed Class	Common Name	Scientific Name
Environmental	**Barley Grass** Leaves are 1.5–1 2.0 mm wide and up to 200 mm long. They are sparsely covered with soft hairs and taper to a point. Leaves tend to be a paler green colour than other common annual grasses. Barley grass grows to about 450 mm in height.	***Hordeum sp*** 
Noxious 4	**Bathurst/ Noogoora burr** An erect, much branched, mainly summer-growing annual herb commonly 30 to 60 cm high, occasionally to 1 m, reproducing by seed.	***Xanthium sp*** 
Environmental	**Bidens/ Cobblers Pegs** Almost glabrous to densely hairy woody herb to 1 m or more high.	***Bidens pilosa*** 
Noxious 4	**Blackberry** High arching semi-deciduous shrub up to 2 (rarely to 4) m high forming dense thickets	***Rubus fruticosus*** **aggregate species** 

Weed Class	Common Name	Scientific Name
Environmental	**Cape Daisy** Stemless or short-stemmed succulent annual herb, to 30 cm high.	***Arctotheca calendula*** 
Noxious 2	**Cape/Montpellier Broom** Shrub to 3 m high. Stems green, covered with short soft hairs, becoming hairless with age. Ridged (not 5 sided) green stems; flowers pea-like, yellow.	***Genista monspessulana*** 
Environmental	**Cherry Plum, Laurels etc**	***Prunus spp***
Environmental	**Cocksfoot** Grows in dense perennial tussocks to 20–140 centimetres tall, with grey-green leaves 20–50 cm long and up to 1.5 cm broad, and a distinctive tufted triangular flowerhead 10–15 cm long, which may be either green or red- to purple-tinged turning pale grey-brown at seed maturity.	***Dactylis glomerata*** 

Weed Class	Common Name	Scientific Name
Environmental	**Dock (all species)** They are erect plants, usually with long tap roots. The fleshy to leathery leaves form a basal rosette at the root. The basal leaves may be different from those near the inflorescence.	***Rumex* sp** 
Environmental	**Fleabane** Annual herb developing a rosette of leaves at first and then a single flowering stem which branches with inflorescences up to 1 m tall.	***Conyza* spp** 
Noxious 3	**Gorse** Erect or ascending, spiny shrub, to 2 m high; stems striate, densely hairy with long and short spreading hairs, ± glaucous when young.	***Ulex europaeus*** 

Weed Class	Common Name	Scientific Name
Environmental	**Hawthorn** Small tree or large shrub, usually with spines 7–20 mm long; sometimes planted for hedges. The bark is dull brown with vertical orange cracks. The younger stems bear sharp thorns, 1 to 1.5 cm long.	***Crataegus monogyna*** 
Noxious 3	**Hemlock** Robust biennial herb, 1–2.5 m high, stems hollow, spotted reddish brown or purple. Leaves acrid-smelling when crushed, triangular in outline, 30–50 cm long.	***Conium maculatum*** 
Environmental	**Horehound** Grey-leaved herbaceous perennial plant, somewhat resembling mint in appearance, grows to 25–45 cm tall. Leaves are 2–5 cm long with a densely crinkled surface, covered in downy hairs.Flowers are white, borne in clusters on the upper part of the main stem.	***Marrubium vulgare***  Photo Stan Shebs

Weed Class	Common Name	Scientific Name
Environmental	Kikuyu	*Pennisetum clandestinum*
Environmental	**Lombardy Poplar** Medium-sized to large deciduous tree, reaching 20-30 m (rarely 40 m) tall, with a trunk up to 1.5 m diameter. The leaves are diamond-shaped to triangular, 5-8 cm long and 6-8 cm broad, green on both surfaces.	***Populus nigra*** 
Environmental	**Lucerne** Superficially resembles clover, with clusters of small purple flowers followed by fruits spiralled in 2 to 3 turns containing 10-20 seeds. Grows to a height of up to 1 metre.	***Medicago sativa*** 
Environmental	**Oat Grass (all cultivars etc)** Winter annual grass with thin stems growing up to 60 to 80 centimeters in max height, sometimes grow taller. The bristly spikelets are 2 to 3 centimeters long, not counting the bent awn which is up to 4 centimeters in length.	***Avena barbata***  Photo RBGsyd

Weed Class	Common Name	Scientific Name
Environmental	**Paddys Lucerne** Stems erect to sprawling and branched, growing 50-120 centimeters in height, lower sections being woody. The dark green, diamond-shaped leaves are arranged alternately along the stem.	***Sida rhombifolia*** 
Environmental	**Pattersons Curse** Winter annual plant growing to 20–60 cm tall, with rough, hairy, lanceolate leaves up to 14 cm long. The flowers are purple, 15–20 mm long, with all the stamens protruding, and borne on a branched spike.	***Echium plantagineum*** 
Environmental	**Phalaris** Erect tufted perennial to 1.5 m high, with a loose to dense hard crown of usually contracted rhizomes.	***Phalaris aquatica*** 

Weed Class	Common Name	Scientific Name
Environmental	**Pigeon Grass** Annual grasses, decumbent or erect stems generally to 1.5m. Inflorescence is a dense, compact, spikelike panicle up to 20 centimeters long, growing erect or sometimes nodding at the tip only.	***Setaria* spp** 
Environmental	**Prairie Grass** Annual or perennial grass growing up to 1m in height. Inflorescence of spreading spikelets, upper ones erect and the lower ones nodding or drooping. Each spikelet is very flat and pointed, the fruits tipped with short awns.	***Bromus catharticus***  Photo Forest & Kim Starr
Noxious 4	**Large Leaved Privet** Frequently planted as a hedge and has become an invasive weed. Shrub or small tree to c. 10 m high.	***Ligustrum lucidum*** 
Noxious 4	**Narrow-leaf/ Chinese Privet**	***Ligustrum sinense***

Weed Class	Common Name	Scientific Name
	Radiata Pine	***Pinus radiata***
Environmental	**Rye Grass** Loose to densely tufted annual or short-lived perennial	***Lolium* spp**  Photo Forest & Kim Starr
Noxious 4	**Scotch Broom** Typically grow to 1–3 m rarely to 4 m, main stems up to 5 cm thick, rarely 10 cm . Green shoots with small deciduous trifoliate leaves 5–15 mm long, spring and summer is covered in profuse golden yellow flowers .	***Cytisus scoparius*** 
Noxious 3	**Serrated Tussock** A weed of low-fertility hilly areas. Grows in dense tufts. Perennial to 0.7 m high, with wiry roots.	***Nassella trichotoma***  Photo DAFF QLD

Weed Class	Common Name	Scientific Name
Environmental	**Sheep Sorrel** Perennial herb, upright stem, slender/reddish in color, branched at top,up to .5m. Arrow-shaped leaves are simple, slightly more than 3 cm in length, smooth with a pair of horizontal lobes at base. Flowers from yellowish-green flowers (male) or reddish (female) flowers develop on separate plants, at the apex of the stem	***Acetosella vulgaris*** 
Noxious 4	**St Johns Wort** Grows in disturbed places, often along roads and in rough pastures. Erect several-branched shrub to 1 m high. Leaves are yellow-green in color, flowers measure up to 2.5 cm across, have five petals, and are colored bright yellow with conspicuous black dots.	***Hypericum perforatum*** 
Noxious 4	**Star/St Barnabys Thistle** Annual or biennial herb to 1 m high; stems much-branched, greyish, winged. Bright yellow flowers ringed with long, sharp spines.	***Centaurea solstitialis*** 

Weed Class	Common Name	Scientific Name
Noxious 4	**Sweet Briar** Erect or scrambling shrub, the crushed foliage with sweet apple-like smell, branches with prickles usually mixed with glandular hairs.	***Rubus rubiginosa*** 
Environmental	**Saffron Thistle** **Toothed Thistle** Annual herb to 1 m high; stem usually sparsely septate-hairy, cobwebby and glandular, striate.	***Carthamus dentatus, Carthamus lanatus*** 
Environmental	**Spear Thistle** Biennial erect herb to 1.5 m high; stems with discontinous spinose wings, cobwebby.	***Cirsium vulgare*** 

Weed Class	Common Name	Scientific Name
Environmental	**Tree Lucerne** Shrub or small tree to 4 m high, branches pendulous, softly hairy. Creamy white flowers form in small clusters in the leaf axils. Flat pea-like pods - green, ripening to black.	***Chamaecytisus palmensis***  Photo S M Armstrong WA florabase
Environmental	**Twiggy Mullein** It is a tall-growing biennial herb reaching a height of between 1 and 2 metres.The flowers are 3 to 4 cm in diameter and are yellow with a purple centre.	***Verbascum virgatum*** 
Environmental	**Variegated Thistle** Biennial herb to 2.5 m high; stem striate, glabrous to cobwebby.	***Silybum marianum*** 

Weed Class	Common Name	Scientific Name
Environmental	**Vetch** Trailing or climbing annual herb, pubescent to ± glabrous; stems to 1 m long.	***Vicia* spp** 
Environmental	**White Clover** Prostrateherbaceous, perennial plant. It is low growing, with heads of whitish flowers, often with a tinge of pink or cream that may come on with the aging of the plant.	***Trifolium repens*** 
Environmental	**Yorkshire Fog** Velvety perennial to 1 m high.Leaves with ligule membranous, 2–4 mm long, obtuse, toothed, pubescent with hairs c. 0.3 mm long; blade flat, to 10 mm wide, softly hairy. Base of the shoots are white with pink stripes or veins	***Holcus lanatus*** 

Weed Class	Common Name	Scientific Name	
Environmental	**Yucca** Shrubby plant with stem to c. 1.5 m high, often freely branched. Notable for their rosettes of evergreen, tough, sword-shaped leaves and large terminal panicles of white or whitish flowers.	***Yucca***	

General notes : It is preferable to manually remove weeds (before seed set) before their abundant growth requires herbicide application. However, if an abundance of small weeds do germinate and manual removal is not feasible, a herbicide treatment may can be a cost-effective management strategy.

A summary of several recommended weeding techniques are listed below:
Manual Clearance-remove smaller weed species or juvenile specimens with small hand tools to minimise disturbance. Remove the whole weed including the root system. Larger specimens may require removal with a shovel or pitchfork. Weed spoil and seeds should be taken to a council approved waste facility.

Cut and Paint-woody weeds can be removed by the cut and paint method which involves cutting the stem or trunk of the weed just above ground level and applying herbicide (such as Biactive Roundup® with herbidye added) to the cut area. All herbicides should be used in accordance with the directions on the label. No additives, dilutions or methods of delivery other than those specified on the label are to be used unless they are in accordance with a current off-label permit. All staff must be trained in the storage, handling and use of chemicals in accordance with Workcover requirements (eg. Chemcert AQF2, AQF3).

Crowning-many plants which will not regrow from their roots (eg many grasses) can be crowned. This is done by holding the leaves and stems

together, and using a knife to cut through all the roots below the “crown” or rhizome.

Scraping is used to remove mainly exotic vines or weed species not easily eradicated via the cut and paint method, or manual removal. The main stem of the vine or plant should be scraped with a knife as close to the ground as possible and should be at least 20cm long (or longer depending in the size of the plant) and undiluted herbicide applied to the expose area.

Chemical Clearance large weed infestations may be successfully controlled using non-residual glyphosate herbicides (e.g. Nufarm Weedmaster®, Biactive Roundup®). The use of herbicide, especially around waterways, should be kept at a minimum due to potential adverse impacts on soil and water quality.

- EXERCISE CAUTION when spraying as ‘over spray’ may have detrimental effects on surrounding plant life. Protect native plants from treatment. Pasture grasses occurring among native groundcover should be removed manually via crowning or using hand tools
- Do not spray herbicide on windy or rainy days.
- A more accurate alternative to spraying is to cut the weed plant just above ground level and apply herbicide over the cut area with a paintbrush.
- The use of chemical herbicides around wetlands may need to be undertaken by an Environmental Protection Authority (EPA) approved operator.

For EEC and High Conservation Areas the techniques and methodologies used for bush regeneration shall conform to those identified in the National Trust Bush Regenerators Handbook (1991). These methods are generally accepted as best practice. Generally undertake:

Primary weeding – initial weed clearance through manual removal of weeds;

Secondary or Follow up weeding – maintenance of areas which have already received primary weeding; and

Maintenance weeding – monitoring/removal of weed regrowth.

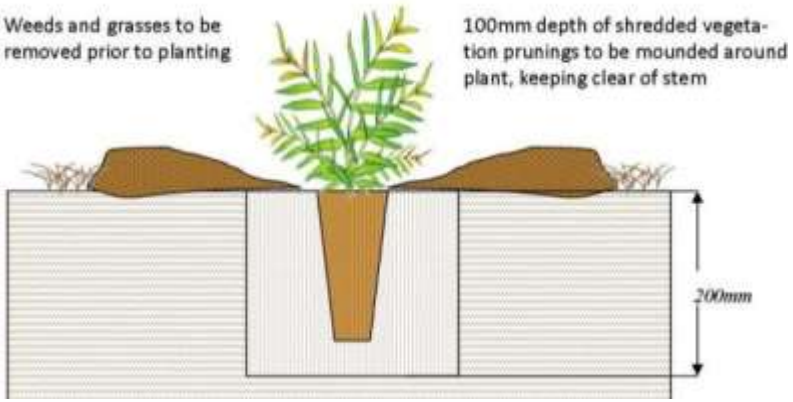
Revegetation

High conservation value roadsides and vegetation types be enhanced as a high priority. High conservation value areas and vegetation types be linked as a high priority. Any links are to be revegetated with species appropriate to the site conditions, even if they are of a lower conservation value vegetation type. Medium-low conservation value roadsides and vegetation types be enhanced as a medium priority unless used as links.

Planting notes

Storage Deliver plant material to works sites on a day to day basis and plant immediately after delivery. Water before planting out.
Topsoil Reuse site soils. For large areas if site soils are suitable, mechanically rip to a depth of 250mm.

Planting Conditions Do not plant in unsuitable weather conditions such as extreme heat, cold, wind, or rain. In other than sandy soils suspend excavations when the soil is wet or during frost periods.
Placing Where ever possible plant different species adjacent to each other.
Planting Remove the plant from the container with minimum disturbance to the root ball. Ensure that the root ball remains moist and place it in its final position in the centre of the hole, plumb and with the topsoil level with the top of the root ball.



Fertilising and Water Crystals Install appropriate native species slow release fertiliser and water crystals into each individual plant hole as per manufacturer's specification.

Tree Stakes and Ties For all trees and shrubs install erosion control mat (Jute square), bamboo stakes and tree guards. Use rigid plastic guards and hardwood stakes in areas where animals (eg. kangaroos, rabbits) may graze on young seedlings during establishment.

Infill planting Ovington Lane

Section 6

Other Planning considerations

In all circumstances safety of the travelling public is the prime objective of Council policy

Collection of firewood

Firewood collection is expressly prohibited on all roads without specific approval from the Council.

Collection of rocks, soil and sand

Removal of rocks, soil or sand from any road is expressly prohibited without specific approval from the Council.

Collection of wildflowers and seed

Department of Environment and Climate Change permits are required for collection of rare, threatened and protected species. Seed collection must take place in accordance with the National FloraBank guidelines after consultation with the Council. No collection of seed or wildflowers from SM, HCV and MCV areas is permitted without specific written approval from Council.

Fire control

No firebreak is to be constructed or maintained other than in accordance with the local Bushfire Risk Management Plan. All activities need to take into account the minimum requirements of the RFS Bushfire Environmental Assessment Code for NSW, 2006 (see www.rfs.nsw.gov.au). No landowner or contractor is permitted to plough roadside reserves. No firebreak is to be constructed or maintained within a SM or HCV area without specific written approval from Council. Neighbouring landowners may create a chemical firebreak up to 0.5m wide along fence lines provided they do the same on their own property.

Allow areas on roadsides between the table drains to be sprayed, slashed or graded to minimise fuel loads and prevent the spread of fires from vehicles.

Slashing between the table drain and the fence line is permitted in LCV areas only.

Spraying regrowth along a fenceline within the roadside corridor exceeds the recommended 0.5 m.

Roadside construction and maintenance

No works of construction, maintenance, provision of utilities, erosion control or extension of existing facilities are to take place on SP, HCV or MCV areas without the preparation of an REF and specific written approval from Council. No maintenance or construction works may be commenced or signed off without a completed maintenance checklist – see Section 7.

Erosion Control

Any construction works affecting Council roads, roadsides or reserves must adhere to erosion control measures signed off by Council. Unless otherwise agreed, erosion control measures must remain in place until the completion of works and their removal is the responsibility of the contractor or person carrying out works.

Vegetation enhancement and revegetation

Any Landcare or other community group wishing to carry out work on or affecting a SM, HCV or MCV area must obtain specific written approval from Council. Council may impose conditions relating to safety management, insurance cover and programming of work, as it deems necessary.

Waste and Litter

Travellers or residents dumping waste or litter on any roadside other than in Council provided waste containers will be prosecuted.

Weed Management

No landowner or contractor is permitted to plough roadside reserves, or to carry out any other form of weed control within SM, HCV or MCV areas without specific written approval from Council.

Grazing

Restrict grazing on HCV areas during spring and when soils are wet or during periods of drought. Do not allow stock to camp on HCV areas. Where possible, use grazing to control weeds in fire sensitive vegetation types and to reduce fuel loads. Exclude stock from roadside environment with Threatened Species present. Conduct education program for landholders about EECs and threatened species. Conduct education program for landholders about their responsibilities in road reserves, eg. no ploughing, ripping, spraying (other than 0.5m along fence line), planting without council permission.

Section 7

Best Practice

Environmental Best Practice for Construction Works	LCV	MCV	HCV
Treat noxious weeds	✓	✓	✓
Treat environmental weeds using a 3-5 year control plan	✓	✓	✓
Selective herbicide spraying can be used to control invasive weeds but spot spray in areas with any native vegetation including regrowth.	✓	✓	✓
Work zones should be marked out with pegs where all work activities take place (such as the area stripped for road construction, stockpile areas, compounds).	✓	✓	✓
Stay within the work zone and confine machinery to well-defined access tracks.	✓	✓	✓
Do not park or put plant and machinery within the driplines of trees as it can damage important feeder roots of trees as well as damage ground flora.	✓	✓	✓
Use the appropriate type and minimum size of machine for the job.	✓	✓	✓
Stockpiles, construction compounds, vehicle turning areas and machinery storage should be located in Low Conservation Value areas wherever possible.	✓	✓	✓
Chip material left over from tree removal into mulch (except habitat logs and weed parts capable of regenerating) for reuse on site	✓	✓	✓
Use appropriate erosion control devices (refer to the"Blue book")	✓	✓	✓
Clean down machinery before moving to another site	✓	✓	✓
Do not "tidy up", retain natural features such as logs, leaf litter, fallen timber and rocks	✓	✓	✓
Spoil from grading and drain clearing will contain weed seed. Under no circumstances reuse this spoil. Excess spoil should be carted to a recognised landfill site.	✓	✓	✓
Keep machinery within the works area to avoid spreading weeds and contaminated soils.	✓		
Locate regrowth saplings/native plants prior to spraying and flag or mark location to avoid accidental destruction	✓		
Slash weeds in growth season and before seed set. Slash up to the	✓	✓	

Environmental Best Practice for Construction Works	LCV	MCV	HCV
back of table drains or to 3 m from pavement edge when there is no drain			
Plan new stockpiles away from MCV areas and establish and maintain sediment control structures around existing stockpile sites; manage weeds in these areas		✓	
Avoid pushing graded material onto vegetation, grade only the minimum road width required for safe clearance		✓	✓
Where possible, maintain groundcover vegetation within table drains		✓	✓
Avoid grading beyond the existing road shoulder, dispose of excess spoil away from vegetation, import additional fill instead of removing soil from the roadside corridor		✓	✓
In areas where vegetation needs to be pruned or cleared, ensure all material is chipped and mulched on site; mulch should be spread on weeds and bare areas, but not on native vegetation		✓	✓
No ploughing to occur along roadsides in these areas		✓	✓
Undertake revegetation works using appropriate species and local provenance stock.		✓	✓
Hand-weed or use cut and paint techniques for isolated weeds			✓
Install signs to indicate high conservation area			✓
Plan stockpiles outside HCV areas, remove existing stockpiles.			✓
Eliminate or restrict mowing and slashing, subject to road safety and bushfire management requirements			✓
Limit mowing and slashing to one slasher width or less, and do not slash beyond the table drain			✓
Stockpile topsoil as it can contain a good seed-bank for less than 12 months, if possible, to ensure that the seed in the soil remains viable (stockpile to a maximum height of 2 metres, so as to preserve seed viability)			✓

Site Management Environmental Checklist *To be used for all rural roadside works.*

Pre Works Checklist	**Checked**
Site inspection and approved vegetation pruning and removal marked	
Assess work area for possibility of significant vegetation, native fauna, and cultural or historical sites - consult appropriate agency	
Designated stock pile sites marked	
Provision for skimming, storage and return of topsoil to site	
All approved machinery turn around, parking and storage areas marked	
Spoil disposal site marked (include vegetation, soil or rubble)	
Limit of work site / construction zone marked	
Provision for machine and vehicle cleaning prior to entering works	
Road making materials free of weeds and weed seeds	
Exclusion zone, sensitive areas barricaded (significant vegetation / cultural site marked) - including within tree drip zone	
Staff (in house and contractor) briefed on work site operations and boundaries	
Noxious and pest plant removal	
Erosion /sediment/drainage and other pollutant control measures in place	
Survey significant plant, animal, cultural, historic and archaeological relics	
Vegetation disturbance outside table drain reviewed and minimised	
Entire site photographed	
Comments	
Pre works checklist completed	
Team Leader/Contractor	Date
Works Officer	Date

Close Down Checklist	**Checked**
Machine and vehicle clean down of soil and plant debris on site implemented	
Work site litter removed	
Completed works photographed	
Reinstatement & rehabilitation works (including revegetation) completed	
Final inspection undertaken and approval provided	
Comments	
Close down procedure completed	

Team Leader/Contractor		Date
Works Officer		Date

Please note requirements for roadside managers to protect / maintain environmental assets - NPWS Act 1974, Local Government Act 1993,Threatened Species Conservation Act 1995, Environmental Planning and Assessment Act 1979 and Environmental Protection & Biodiversity Conservation Act 1999.

All works to be performed in accordance with the NSW Roadside Environment Roadside Handbook - Environmental Guidelines for Road Construction & Maintenance Workers 1996.

Reference: "The Blue Book" *Soils and Construction – Volume 1, 4th Edition (reprinted July 2006) Landcom.*