

# Part III – Environmental Assessment



## 8.0 Biodiversity

Potential biodiversity impacts from the proposal were assessed and documented in a specialist Flora and Fauna Assessment report, informing this section of the EA. This Flora and Fauna Assessment provides detailed methodology, results, potential impacts and recommendations (see Appendix B).

### 8.1 Methods and Objectives

The Flora and Fauna Assessment Report was prepared as part of this EA under Part 3A of the EP&A Act and meets the specific requirements relating to ecological assessment of the project as prescribed by the Director General's requirements.

The Flora and Fauna Assessment utilised both desktop and field survey to meet the following objectives:

- Identify the flora and fauna species and vegetation communities present or potentially present within the study area;
- Determine if any critical habitat, species, populations, ecological communities, or their habitats protected under the EPBC Act, TSC Act or the *Fisheries Management Act 1994* (FM Act) would be significantly affected by the proposed project;
- Recommend measures to minimise impacts on flora and fauna during construction and operation of the potential pipeline;
- Assess potential residual impacts on threatened flora and fauna;
- Recommend measures to compensate for potential residual impacts on threatened flora and fauna; and
- Recommend any additional assessment that may be required.

Initial field surveys were carried out from 8 February to 11 February 2011. The field surveys were conducted by AECOM ecologists Jodi Wood and Joël Garrigues. The objective of the field surveys were to confirm the presence and / or potential presence of the threatened species and ecological communities identified in the desktop assessment or the presence of their preferred habitat(s) within the proposal site.

A complementary field survey was carried out from 11 July to 20 July 2011 (excluding 16 July and 17 July). This timing is not inconsistent with the survey advice given in the EPBC Act Policy Statement for White box - yellow box - Blakely's red gum grassy woodlands and derived native grasslands (which recommend to survey when the annual species have died back and have not yet started to re-grow). Therefore the combined survey periods were considered appropriate to provide a good representation of the biodiversity characteristics of the study area. The follow up field survey was carried out to add further clarification to the vegetation data, specifically the location of any threatened ecological communities within the proposal site. Also surveyed at this time was the occurrence of fauna habitat features and noxious weed species within the proposal site. A variety of fauna investigation methods were utilised during the assessment, including call playback, stag watching, nocturnal surveys, and direct investigations. Given the size of the study area, a conservative approach, largely based on habitat analysis, was adopted.

### 8.2 Results

#### 8.2.1 Description of Study Area

The study area is situated within the Upper Slopes subregion of the South Western Slopes Bioregion. The South Western Slopes Bioregion has been subject to extensive clearing for agricultural activity which has left very little of the original woodland vegetation intact. Over 80% of the native vegetation in the region has been cleared making it the most cleared and fragmented bioregion in NSW (Benson, 2008). As a result of wide scale land clearing for agricultural and/or pastoral purposes, the proposed pipeline route is almost completely cleared of native vegetation. Native and introduced grasses and weeds dominate the remaining vegetation. Most streams within the study area support a narrow band of riparian vegetation, with cleared pasture on either side.

The proposal would be installed within the existing 20 m easement. This easement has been previously disturbed in many ways including agricultural practices, the construction of the existing pipeline in 1980 and partly by the installation of an optical fibre cable by others in 2006. Construction will occur largely within a 30 m ROW. For construction purposes only, a strip of land approximately 10 m wide is proposed to be acquired adjacent to the existing easement temporarily for the whole length of pipeline to allow for the 30 m ROW.

### 8.2.2 Critical Habitat

No areas or habitats within the study area have been declared as critical habitat for threatened species under either the EPBC or TSC Acts.

### 8.2.3 Flora

Flora survey was conducted at 28 sites along the proposed route and a total of 55 plant species were recorded during the flora surveys, including 31 native species and 24 introduced species.

The field assessment supported information gathered from an assessment of available mapping within the area utilising mapping sourced from the Murrumbidgee CMA and NSW Vegetation Classification and Assessment (VCA) mapping. Assessment of the mapping and field survey showed that the majority of the study area is cleared, with a dense ground cover of exotic pasture grasses.

Most cleared areas have very few trees, but regrowth of native tree species was observed in some areas. Based on field and desktop information, approximately 67.7 km (96.7%) of the proposed pipeline ROW is cleared.

Most remnant vegetation in plain and hillslope landforms is modified open forest where eucalypts such as Blakely's Red Gum (*Eucalyptus blakelyi*), Yellow Box (*E. melliodora*) and White Box (*E. albens*) occur. These Eucalypt species primarily occur along fence lines, road reserves and as isolated paddock trees. Most sites have a relatively sparse mid-storey of shrubs and sapling eucalypts, while the ground storey is dense, with a variety of native and exotic grasses, herbs and rushes.

### Threatened Ecological Communities

#### Endangered Ecological Communities under the EPBC Act

The EPBC Act Protected Matters Report identified one Critically Endangered Ecological Community (CEEC) and two EECs that may occur within the study area. Based on desktop and field investigations, only one of these communities, White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (EPBC Box-Gum Woodland) (Critically Endangered) exists within the proposal site.

Three sites within the study area were found to meet the definition of the CEEC White Box-Yellow Box-Blakely's Red Gum and Derived Native Grasslands (see Figure 9). The total area of the CEEC within the disturbance area is 1.66 ha, comprising approximately 12 mature trees, 151 immature<sup>3</sup> trees and an understory dominated by native plants (see Table 9 for more details).

**Table 9 – Location of critically endangered ecological community White Box-Yellow Box-Blakely's Red Gum Woodland within the study area**

| KP Start     | KP End | Length (km) | Clearing Area Required (ha) | Overstorey to be Removed                                      | Understorey to be Removed            |
|--------------|--------|-------------|-----------------------------|---------------------------------------------------------------|--------------------------------------|
| 33.85        | 34.03  | 0.18        | 0.36                        | 5 immature trees                                              | Native grasses and non-native plants |
| 55.2         | 55.7   | 0.5         | 1                           | 6 mature trees and 109 immature trees                         | Native grasses                       |
| 65.55        | 65.7   | 0.15        | 0.3                         | 6 mature trees and 37 immature trees                          | Native grasses                       |
| <b>Total</b> |        | <b>0.83</b> | <b>1.66</b>                 | <b>12 mature trees, 151 immature trees and native grasses</b> |                                      |

#### Endangered Ecological Communities under the TSC Act

The Atlas of NSW Wildlife data identified that four ecological communities listed as endangered under the TSC Act may potentially occur within the proposal site. Based on desktop and field investigations, only one of these communities, White Box-Yellow Box-Blakely's Red Gum Woodland, was found within the proposal site.

Eight sites along the proposal site meet the criteria for White Box- Yellow Box -Blakely's Gum Woodland. The overstorey species present at the eight sites comprise either one or a combination of the required tree species. All of the eight sites contain at least one native species in the understory, and all sites are predominantly grassy.

<sup>3</sup> For the purposes of this assessment immature refers to over storey species with an approximate trunk diameter at breast height of less than 10 cm

The total area of the endangered ecological community within the disturbance area is 2.46 ha, requiring the removal of approximately 296 mature and immature trees (see Table 10).

**Table 10 – Location and Characteristics of Threatened Ecological Community White Box-Yellow Box-Blakely's Red Gum Woodland Under the TSC Act Within the proposal site**

| KP Start     | KP End | Length (km)  | Clearing Area Required (ha) | Overstorey to be Removed                                                                           | Understorey to be Removed            |
|--------------|--------|--------------|-----------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------|
| 20.4         | 20.4   | 0.025        | 0.07                        | 4 mature trees                                                                                     | Pasture grasses                      |
| 33.2         | 33.3   | 0.1          | 0.2                         | 20 immature trees                                                                                  | Native grasses and non-native plants |
| 34           | 34.1   | 0.1          | 0.2                         | 5 immature trees                                                                                   | Native grasses and non-native plants |
| 53.1         | 53.3   | 0.2          | 0.6                         | 28 mature and 7 immature trees                                                                     | Native grasses and non-native plants |
| 55.2         | 55.7   | 0.5          | 1                           | 6 mature trees and 109 immature trees                                                              | Native grasses                       |
| 57.5         |        | 0.02         | 0.06                        | 5 mature trees and 62 immature trees                                                               | Native grasses                       |
| 58.7         |        | 0.01         | 0.03                        | 7 mature trees                                                                                     | Native grasses and non-native plants |
| 65.55        | 65.7   | 0.15         | 0.3                         | 6 mature trees and 37 immature trees                                                               | Native grasses                       |
| <b>Total</b> |        | <b>1.105</b> | <b>2.46</b>                 | <b>White Box Yellow Box Blakely's Red Gum Woodland under the TSC Act within the proposal site.</b> |                                      |

### Endangered Populations

The Atlas of NSW Wildlife data did not identify any endangered flora populations listed under the TSC Act that may potentially occur within the proposal site and adjacent regions.

### Threatened Flora

Review of the Atlas of NSW Wildlife and EPBC Act Protected Matters database for areas within the study area recorded 14 threatened plant species listed under the TSC Act or EPBC Act that have been recorded as occurring or potentially occurring within the wider study area. Ten species are listed under the EPBC Act (six endangered and four vulnerable) and 13 species are listed under the TSC Act (eight endangered and five vulnerable). None of the above species were observed during the field assessment.

TSC Act Section 5a assessments (seven-part tests) and EPBC Act assessments of significant impact for species were conducted for species determined to have a chance (possible or likely) of occurring within the proposal.

### Noxious and Environmental Weeds

Five weed species that are declared under the *Noxious Weeds Act 1993* (NW Act) were recorded within or immediately adjacent to the proposal site. These noxious weed species combined with other weeds were identified during field survey to occur over 16.75 km (23.9%) of the pipeline.

No weed species recognised as Weeds of National Significance (WONS) by the Commonwealth Government were recorded in the study area during the field survey.

#### 8.2.4 Fauna

Fauna species recorded during the field survey include 23 bird, three terrestrial and arboreal mammal, two reptile, two amphibian and five microbat species.

### Threatened Fauna

The field investigations did not identify any individuals or populations of threatened fauna in the study area.

However, desktop searches identified a total of 44 species threatened under the EPBC Act and / or the TSC Act have been recorded or could potentially occur within the proposed proposal site. From an assessment of species distribution and suitable habitat within the proposal site, 29 of these threatened species identified were deemed to have potential habitat within the proposal site, and five of these species were identified as likely to occur within the proposal site.

These species likely to occur are the Regent Honeyeater (*Anthochaera phrygia*), Bush Stone-curlew (*Burhinus grallarius*), Little Lorikeet (*Glossopsitta pusilla*), Painted Honeyeater (*Grantiella picta*) and Superb Parrot (*Polytelis swainsonii*).

### **Habitat**

Potential habitat for threatened fauna within the proposal site is generally characterised by isolated fragments of vegetation and habitat features within a landscape that has been subject to varying degrees of historical disturbance for the purposes of agriculture, grazing and other land uses.

The majority of the proposal site is cleared, with a dense ground cover of exotic pasture grasses. Most cleared areas have very few trees, but regrowth of native tree species was observed in some areas. Potential habitat in the form of remnant vegetation, rocky outcrops, riparian areas, grassland and pasture would potentially be impacted by the proposal.

One of the major habitat features which would be impacted by the proposal is the existence of 36 mature hollow-bearing trees within the proposal site which were identified during field survey. These hollow-bearing trees are located within remnant vegetation within the proposal site and are likely to represent important roosting, breeding and nesting resources for a number of fauna species, including hollow-dependent birds, arboreal mammals and reptiles. Although these impacts would occur in discrete areas of vegetation, it is important to note that these impacts would occur over the 70 km length of the proposal.

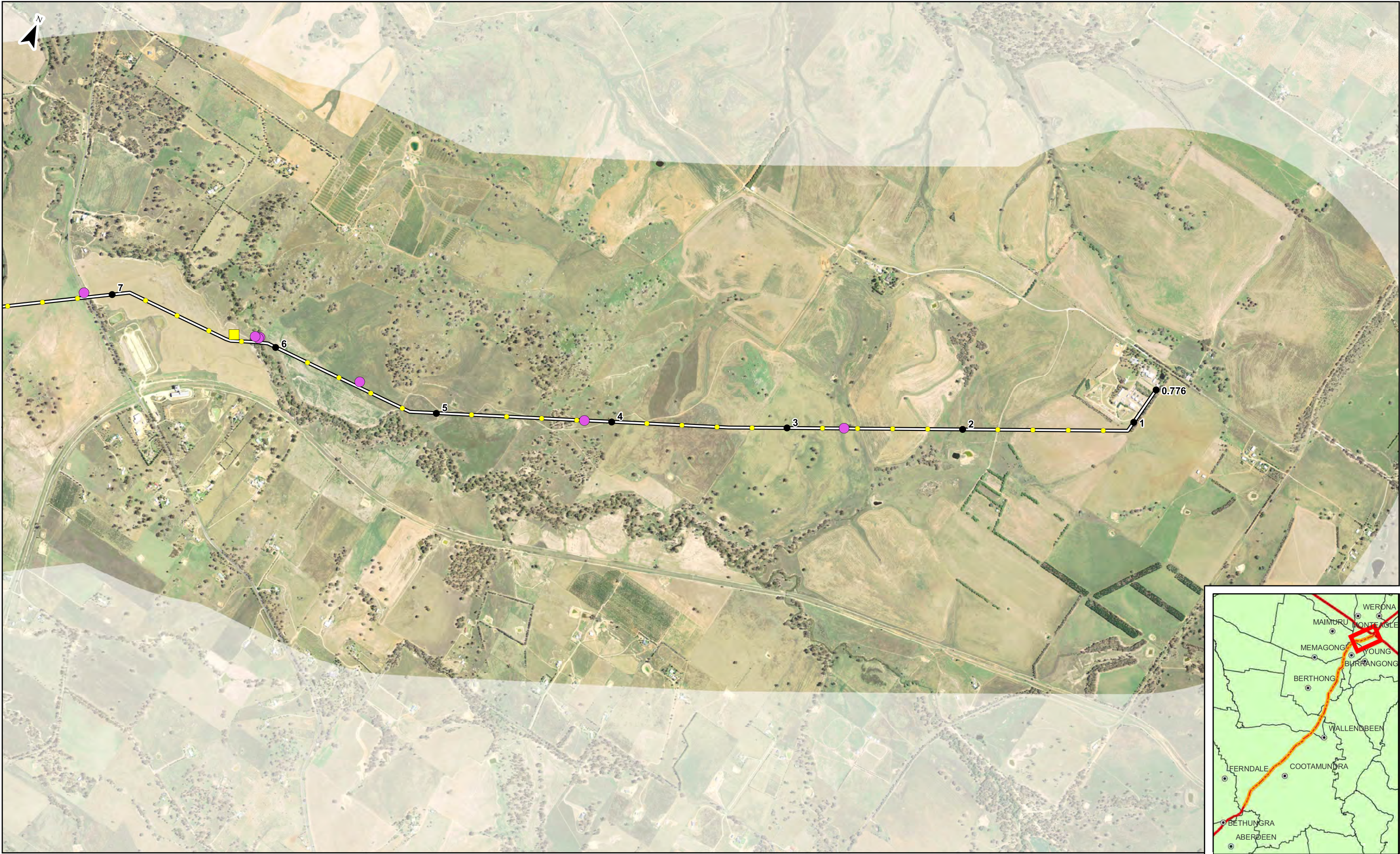
### **Endangered Populations of Fauna**

The Atlas of NSW Wildlife data did not identify any endangered fauna populations listed under the TSC Act that may potentially occur within the proposal site. One population was identified within an adjacent region, however the subsequent seven-part test conducted showed that the proposal is unlikely to have adverse effects on this population.

### **Migratory fauna listed under the EPBC Act**

A total of ten bird species listed as Migratory were identified as potentially occurring within the proposal site from the EPBC Protected Matters Search Tool however none of these species were observed during the field surveys. Potential impacts on EPBC-listed Migratory fauna species were assessed according to the EPBC Act Policy Statement *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance* (EPBC Act 1999), and showed that the proposal is unlikely to have adverse effects on these species.

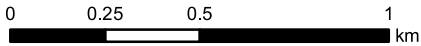




- Gas Pipeline Section 2
- 1km KP marker
- 200m marker
- Hollow-bearing tree
- Other habitat features
- TSC Act Box-Gum Woodland
- TSC Act and EPBC Act Box-Gum Woodland

YOUNG - WAGGA WAGGA PIPELINE SECTION 2  
Habitat and Threatened Ecological Communities Map

Source: LPMA (2010), StreetPro (2009)



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Fig. 10A

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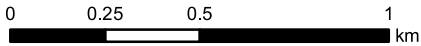




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Habitat and Threatened Ecological Communities Map

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Fig. 10B

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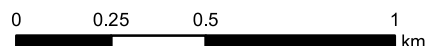




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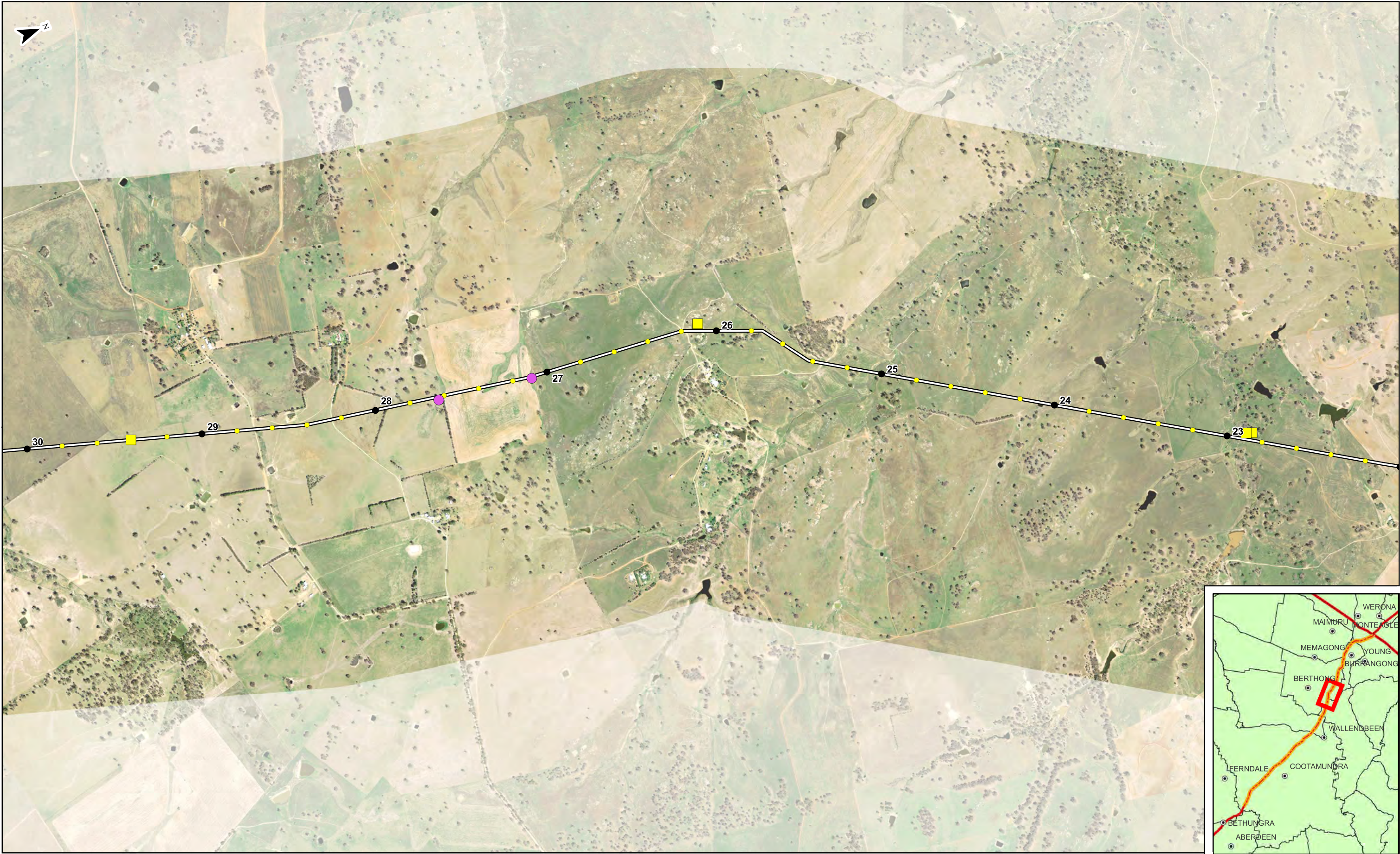
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Habitat and Threatened Ecological Communities Map

Source: LPMA (2010), StreetPro (2009)



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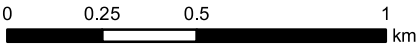




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**YOUNG - WAGGA WAGGA PIPELINE SECTION 2**  
**Habitat and Threatened Ecological Communities Map**

Source: LPMA (2010), StreetPro (2009)



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Fig. **10D**

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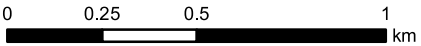




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YOUNG - WAGGA WAGGA PIPELINE SECTION 2  
Habitat and Threatened Ecological Communities Map

Source: LPMA (2010), StreetPro (2009)



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Fig. 10E

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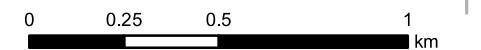




- Gas Pipeline Section 2
- 1km KP marker
- Other habitat features
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- TSC Act Box-Gum Woodland
- TSC Act and EPBC Act Box-Gum Woodland
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**YOUNG - WAGGA WAGGA PIPELINE SECTION 2**  
**Habitat and Threatened Ecological Communities Map**

Source: LPMA (2010), StreetPro (2009)



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Fig. **10F**

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