

ROADSIDE VEGETATION SURVEY FOR THE REGIONAL COUNCIL OF GOYDER

Department for Environment and Heritage
Survey No. 73





2/48 Barwell Ave
Kurralta Park
SA 5037

Ph: 7127 5607
info@ebservices.com.au
www.ebservices.com.au

ROADSIDE VEGETATION SURVEY FOR THE REGIONAL COUNCIL OF GOYDER

Department for Environment and Heritage Survey No. 73

Date: 21/08/2009

Version: 1.1

| Document Control | | | | | |
|------------------|-------------|---------------|-------------|---------------|---------------|
| Revision No. | Date issued | Author | Approved by | Date approved | Revision type |
| 1.1 | 21/08/09 | Sally O'Neill | Deb Frazer | 21/08/09 | Final draft |

| Distribution of copies | | | | |
|------------------------|------------|----------|------------|-----------------|
| Revision No. | Issue date | Quantity | Media | Issued to |
| 1.1 | 21/08/09 | 1 | Electronic | Andrew Nicholls |

COPYRIGHT: Use or copying of this document in whole or in part (including photographs) without the written permission of Environmental and Biodiversity Services constitutes an infringement of copyright.

LIMITATION: This report has been prepared on behalf of and for the exclusive use of Environmental and Biodiversity Services Client, and is subject to and issued in connection with the provisions of the agreement between Environmental and Biodiversity Services and its Client. Environmental and Biodiversity Services accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.

Cover Photos: (clockwise) mixed Mallee Eucalypts, Ketchowla Road; *Austrostipa* sp. Grassland along Leighton Road, *Eucalyptus leucoxylon*; Hallelujah Hills Road.

Acknowledgements

We would like to acknowledge and thank the following people for their assistance during this vegetation survey:

- Trevor Wood and Andy Nicholls, Regional Council of Goyder
- Martin O'Leary, State Herbarium (Plant Biodiversity Centre) for advice on key characteristics to identify the Eucalypt species of the region
- Peter Lang, Department for Environment and Heritage, Biological Survey and Monitoring, for clarifying threatened species identification
- Kate Graham and Sue Kenny, Department for Environment and Heritage, Biological Survey and Monitoring, for assistance with data entry and validation
- Felicity Smith, Kris Trengove, and David Thompson, Department for Environment and Heritage, Spatial Information Services for completing the mapping component of this survey
- Tony Calebrese, Department for Environment and Heritage, Spatial Information Services, for assisting with uploading the data.

The field survey was conducted by EBS staff Deb Frazer and Sally O'Neill. Tonia Brown assisted with defining the vegetation associations.

Table of Contents

| | | |
|----------|--|----------|
| 1 | Introduction | 1 |
| 1.1 | Survey area | 1 |
| 2 | Survey Methodology..... | 5 |
| 2.1 | Survey preparation | 5 |
| 2.1.1 | Plant identification..... | 5 |
| 2.1.2 | Literature review | 6 |
| 3 | Field log | 7 |
| 3.1 | Survey statistics..... | 7 |
| 4 | Description of Roads Surveyed | 9 |
| Road 1: | Frankton Road | 10 |
| Road 2: | Goyder Road | 12 |
| Road 3: | Leighton Road | 14 |
| Road 4: | Iron Mile Road | 16 |
| Road 5: | Gum Creek Road..... | 18 |
| Road 6: | North Booborowie Road..... | 20 |
| Road 7: | Booborowie Road | 22 |
| Road 8: | Belalie Road | 24 |
| Road 9: | Wonna Road..... | 26 |
| Road 10: | Hiles Lagoon Road | 28 |
| Road 11: | Whyte Road | 29 |
| Road 12: | Willalo Road..... | 31 |
| Road 13: | Franklyn Road | 33 |
| Road 14: | Pandappa Road..... | 35 |
| Road 15: | Ketchowla Road..... | 37 |
| Road 16: | Dares Hill Summit Road..... | 39 |
| Road 17: | Mount Bryan East Road..... | 41 |
| Road 18: | Dare Road | 43 |
| Road 19: | Cattle Station Road..... | 45 |
| Road 20: | Petheron Road..... | 47 |
| Road 21: | Andrews Road | 49 |
| Road 22: | Camels Hump Road..... | 51 |
| Road 23: | Fourth Street..... | 53 |
| Road 24: | Booborowie Road (2) | 54 |
| Road 25: | Road 137 | 56 |
| Road 26: | The Gap Road | 58 |
| Road 27: | Eastern Road..... | 60 |
| Road 28: | Caroona Road | 62 |
| Road 29: | Mongolata Road..... | 63 |
| Road 30: | Dust Hole Creek Road | 64 |
| Road 31: | un-named road | 66 |
| Road 32: | White Field Road | 67 |
| Road 33: | Porter Lagoon Road..... | 68 |
| Road 34: | Burra Road (2) | 70 |
| Road 35: | Hallelujah Hills Road..... | 71 |
| Road 36: | Bower Boundary Road..... | 73 |
| Road 37: | Webb Gap Road | 75 |
| Road 38: | Black Springs Road | 76 |
| Road 39: | Bower Road | 78 |

| | | |
|-----------------|---|------------|
| Road 40: | Emmaus Road | 80 |
| Road 41: | Australia Plains Road..... | 82 |
| Road 42: | Anlaby Road | 84 |
| Road 43: | Ngapala Road (1)..... | 86 |
| Road 44: | Ngapala Road (2)..... | 88 |
| Road 45: | Burra Road (2) | 89 |
| Road 46: | Powerline Road..... | 91 |
| Road 47: | Scenic Road | 93 |
| Road 48: | Truro Road..... | 95 |
| Road 49: | Foot Road (1)..... | 97 |
| Road 50: | Foot Road (2)..... | 99 |
| Road 51: | Neales Road | 100 |
| Road 52: | Plains Road | 102 |
| Road 53: | Schulz Road | 104 |
| 5 | Conservation Priority Rating | 105 |
| 6 | Overview Condition | 110 |
| 7 | Overall Significance..... | 111 |
| 8 | Vegetation Association Descriptions | 114 |
| Association 1: | <i>Eucalyptus leucoxyton</i> +/- <i>Eucalyptus odorata</i> Woodland - Forest | 116 |
| Association 2: | <i>Hakea leucoptera</i> Tall Shrubland..... | 117 |
| Association 3: | <i>Senna artemisioides</i> ssp. <i>X coriacea</i> , <i>Rhagodia parabolica</i> , <i>Acacia ligulata</i> Tall Shrubland | 118 |
| Association 4: | <i>Senna artemisioides</i> ssp. <i>X filifolia</i> Tall Shrubland..... | 119 |
| Association 5: | <i>Eucalyptus leucoxyton</i> +/- <i>Acacia pycnantha</i> Woodland..... | 120 |
| Association 6: | <i>Eucalyptus</i> species Woodland | 121 |
| Association 6: | <i>Eucalyptus</i> species Woodland | 121 |
| Association 7: | <i>Eucalyptus porosa</i> Low Woodland..... | 122 |
| Association 8: | <i>Myoporum platycarpum</i> Very Open Low Woodland..... | 123 |
| Association 9: | <i>Callitris gracilis</i> Low Woodland | 124 |
| Association 10: | <i>Casuarina pauper</i> Low Woodland..... | 125 |
| Association 11: | <i>Eucalyptus oleosa</i> , +/- <i>Eucalyptus brachycalyx</i> , +/- <i>Eucalyptus gracilis</i> , +/- <i>Eucalyptus odorata</i> , +/- <i>Eucalyptus socialis</i> Mallee | 126 |
| Association 12: | <i>Eucalyptus porosa</i> +/- <i>Eucalyptus dumosa</i> , +/- <i>Eucalyptus odorata</i> , +/- <i>Eucalyptus oleosa</i> , +/- <i>Acacia pycnantha</i> , +/- <i>Alectryon oleifolius</i> , +/- <i>Callitris gracilis</i> Mallee | 127 |
| Association 13: | <i>Eucalyptus phenax</i> +/- <i>Eucalyptus oleosa</i> , +/- <i>Eucalyptus porosa</i> , +/- <i>Eucalyptus socialis</i> Low Woodland | 128 |
| Association 14: | <i>Eucalyptus socialis</i> , +/- <i>Eucalyptus brachycalyx</i> , +/- <i>Eucalyptus gracilis</i> , +/- <i>Eucalyptus oleosa</i> , +/- <i>Eucalyptus porosa</i> Open Mallee..... | 129 |
| Association 15: | <i>Acacia brachybotrya</i> , +/- <i>Acacia calamifolia</i> , +/- <i>Maireana brevifolia</i> Shrubland | 130 |
| Association 16: | <i>Acacia glandulicarpa</i> Shrubland | 131 |
| Association 17: | <i>Acacia ligulata</i> , +/- <i>Senna artemisioides</i> ssp. <i>X coriacea</i> , +/- <i>Senna artemisioides</i> ssp. <i>filifolia</i> Shrubland | 132 |
| Association 18: | <i>Acacia nyssophylla</i> , +/- <i>Acacia victoriae</i> , +/- <i>Maireana brevifolia</i> , +/- <i>Senna artemisioides</i> ssp. <i>filifolia</i> Tall Shrubland..... | 133 |
| Association 19: | <i>Acacia pycnantha</i> +/- <i>Allocasuarina verticillata</i> Low Woodland | 134 |
| Association 20: | <i>Acacia victoriae</i> Tall Shrubland..... | 135 |
| Association 21: | <i>Atriplex stipitata</i> , +/- <i>Atriplex vesicaria</i> , +/- <i>Maireana</i> sp., +/- <i>Nitraria</i> sp., +/- <i>Zygophyllum</i> sp. Shrubland | 136 |
| Association 22: | <i>Dissocarpus paradoxus</i> Shrubland | 137 |
| Association 23: | <i>Maireana aphylla</i> +/- <i>Atriplex stipitata</i> Low Shrubland | 138 |
| Association 24: | <i>Maireana brevifolia</i> , +/- <i>Senna</i> sp., +/- <i>Acacia</i> sp., +/- <i>Atriplex</i> sp., +/- <i>Maireana</i> sp., +/- <i>Hakea rostrata</i> Shrubland | 139 |
| Association 25: | <i>Senna artemisioides</i> ssp. <i>X coriacea</i> Shrubland..... | 140 |

| | | |
|-----------------|--|------------|
| Association 26: | <i>Maireana coronata</i> Low Shrubland | 141 |
| Association 27: | <i>Maireana sedifolia</i> +/- <i>Acacia nyssophylla</i> +/- <i>Eremophila scoparia</i> +/- <i>Senna</i> sp. +/- <i>Maireana</i> sp. +/- <i>Nitraria</i> sp. Open Shrubland | 142 |
| Association 28: | <i>Maireana</i> sp. Low Shrubland | 143 |
| Association 29: | <i>Rhagodia parabolica</i> +/- <i>Acacia ligulata</i> Shrubland | 144 |
| Association 30: | <i>Dodonaea lobulata</i> +/- <i>Rhagodia parabolica</i> , <i>Senna artemisioides</i> ssp. X <i>coriacea</i> Shrubland | 145 |
| Association 31: | <i>Dodonaea viscosa</i> ssp. <i>angustissima</i> , +/- <i>Senna artemisioides</i> ssp. X <i>coriacea</i> , +/- <i>Senna artemisioides</i> ssp. <i>filifolia</i> Shrubland | 146 |
| Association 32: | <i>Eremophila longifolia</i> +/- <i>Hakea rostrata</i> +/- <i>Pittosporum angustifolium</i> Shrubland | 147 |
| Association 33: | <i>Eremophila scoparia</i> Shrubland | 148 |
| Association 34: | <i>Hakea leucoptera</i> +/- <i>Dodonaea lobulata</i> , +/- <i>Dodonaea viscosa</i> ssp. <i>angustissima</i> , +/- <i>Rhagodia parabolica</i> Shrubland..... | 149 |
| Association 35: | <i>Hakea rostrata</i> Shrubland | 150 |
| Association 36: | <i>Muehlenbeckia</i> sp. Shrubland..... | 151 |
| Association 37: | <i>Myoporum platycarpum</i> Shrubland | 152 |
| Association 38: | <i>Senna artemisioides</i> ssp. <i>filifolia</i> +/- <i>Acacia calamifolia</i> , +/- <i>Dodonaea</i> <i>viscosa</i> ssp. <i>angustissima</i> , +/- <i>Senna artemisioides</i> ssp. X <i>coriacea</i> Shrubland | 153 |
| Association 39: | <i>Zygophyllum aurantiacum</i> Low Shrubland | 154 |
| Association 40: | <i>Salsola tragus</i> +/- <i>Maireana brevifolia</i> Herbland | 155 |
| Association 41: | <i>Convolvulus</i> sp., <i>Maireana brevifolia</i> Low Shrubland..... | 156 |
| Association 42: | <i>Avena barbata</i> , +/- <i>Austrostipa</i> sp., +/- <i>Austrodanthonia</i> sp., +/- <i>Enneapogon</i> sp., +/- <i>Atriplex</i> sp. Tussock Grassland | 157 |
| Association 43: | <i>Austrostipa</i> sp., +/- <i>Austrodanthonia</i> sp., +/- <i>Enneapogon</i> sp., +/- <i>Cymbopogon</i> sp., +/- <i>Lomandra</i> sp. Grassland | 159 |
| Association 44: | <i>Cymbopogon ambiguus</i> Tussock Grassland | 161 |
| Association 45: | Exotic Grassland - Herbland | 162 |
| Association 46: | <i>Rosa canina</i> Shrubland..... | 163 |
| Association 47: | Native Plantation..... | 164 |
| Association 48: | Mixed Native/Exotic Plantation | 165 |
| Association 49: | Exotic Plantation | 166 |
| Association 50: | Bare Ground | 167 |
| Association 51: | Built Up | 168 |
| 9 | Proposed Potential Roadside Management Sites | 169 |
| 9.1 | Roadside Significant Site (RSS)..... | 169 |
| 9.2 | Reference site (REF)..... | 169 |
| 9.3 | Revegetation site (REV)..... | 169 |
| 9.4 | Requirements for Roadside Marker System (RSS sites)..... | 169 |
| 10 | Native Plant Species of Conservation Significance..... | 174 |
| 11 | Management Recommendations..... | 175 |
| 11.1 | Category A..... | 175 |
| 11.1.1 | Road Works | 175 |
| 11.1.2 | Weed Control..... | 175 |
| 11.1.3 | Revegetation..... | 175 |
| 11.1.4 | RSS Markers | 176 |
| 11.2 | Category B..... | 177 |
| 11.2.1 | Road works..... | 177 |

| | | |
|-----------|--|------------|
| 11.2.2 | Weed control..... | 177 |
| 11.2.3 | Revegetation..... | 177 |
| 11.2.4 | RSS markers | 177 |
| 11.3 | Category C..... | 179 |
| 11.3.1 | Road works | 179 |
| 11.3.2 | Weed control..... | 179 |
| 11.3.3 | Revegetation..... | 179 |
| 11.3.4 | RSS markers | 179 |
| 11.4 | Category D..... | 181 |
| 11.4.1 | Road works | 181 |
| 11.4.2 | Weed control..... | 181 |
| 11.4.3 | Revegetation..... | 181 |
| 11.4.4 | RSS markers | 181 |
| 11.5 | Category E..... | 183 |
| 11.5.1 | Road works | 183 |
| 11.5.2 | Weed control..... | 183 |
| 11.5.3 | Revegetation..... | 183 |
| 11.5.4 | RSS markers | 183 |
| 12 | General Management Issues | 185 |
| 12.1 | Exotic species..... | 185 |
| 12.1.1 | Declared weeds | 185 |
| 12.1.2 | Environmental weeds | 186 |
| 12.2 | Revegetation..... | 188 |
| 12.3 | Bushcare..... | 189 |
| 12.4 | Feral animals | 190 |
| 12.5 | Vegetation clearance..... | 190 |
| 13 | References..... | 191 |
| 14 | Further Reading | 192 |

Tables

| | | |
|-----------|---|-----|
| Table 1. | Summary of the five condition ratings identified during the survey..... | ii |
| Table 2. | Road sections survey order..... | 1 |
| Table 3. | Summary of field survey logistics..... | 7 |
| Table 4. | Conservation Priority Ratings for vegetation associations..... | 105 |
| Table 5. | Vegetation associations identified during the survey, and allocated conservation priority rating..... | 107 |
| Table 6. | Overview condition rating..... | 110 |
| Table 7. | Matrix of overall significance ratings..... | 111 |
| Table 8. | Categories of overall significance..... | 111 |
| Table 9. | Proposed Potential Roadside Significant Sites (RSS)..... | 172 |
| Table 10. | Proposed Potential Reference Sites (REF)..... | 173 |
| Table 11. | Proposed Potential Revegetation Sites (REV)..... | 173 |
| Table 12. | Conservation significant plant species recorded during the survey..... | 174 |
| Table 13. | Declared weeds recorded during the roadside vegetation survey..... | 186 |
| Table 14. | High priority environmental weeds recorded during this survey..... | 186 |
| Table 15. | Lower priority environmental weeds recorded during this survey..... | 187 |

Figures

| | | |
|------------|--|-----|
| Figure 1. | Location of the surveyed road sections..... | 3 |
| Figure 2. | Width of roads surveyed..... | 4 |
| Figure 3. | Overview condition..... | 112 |
| Figure 4. | Overall significance..... | 113 |
| Figure 5. | Vegetation associations..... | 115 |
| Figure 6. | <i>Eucalyptus leucoxylon</i> +/- <i>Eucalyptus odorata</i> Low Woodland along Cattle Station Road..... | 116 |
| Figure 7. | <i>Hakea leucoptera</i> Tall Shrubland along Dares Hill Road..... | 117 |
| Figure 8. | <i>Senna artemisioides</i> ssp. <i>X coriacea</i> , <i>Rhagodia parabolica</i> , <i>Acacia ligulata</i> Tall Shrubland..... | 118 |
| Figure 9. | <i>Eucalyptus leucoxylon</i> +/- <i>Acacia pycnantha</i> Woodland along Cattle Station Road..... | 120 |
| Figure 10. | <i>Eucalyptus porosa</i> Low Woodland along Frankton Road..... | 122 |
| Figure 11. | <i>Callitris gracilis</i> Low Woodland along Australia Plains Road..... | 124 |
| Figure 12. | <i>Eucalyptus oleosa</i> , +/- <i>Eucalyptus brachycalyx</i> , +/- <i>Eucalyptus gracilis</i> , +/- <i>Eucalyptus odorata</i> , +/- <i>Eucalyptus socialis</i> Mallee along Powerline Road..... | 126 |
| Figure 13. | <i>Eucalyptus porosa</i> +/- <i>Eucalyptus dumosa</i> , +/- <i>Eucalyptus odorata</i> , +/- <i>Eucalyptus oleosa</i> , +/- <i>Acacia pycnantha</i> , +/- <i>Alectryon oleifolius</i> , +/- <i>Callitris gracilis</i> Mallee along Frankton Road..... | 127 |
| Figure 14. | <i>Eucalyptus socialis</i> , +/- <i>Eucalyptus brachycalyx</i> , +/- <i>Eucalyptus gracilis</i> , +/- <i>Eucalyptus oleosa</i> , +/- <i>Eucalyptus porosa</i> Open Mallee along Franklyn Road..... | 129 |
| Figure 15. | <i>Acacia brachybotrya</i> , +/- <i>Acacia calamifolia</i> , +/- <i>Maireana brevifolia</i> Shrubland along Hallelujah Hills Road..... | 130 |
| Figure 16. | <i>Acacia glandulicarpa</i> Shrubland along Road 137..... | 131 |
| Figure 17. | <i>Acacia ligulata</i> , +/- <i>Senna artemisioides</i> ssp. <i>X coriacea</i> , +/- <i>Senna artemisioides</i> ssp. <i>filifolia</i> Shrubland along Plains Road..... | 132 |
| Figure 18. | <i>Acacia pycnantha</i> +/- <i>Allocasuarina verticillata</i> Low Woodland along Cup Gum Road..... | 134 |
| Figure 19. | <i>Acacia victoriae</i> Tall Shrubland along Pandappa Road..... | 135 |
| Figure 20. | <i>Atriplex stipitata</i> , +/- <i>Atriplex vesicaria</i> , +/- <i>Maireana</i> sp., +/- <i>Nitraria</i> sp., +/- <i>Zygophyllum</i> sp. Shrubland along Ketchowla Road..... | 136 |
| Figure 21. | <i>Dissocarpus paradoxus</i> Shrubland along Pandappa Road..... | 137 |
| Figure 22. | <i>Maireana sedifolia</i> +/- <i>Acacia nyssophylla</i> +/- <i>Eremophila scoparia</i> +/- <i>Senna</i> sp. +/- <i>Maireana</i> sp. +/- <i>Nitraria</i> sp. Open Shrubland along Pandappa Road..... | 142 |
| Figure 23. | <i>Dodonaea lobulata</i> +/- <i>Rhagodia parabolica</i> , <i>Senna artemisioides</i> ssp. <i>X coriacea</i> Shrubland along Dares Hill Road..... | 145 |
| Figure 24. | <i>Dodonaea viscosa</i> ssp. <i>angustissima</i> +/- <i>Senna artemisioides</i> ssp. <i>X coriacea</i> +/- <i>Senna artemisioides</i> ssp. <i>filifolia</i> Tall Shrubland along Pandappa Road..... | 146 |
| Figure 25. | <i>Eremophila longifolia</i> +/- <i>Hakea rostrata</i> +/- <i>Pittosporum angustifolium</i> Shrubland..... | 147 |
| Figure 26. | <i>Hakea leucoptera</i> +/- <i>Dodonaea lobulata</i> , +/- <i>Dodonaea viscosa</i> ssp. <i>angustissima</i> , +/- <i>Rhagodia parabolica</i> Shrubland along Dares Hill Summit Road..... | 149 |
| Figure 27. | <i>Muehlenbeckia</i> sp. Shrubland along Bower Road..... | 151 |

Figure 28. *Senna artemisioides* ssp. *filifolia* +/- *Acacia calamifolia*, +/- *Dodonaea viscosa* ssp. *angustissima*, +/- *Senna artemisioides* ssp. *X coriacea* Shrubland along Pandappa Road. 153

Figure 29. *Zygophyllum aurantiacum* Low Shrubland along Wonna Road. 154

Figure 30. *Salsola tragus* +/- *Maireana brevifolia* Herbland along Belalie Road..... 155

Figure 31. *Avena barbata*, +/- *Austrostipa* sp., +/- *Austrodanthonia* sp., +/- *Enneapogon* sp., +/- *Atriplex* sp. Tussock Grassland along Leighton Road. 158

Figure 32. *Austrostipa* sp., +/- *Austrodanthonia* sp., +/- *Enneapogon* sp., +/- *Cymbopogon* sp., +/- *Lomandra* sp. Grassland along Iron Mile Road. 160

Figure 33. Example of Exotic Grassland – Herbland, *Centaurea calcitrapa* (Star Thistle) along Ngalpla Road. 162

Figure 34. *Rosa canina* Shrubland along Ngapala Road. 163

Figure 35. Native Plantation (*Acacia paradoxa*; Kangaroo Thorn) along Petherton Road. 164

Figure 36. Bare Ground along Leighton Road..... 167

Figure 37. Proposed Potential Sites..... 171

Figure 38. Example of Category A type vegetation. 176

Figure 39. Example photo of Category B roadside vegetation. 178

Figure 40. Example photo of Category C roadside vegetation. 180

Figure 41. Example of Category D roadside vegetation. 182

Figure 42. Example of Category E roadside vegetation. 184

Executive Summary

This roadside vegetation survey was commissioned and funded by the Regional Council of Goyder, the Native Vegetation Council, the Department of Water, Land and Biodiversity Conservation and the SA Murray – Darling Basin Natural Resources Management Board. The survey was conducted April - May 2008. This report aims to give the Regional Council of Goyder and other user's information on the conservation value of roadside vegetation and the location of roadside segments that are of particularly high importance.

In total, approximately 602.96 km of roadside vegetation on both the left side and right side was surveyed, for a total of 1205.92 km within the Regional Council of Goyder. Within the surveyed roadsides, 51 vegetation associations were recorded, 40 of which were dominated by native species, six dominated by exotic species and three consisting of planted vegetation, plus two non-vegetated associations. The most common vegetation associations recorded were:

- Association 42: *Avena barbata*, +/- *Austrostipa* sp., +/- *Austrodanthonia* sp., +/- *Enneapogon* sp., +/- *Atriplex* sp. Tussock Grassland
- Association 21: *Atriplex stipitata*, +/- *Atriplex vesicaria*, +/- *Maireana* sp., +/- *Nitraria* sp., +/- *Zygophyllum* sp. Shrubland
- Association 11: *Eucalyptus oleosa*, +/- *Eucalyptus brachycalyx*, +/- *Eucalyptus gracilis*, +/- *Eucalyptus odorata*, +/- *Eucalyptus socialis* Mallee.

Of the 51 vegetation associations, five have been allocated the highest conservation priority (rating 1), with a further 15 also considered of high importance (rating 2), and an additional 23 also of significance (rating 3). The priority 1 vegetation associations are:

- *Eucalyptus porosa* Low Woodland
- *Eucalyptus porosa*, +/- *E. Dumosa*, +/- *E. Odorata*, +/- *E. oleosa*, +/- *Acacia pycnantha*, +/- *Alectryon oleifolius*, +/- *Callitris gracilis* Mallee
- *Acacia glandulicarpa* Shrubland
- *Austrostipa* sp., +/- *Austrodanthonia* sp., +/- *Enneapogon* sp. +/- *Cymbopogon* sp., +/- *Lomandra* sp. Grassland
- *Cymbopogon ambiguus* Tussock Grassland.

One Nationally threatened plant species, *Acacia glandulicarpa* (Hairy-pod Wattle) was recorded during this survey, with a further two species being classified as Rare in South Australia, and an additional three classified as Rare in the Mid North (Northern Lofty, NL; or Murray, MU, Botanical regions). The threatened flora species that were recorded are:

- *Acacia glandulicarpa* (Hairy-pod Wattle) Aus VU; SA E; NL V; MU V
- *Maireana rohrlachii* (Rohrlach's Bluebush) SA R; NL V; MU R
- *Maireana aphylla* (Cotton-bush) NL V; MU R
- *Cymbopogon ambiguus* (Lemon-grass) MU R
- *Acacia victoriae* (Elegant Wattle) MU R

- *Myoporum parvifolium* (Creeping Boobialla) SA R.

The Overview Condition of the vegetation recorded during this survey varied considerably, however vegetation in the worst category, Very Poor, covered 557 km or 45% of the roads surveyed. Vegetation in the best category, Excellent, covered 0.68 km or 0.05% of the roads surveyed. The following table represents the distance and percentage for each overview condition category recorded.

Table 1. Summary of the five condition ratings identified during the survey.

| Overview condition | Condition terminology | Distance (km) | Percentage (%) |
|--------------------|-----------------------|---------------|----------------|
| 1 | Excellent | 0.68 | 0.05 |
| 2 | Good | 30.29 | 2.44 |
| 3 | Moderate | 272 | 21.92 |
| 4 | Poor | 362.37 | 29.20 |
| 5 | Very Poor | 557.3 | 44.90 |

Roadside Significant Sites includes sites with high quality native vegetation that have high ecological and conservation value. For the purpose of this survey, any sites that have an overview condition rating of 1 or 2 have been designated roadside significant sites. Some additional sites that had an overview condition rating of 3 also have been designated as roadside significant sites within this survey area, due to the paucity of higher quality sites. During the survey, 31 potential roadside significant sites (RSS) (see Table 9 for full details) were identified, and it is recommended that the Regional Council of Goyder implement this system as soon as possible.

1 Introduction

The purpose of a Roadside Vegetation Survey is to document the vegetation associations, both native and exotic, that remain on roadside verges, and to recommend appropriate works activities and management strategies within these areas. This survey has been commissioned and funded through the Regional Council of Goyder, the Native Vegetation Council, the Department of Water, Land and Biodiversity Conservation and the SA Murray – Darling Basin Natural Resources Management Board.

Roadside vegetation is often the only significant remnant of native vegetation remaining in many areas of South Australia. It has often been cleared or severely degraded through weed invasion, grazing or other disturbances. Those roadside areas that do still contain remnants of native vegetation are therefore high conservation priorities, and ultimately have important biodiversity and habitat values that need to be managed and preserved. This report aims to give the Regional Council of Goyder the information they need on the conservation value of the roadside vegetation and the location of roadside segments that are of particularly high importance.

This survey covers a selection of council roads that occur within the Mid North region of South Australia (Map 1). This survey is Department for Environment and Heritage Survey Number 73. Road names are consistent with the *CFS Map Book Yorke Peninsula and Mid North* (2003).

1.1 Survey area

A total of 53 road sections were surveyed, including two different sections of Ngapla Road and Foote Road. The order in which the road sections were surveyed is outlined in Table 2, and locations of the surveyed roads mapped in Figure 1, Figure 2 shows the widths of the surveyed roads.

Table 2. Road sections survey order.

| Road order | Road name | Section |
|------------|------------------------|--|
| 1 | Frankton Road | Between North Hills Road and Foote Road |
| 2 | Goyder Road | Between Foote Road and unidentified track |
| 3 | Leighton Road | Between Burra Highway and Road 137 |
| 4 | Iron Mile Road | Between Leighton Road and Gum Creek Road |
| 5 | Gum Creek Road | Between Barrier Highway and Road 137 |
| 6 | North Booborowie Road | Between North Terrace and the council boundary |
| 7 | Booborowie Road (1) | Between Whyte Road and Belalie Road |
| 8 | Belalie Road | Between Booborowie Road and Main Street |
| 9 | Wonna Road | Between Barrier Highway and Hiles Lagoon Road |
| 10 | Hiles Lagoon Road | Between Wonna Road and Barrier Highway |
| 11 | Whyte Road | Between Booborowie Road and Barrier Highway |
| 12 | Willalo Road | Between Barrier Highway and The Bluff Road |
| 13 | Franklyn Road | Between Barrier Highway and Pandappa Road |
| 14 | Pandappa Road | Between Franklyn Road and Pine Creek Road |
| 15 | Ketchowla Road | Between Pine Creek Road and Dares Hill Summit Road |
| 16 | Dares Hill Summit Road | Between Ketchowla Road and Heysen Trail Track |
| 17 | Mount Bryan East Road | Between Barrier Highway and Dare Road |

| Road order | Road name | Section |
|-------------------|-----------------------|--|
| 18 | Dare Road | Between Mount Bryan East Road and Dust Hole Creek Road |
| 19 | Cattle Station Road | Between Mount Bryan East Road and Barrier Highway |
| 20 | Petheron Road | Between Barrier Highway and North Booborowie Road |
| 21 | Andrews Road | Between Yakilo Road and Spalding-Burra Road |
| 22 | Camels Hump Road | Between council boundary and Road 137 |
| 23 | Fourth Street | Between South Terrace and North Terrace |
| 24 | Booborowie Road (2) | Between South Terrace and Burra-Spalding Road |
| 25 | Road 137 | Between Spalding-Burra Road and Farrell Flat Road |
| 26 | The Gap Road | Between Merilden Road and Barrier Highway |
| 27 | Eastern Road | Between Burra-Morgan Road and Caroona Road |
| 28 | Caroona Road | Between Eastern Road and Mangolata Road |
| 29 | Mongolata Road | Between Caroona Road and Dust Hole Creek Road |
| 30 | Dust Hole Creek Road | Between Mongolata Road and Dare Road |
| 31 | un-named road | Between Dare Road and White Field Road |
| 32 | White Field Road | Between un-named road and Dust Hole Creek Road |
| 33 | Porter Lagoon Road | Between Barrier Highway and Koonoona Road |
| 34 | Burra Road (1) | Between Turner Road and Black Springs Road |
| 35 | Hallelujah Hills Road | Between Black Springs Road and Worlds End Road |
| 36 | Bower Boundary Road | Between Burra-Morgan Highway and council boundary |
| 37 | Webb Gap Road | Between council boundary and Burra Road |
| 38 | Black Springs Road | Between Cemetery Road and Church Street |
| 39 | Bower Road | Between Keller Road and Plains Road |
| 40 | Emmaus Road | Between Plains Road and Keller Road |
| 41 | Australia Plains Road | Between Keller Road and Robertstown-Eudunda Road |
| 42 | Anlaby Road | Between Hansen Road and Eudunda-Marrabel Road |
| 43 | Ngapala Road (1) | Between Eudunda-Marrabel Road and Julia Road |
| 44 | Ngapala Road (2) | Between Dunstan Road and Webb Gap Road |
| 45 | Burra Road (2) | Between Ngapala Road and Black Springs Road |
| 46 | Powerline Road | Between Bower Boundary Road and Worlds End Road |
| 47 | Scenic Road | Between Hills Road and Julia Road |
| 48 | Truro Road | Between Eudunda-Morgan Road and council boundary |
| 49 | Foote Road (1) | Between Bower Boundary Road and Frankton Road |
| 50 | Foote Road (2) | Between Frankton Road and Neales Road |
| 51 | Neales Road | Between Foote Road and Eudunda-Morgan Road |
| 52 | Plains Road | Between Eudunda-Morgan Road and Bower Road |
| 53 | Schulz Road | Between Plains Road and Sutherlands Road |

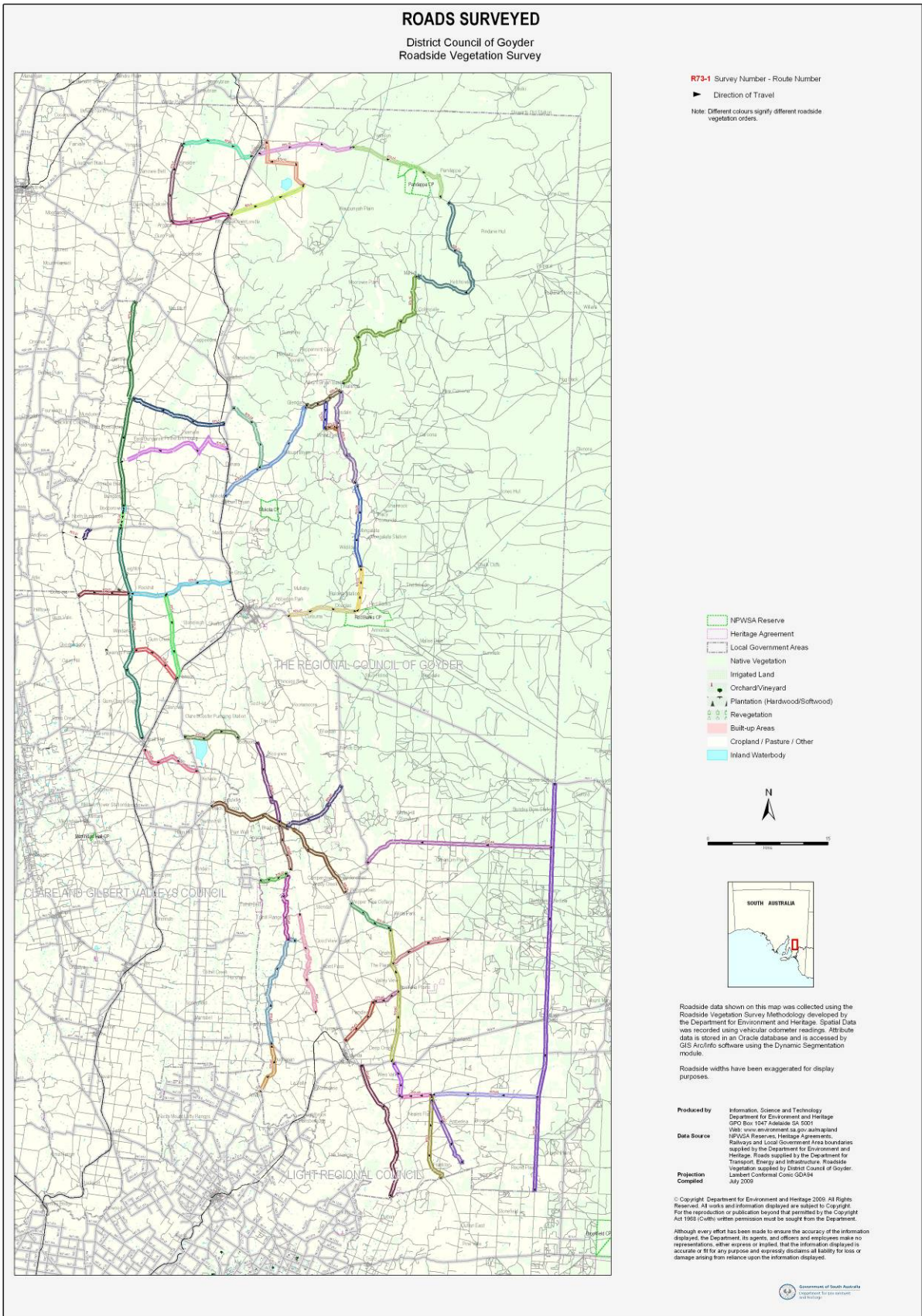


Figure 1. Location of the surveyed road sections.

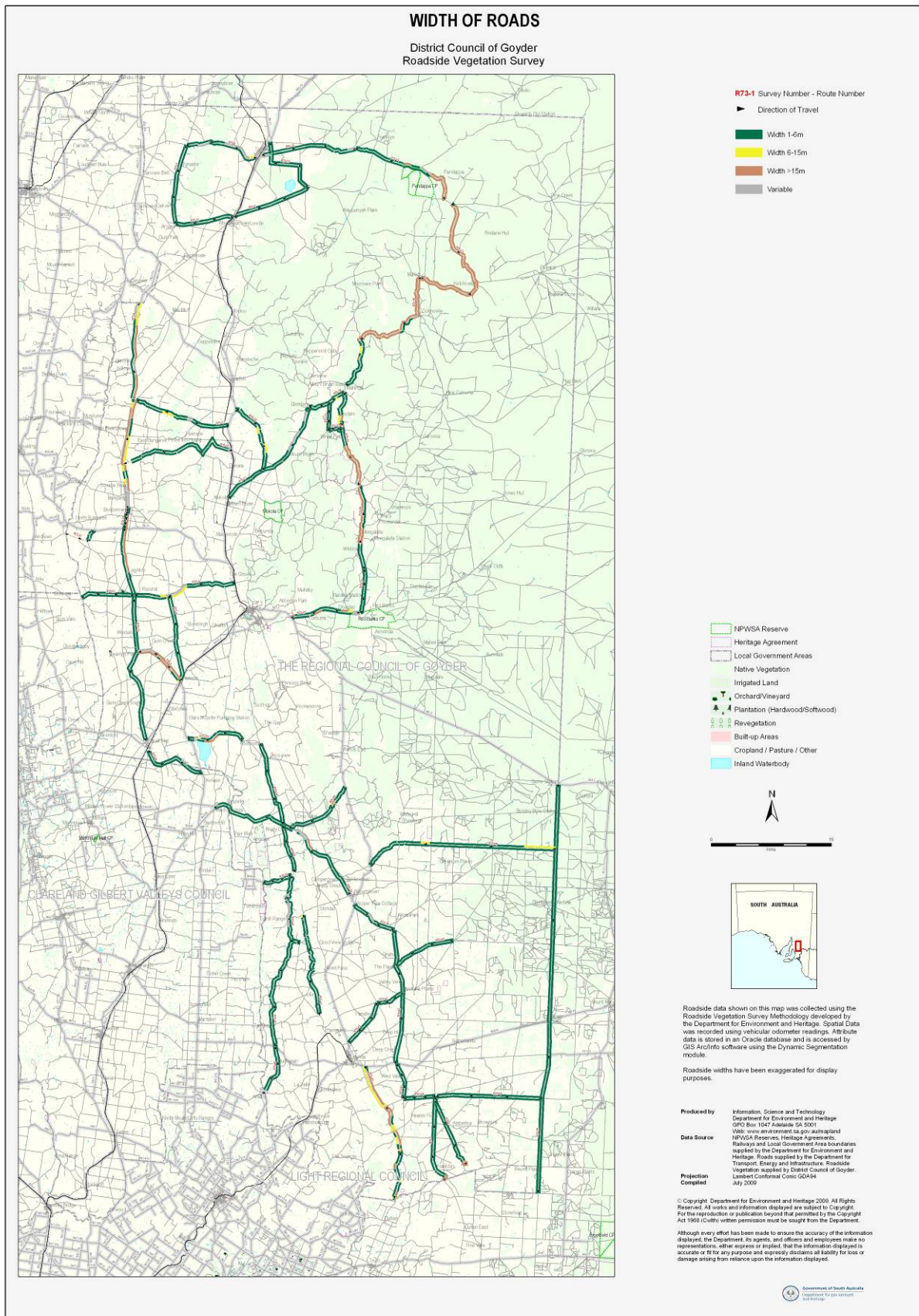


Figure 2. Width of roads surveyed.

2 Survey Methodology

The methodology that has been used for this survey is described in the Department of Housing and Urban Development *Guide to the Roadside Vegetation Survey Methodology for South Australia* by Stokes *et al.* (1998). A detailed description of this methodology can be found within this document. The methodology used consists of the following components:

- literature review
- reconnaissance field trip
- plant identification from reconnaissance field trip
- preparation of field herbarium
- field survey
- data entry
- data validation and corrections
- map production
- analysis of results
- report preparation.

The major component of a roadside vegetation survey is the field survey. It is designed to briefly describe and map all the vegetation present on roadsides in the survey area, and is collected while in a vehicle driving slowly along the roads. Roadsides are divided into segments to map changes in the roadside vegetation. In each segment dominant overstorey, understorey and weed species are recorded as well as other information regarding the road survey type and width of the corridor. Also during the survey the maximum, minimum and overview condition of each segment is recorded (see sections on Overview Condition and Overall Significance for a further description). After the field survey this information is used to assign vegetation associations and a category of overall significance to each segment. This information is then used to generate maps and management recommendations for the roadside vegetation in the survey area.

2.1 Survey preparation

A literature review and a reconnaissance trip were carried out before the fieldwork stage of this project. This was carried out to obtain a better understanding of the survey area before the fieldwork was conducted.

The reconnaissance trip was carried out three weeks before the actual field survey. It occurred over a two day period, with both field surveyors being present. A selection of the roads to be surveyed were driven to familiarise the surveyors with the area, and samples of the common dominant species and any unknown species were taken. From these collected specimens a field herbarium was prepared and taken on the subsequent survey.

2.1.1 Plant identification

All plant specimens collected were identified by EBS experienced staff, and assistance was sought from staff at the Plant Biodiversity Centre (PBC) to confirm the identification of difficult specimens and to

highlight key identifying features to streamline the survey process and ensure quality. Several samples of Eucalypts were collected and identified by PBC Botanist Martin O’Leary who is a leading national authority on the *Eucalyptus* genus in South Australia. Peter Lang from the Biological Survey Unit confirmed the identification of *Acacia glandulicarpa* (Hairy-pod Wattle).

2.1.2 Literature review

To gain an understanding and appreciation for the vegetation associations likely to be encountered during the present survey, a review of available literature was undertaken. The majority of the survey area lies within the area covered by the *Biodiversity Plan for the South Australian Murray-Darling Basin* (Kahrimanis *et al.* 2001) (SA MDB Biodiversity Plan), and the western section is within the boundary of the *Biodiversity Plan for the Northern Agricultural Districts of South Australia* (Graham *et al.* 2001) (NAD Biodiversity Plan). Similarly, the majority of the survey area is within the SA Murray Darling Basin NRM region, with the far western section within the Northern and Yorke NRM region. The survey area is incorporated within both the Flinders Lofty Block and the Murray Darling depression IBRA regions.

Percentage of native vegetation cover varies widely within the survey area. Approximately 3,420,000 ha or 97% of the South Olary Plains regional ecological area of the SA MDB Biodiversity Plan region encompassing this roadside survey area, is estimated to be covered with native vegetation (Kahrimanis *et al.* 2001). However, of the survey area that falls within the NAD Biodiversity Plan, 614,000 ha or 21% of the entire 2,900,000 ha, is covered by native vegetation (Graham *et al.* 2001), with an additional 500,000 ha of grassland that has not been mapped (Prescott and Nicholls 1998)

There are over 26 threatened vegetation associations listed within the SA MDB Biodiversity Plan, and 10 listed in the NAD Biodiversity Plan. These vegetation associations are categorised into the following broad structural groupings of Forest, Woodland, Mallee, Shrubland, Grassland and Sedgeland. The most common structural group in the Mid-North region is Grassland, covering an estimated 500,000 ha for the Northern Agricultural Districts (Graham *et al.* 2001), compared to 57,300 ha of mapped Mallee, 51,000 ha of mapped Woodland, 24,000 ha of Chenopod Shrubland, and 19,000 ha of Shrubland.

Threatened vegetation associations which may potentially be found within the current survey area were determined by consulting Neagle (1995), Graham *et al.* 2001, Kahrimanis *et al.* 2001, DEH (in progress) and EBS (2007). Refer to Conservation Priority Rating section on page 105.

EBS has experience in working in the Mid North region, with familiarity of the environmental attributes, landscape, and management issues. Recent work in the area include habitat assessments of various wind farms, including Mt Bryan, which is within the current roadside survey area.

A total of 51 vegetation associations were recorded along roads included in this survey, with broad structural groupings including Woodlands, Mallee, Shrublands, Grasslands, Tussock Grasslands, and Plantations. The majority of vegetation associations were Shrublands (27) or Woodlands (10).

Refer to the bibliography at the end of this report for a full list of the literature consulted.

3 Field log

3.1 Survey statistics

Total no. of segments surveyed (left and right roadsides): 1746
 Total no. of roads surveyed: 53
 Total distance of roads covered: 602.96 km
 Total distance of roads covered (left and right roadsides): 1205.92 km
 Average segment length: 0.69 km

Table 3. Summary of field survey logistics.

| Date | Road order number | Road name | Distance (km) | Number of segments |
|-----------|-------------------|------------------------|---------------|--------------------|
| 7-Apr-08 | 1 | Frankton Road | 11.18 | 21 |
| 7-Apr-08 | 2 | Goyder Road | 9.51 | 19 |
| 8-Apr-08 | 3 | Leighton Road | 13.17 | 15 |
| 8-Apr-08 | 4 | Iron Mile Road | 10.77 | 13 |
| 8-Apr-08 | 5 | Gum Creek Road | 7.02 | 7 |
| 9-Apr-08 | 6 | North Booborowie Road | 26.65 | 18 |
| 9-Apr-08 | 7 | Booborowie Road | 9.96 | 8 |
| 9-Apr-08 | 8 | Belalie Road | 9.57 | 10 |
| 9-Apr-08 | 9 | Wonna Road | 9.91 | 9 |
| 9-Apr-08 | 10 | Hiles Lagoon Road | 9.36 | 7 |
| 9-Apr-08 | 11 | Whyte Road | 7.32 | 6 |
| 9-Apr-08 | 12 | Willalo Road | 12.15 | 16 |
| 10-Apr-08 | 13 | Franklyn Road | 12.00 | 16 |
| 10-Apr-08 | 14 | Pandappa Road | 15.39 | 26 |
| 10-Apr-08 | 15 | Ketchowla Road | 20.25 | 14 |
| 10-Apr-08 | 16 | Dares Hill Summit Road | 20.54 | 43 |
| 11-Apr-08 | 17 | Mount Bryan East Road | 15.99 | 18 |
| 11-Apr-08 | 18 | Dare Road | 5.10 | 14 |
| 11-Apr-08 | 19 | Cattle Station Road | 9.19 | 17 |
| 11-Apr-08 | 20 | Petheron Road | 14.88 | 30 |
| 28-Apr-08 | 21 | Andrews Road | 4.47 | 5 |
| 28-Apr-08 | 22 | Camels Hump Road | 6.62 | 4 |
| 28-Apr-08 | 23 | Fourth Street | 0.67 | 1 |
| 28-Apr-08 | 24 | Booborowie Road (2) | 1.88 | 1 |
| 28-Apr-08 | 25 | Road 137 | 27.51 | 31 |
| 28-Apr-08 | 26 | The Gap Road | 8.33 | 9 |
| 29-Apr-08 | 27 | Eastern Road | 8.96 | 13 |
| 29-Apr-08 | 28 | Caroona Road | 5.45 | 3 |
| 29-Apr-08 | 29 | Mongolata Road | 10.59 | 6 |
| 29-Apr-08 | 30 | Dust Hole Creek Road | 12.90 | 21 |
| 29-Apr-08 | 31 | un-named road | 3.53 | 8 |
| 29-Apr-08 | 32 | White Field Road | 2.02 | 6 |
| 29-Apr-08 | 33 | Porter Lagoon Road | 7.75 | 14 |
| 29-Apr-08 | 34 | Burra Road (1) | 10.77 | 12 |

| Date | Road order number | Road name | Distance (km) | Number of segments |
|-------------|--------------------------|-----------------------|----------------------|---------------------------|
| 29-Apr-08 | 35 | Hallelujah Hills Road | 9.24 | 17 |
| 30-Apr-08 | 36 | Bower Boundary Road | 51.21 | 79 |
| 30-Apr-08 | 37 | Webb Gap Road | 3.25 | 7 |
| 1-May-08 | 38 | Black Springs Road | 22.65 | 24 |
| 1-May-08 | 39 | Bower Road | 6.13 | 19 |
| 1-May-08 | 40 | Emmaus Road | 3.58 | 8 |
| 1-May-08 | 41 | Australia Plains Road | 6.29 | 16 |
| 1-May-08 | 42 | Anlaby Road | 6.53 | 13 |
| 1-May-08 | 43 | Ngapala Road | 15.25 | 31 |
| 1-May-08 | 44 | Ngapala Road (2) | 9.03 | 14 |
| 1-May-08 | 45 | Burra Road (2) | 6.05 | 5 |
| 2-May-08 | 46 | Powerline Road | 24.29 | 42 |
| 2-May-08 | 47 | Scenic Road | 13.48 | 28 |
| 2-May-08 | 48 | Truro Road | 18.06 | 35 |
| 8-May-08 | 49 | Foote Road (1) | 13.24 | 21 |
| 8-May-08 | 50 | Foote Road (2) | 3.95 | 7 |
| 8-May-08 | 51 | Neales Road | 4.55 | 7 |
| 8-May-08 | 52 | Plains Road | 16.86 | 29 |
| 8-May-08 | 53 | Schulz Road | 7.96 | 10 |
| | | Total | 602.96 | 873 |

4 Description of Roads Surveyed

The road descriptions below include the following for each road; a general description, a table of the potential roadside sites, the common native vegetation associations and the dominant exotic species present. Under exotic species for each road, a list of the most common exotic species, the declared species and species that are known or potential environmental weeds have been included.

Within the general description a comment has been included on the width of the road reserve. The terms used in this description are standard terms for this roadside survey methodology, and mean the following:

- **Narrow** – less than 6 m in width
- **Medium** – between 6 m and 15 m in width
- **Wide** – greater than 15 m in width

In the Potential Roadside Site table, the codes for each site stand for the following:

- **RSS** – Roadside Significant Site
- **REF** – Reference Site
- **REV** – Revegetation Site

A more thorough description and explanation of the Roadside Management Site system is included in the section on Proposed Potential Roadside Management Sites.

In these road descriptions an indication of the condition of the understorey is given. This is based on the overview condition rating, which is a qualitative assessment of the weed invasion of the understorey taken during the field survey. The overview condition is meant to give a rating that best represents the weed invasion along the entire length of a segment. The following descriptive words are used in each road description:

- **Excellent** – very little or no sign of exotic species in the understorey
- **Good** – high proportion of native species and native cover in the understorey
- **Moderate** – substantial invasion of exotic species in the understorey, but native species persist
- **Poor** – the understorey consists predominantly of exotic species, although a small number of native species persist
- **Very Poor** – the understorey consists only of exotic species.

Road 1: Frankton Road

Road order: 1

Survey length: 11.18 km

Number of segments: 21

Direction of survey: Travelling north from the southern end

General description

Frankton Road was surveyed between North Hills Road and Foote Road. For approximately the first 670 m the roadside width on both the left and right side is medium width (6 – 15 m) and reduces to narrow width (<6 m) for the remainder of the road length.

Potential roadside sites

There are two potential reference sites along Frankton Road.

| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | RSS | 6830 – 6910 m | R | 12 |
| 2 | RSS | 7930 – 8910 m | L | 11 |



Vegetation description

Five different vegetation associations occur along Frankton Road, including:

- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis* Mallee
- Association 12: *Eucalyptus porosa* +/- *E. dumosa* +/- *E. odorata* +/- *E. oleosa* +/- *Acacia pycnantha* +/- *Alectryon oleifolius* +/- *Callitris gracilis* Mallee (conservation priority 1)
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Generally poor to moderate, the exception of one segment of excellent condition.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound)
- *Asphodelus fistulosus* (Onion Weed)
- *Lycium ferocissimum* (African Boxthorn) at 7.54 km on the right side.

Common species

- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle)
- Graminae sp. (un-identified Grass family)
- *Piptatherum miliaceum* (Rice Millet)

Other species of interest

Exotic

- *Schinus molle* (Pepper Tree) at 2680 m on the right side
- *Cactus* sp. At 2680 m on the left side.

Native

- Native *Austrostipa* grasses between 210 – 530 m, and 670 – 970 m on the left side
- Native *Austrodanthonia* grasses between 2270 – 3940 m on the left side.

Road 2: Goyder Road

Road order: 2

Survey length: 9.51 km

Number of segments: 19

Direction of survey: Travelling south-east from the northern end

General description

Goyder Road was surveyed between Frankton Road and an identified track. Road width is predominantly narrow (<6 m) on both the left and right side of the road, with the exception of the first section which is wide (>15 m).

Potential roadside sites

There is one potential roadside site along Goyder Road.

| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | RSS | 0 – 580 m | R | 11 |



Vegetation description

Eight vegetation associations are present along Goyder Road, these are:

- Association 4: *Senna artemisioides* ssp. *filifolia* Shrubland
- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis* Mallee
- Association 35: *Hakea rostrata* Shrubland
- Association 38: *Senna artemisioides* ssp. *filifolia* +/- *Acacia calamifolia* +/- *Dodonaea viscosa* ssp. *angustissima* +/- *Senna artemisioides* ssp. *X coriacea* Shrubland
- Association 12: *Eucalyptus porosa* +/- *E. dumosa* +/- *E. odorata* +/- *E. oleosa* +/- *Acacia pycnantha* +/- *Alectryon oleifolius* +/- *Callitris gracilis* Mallee (conservation priority 1)
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa* Mallee.



Understorey condition

- Ranges from poor to good, typically moderate.

Exotic species description

Declared species

- *Asphodelus fistulosus* (Onion Weed)
- *Marrubium vulgare* (Horehound)

Common species

- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle)
- Graminae sp. (un-identified Grass family)
- *Piptatherum miliaceum* (Rice Millet).

Other species of interest

Native

- *Pittosporum angustifolium* (Native Apricot) 1380 - 1940 m on the left side.
- Native *Austrostipa* and *Austrodanthonia* grasses between 1380 – 1940 m on the left side.

Road 3: Leighton Road

Road order: 3

Survey length: 13.17 km

Number of segments: 15

Direction of survey: Travelling west from the eastern end

General description

Leighton Road was surveyed between Burra Highway and Road 137. The road is predominately narrow (<6 m) on both the left and right sides, and occasionally varies to medium width (6 – 15 m).

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Three different vegetation associations are present along Leighton Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. Grassland, +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 51: Bare Ground.



Understorey condition

- Ranges from poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Phalaris aquatica* (Phalaris)
- *Chloris* sp. (Windmill Grass)
- *Cynodon dactylon* var. *dactylon* (Couch)
- *Setaria verticillata* (Whorled Pigeon-grass)
- *Panicum* sp. (Rice Millet)
- *Lactuca serriola* (Prickly Lettuce)
- *Scabiosa atropurpurea* (Pincushion)
- *Trifolium angustifolium* (Narrow-leaf Clover).

Other species of interest

- Native *Austrostipa* grasses and *Lomandra* sp. (Mat-rush) patches 2850 – 3666 m on the right
- Native *Lomandra* (Mat-rush) 2850 – 3660 m on the left
- *Pinus radiata* (Radiata Pine) at 1098 m and 11960 m on the right.

Road 4: Iron Mile Road

Road order: 4

Survey length: 10.77 km

Number of segments: 13

Direction of survey: Travelling south from the northern end

General description

Iron Mile Road was surveyed between Leighton Road and Gum Creek Road. Roadside width on both the left and right sides is consistently narrow (<6 m).

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Two vegetation associations are present along Iron Mile Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. Grassland, +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Typically very poor and poor, with some segments moderate.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound)
- *Rosa canina* (Dog Rose) at 9880 m, 1006 m, 1018 m, 1044 m on the left side.

Common species

- *Avena barbata* (Wild Oats)
- *Phalaris aquatica* (Phalaris)
- *Chloris* sp. (Windmill Grass)
- *Cynodon dactylon* var. *dactylon* (Couch)
- *Setaria verticillata* (Whorled Pigeon-grass)

- *Panicum* sp. (Rice Millet)
- *Lactuca serriola* (Prickly Lettuce)
- *Scabiosa atropurpurea* (Pincushion).
- *Trifolium angustifolium* (Narrow-leaf Clover).

Other species of interest

Exotic

- *Rumex* sp. (Dock) at 730 m
- *Pinus radiata* (Radiata Pine) at 4950 m on the left side, and at 5030 m on the right side.

Native

- *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) patches between 750 – 4790 m and 8460 – 8900 on the left and right sides
- Patches of the native grass *Austrodanthonia* between 5730 – 6590 m on the right side
- The native *Pittosporum angustifolium* (Native Apricot) between 1380 - 1940 m on the left side
- Native *Austrostipa* and *Austrodanthonia* grasses 1380 – 1940 m on the left side.

Road 5: Gum Creek Road

Road order: 5

Survey length: 7.02 km

Number of segments: 7

Direction of survey: Travelling north-west from the south-east end

General description

Gum Creek Road was surveyed between Barrier Highway and Road 137. Road width on both the left and right sides includes both narrow (<6 m) and moderate (6-15 m), with the majority being wide (>15 m).

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Three vegetation associations are present along Gum Creek Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. Grassland, +/- *Atriplex* sp. Grassland (most common)
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 19: *Acacia pycnantha* +/- *Allocasuarina verticillata* Woodland



Understorey condition

- Typically very poor and poor, with one moderate segment.

Exotic species description

Declared species

- *Rosa canina* (Dog Rose) at 2949 m and 2640 m on the right
- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Phalaris aquatica* (Phalaris)
- *Chloris* sp. (Windmill Grass)
- *Cynodon dactylon* var. *dactylon* (Couch)
- *Setaria verticillata* (Whorled Pigeon-grass)

- *Panicum* sp. (Rice Millet)
- *Lactuca serriola* (Prickly Lettuce)
- *Scabiosa atropurpurea* (Pincushion)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Rumex* sp. (Dock)
- *Hirschfeldia incana* (Hoary Mustard)
- *Bromus* sp. (Brome).

Other species of interest

Exotic

- Scattered State Endangered *Acacia glandulicarpa* (Hairy-pod Wattle) between 0 – 300 m on the left side.

Native

- *Pinus radiata* (Radiata Pine) at 2600 m on the right.

Road 6: North Booborowie Road

Road order: 6

Survey length: 26.65 km

Number of segments: 18

Direction of survey: Travelling north from the southern end

General description

North Booborowie Road was surveyed between North Terrace in the town of Booborowie and the council boundary just south of the Jamestown-Hallet Road. Road width is variable, predominately narrow (<6 m) on the left side and wide (>15 m) on the right side.

There was some confusion on where North Booborowie Road changes into Booborowie Road. For the purposes of this survey, the road surveyed between North Terrace and council boundary south of Jamestown-Hallet Road, is considered North Booborowie Road.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Five vegetation associations are present along Booborowie Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. Grassland, +/- *Atriplex* sp. Grassland (most common)
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 19: *Acacia pycnantha* +/- *Allocasuarina verticillata* Woodland
- Association 47: Native Plantation
- Association 49: Exotic Plantation.



Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Phalaris aquatica* (Phalaris)
- *Chloris* sp. (Windmill Grass)
- *Cynodon dactylon* var. *dactylon* (Couch)
- *Setaria verticillata* (Whorled Pigeon-grass)
- *Panicum* sp. (Rice Millet)
- *Lactuca serriola* (Prickly Lettuce)
- *Scabiosa atropurpurea* (Pincushion)

- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Rumex* sp. (Dock)
- *Hirschfeldia incana* (Hoary Mustard)
- *Bromus* sp. (Brome).

Other species of interest

Exotic

- *Schinus molle* (Pepper Tree) at 390 m and 870 m on the left
- *Gazalia* sp. at 2610 m on the left
- *Pinus radiata* (Radiata Pine) at 1160 m on the left
- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 1260 m and 1755 m on the left, and 12600 m on the right.

Road 7: Booborowie Road

Road order: 7

Survey length: 9.96 km

Number of segments: 8

Direction of survey: Travelling north from the southern end

General description

Booborowie Road was surveyed between North Terrace in the town of Booborowie and the council boundary just south of the Jamestown-Hallet Road. Roadside width is predominately narrow (<6 m).

There was some confusion on where Booborowie Road changes into North Booborowie Road. For the purposes of this survey, the road surveyed between Belalie Road and Whyte Road is considered Booborowie Road.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Two vegetation associations are present along Booborowie Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. Grassland, +/- *Atriplex* sp. Grassland (most common)
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane)
- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Avena barbata* (Wild Oats)

- *Medicago* sp.
- *Lactuca serriola* (Prickly Lettuce)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Rumex* sp. (Dock)
- *Onopordum acanthium* (Scotch Thistle).

Other species of interest

Exotic

- Non-indigenous *Acacia baileyana* (Cootamundra Wattle) at 780 m on the right.

Native

- *Lomandra* sp. (Mat-rush) and *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) patches at 2340 m on the left.

Road 8: Belalie Road

Road order: 8

Survey length: 9.57 km

Number of segments: 10

Direction of survey: Travelling east from the western end

General description

Belalie Road was surveyed between Booborowie Road and Main Street, Terowie. Road width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Four vegetation associations are present along Belalie Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. Grassland, +/- *Atriplex* sp. Grassland (most common)
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 40: *Salsola tragus* +/- *Maireana brevifolia* Herbland.



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound)
- *Asphodelus fistulosus* (Onion Weed)
- *Lycium ferocissimum* (African Boxthorn) at 4650 m on the left side, 4680 m on the right side, 6480 m on the left, a 9040 m on the right, 9110 m on the right, 9250 m on the right.
- *Lycium ferocissimum* (African Boxthorn) patch between 8810 m – 9410 m on the left.

Common species

- *Avena barbata* (Wild Oats)
- *Lolium perenne* (Perennial Ryegrass)
- *Centaurea calcitrapa* (Star Thistle)
- *Hirschfeldia incana* (Hoary Mustard)

- *Medicago* sp.
- *Lactuca serriola* (Prickly Lettuce)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Rumex* sp. (Dock).

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 4680 m on the right.

Road 9: Wanna Road

Road order: 9

Survey length: 9.91 km

Number of segments: 9

Direction of survey: Travelling north-east from the western end

General description

Wonna Road was surveyed between Barrier Highway and Hiles Lagoon. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Five vegetation associations are present along Wanna Road, these are:

- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 39: *Zygophyllum aurantiacum* Low Shrubland
- Association 40: *Salsola tragus* +/- *Maireana brevifolia* Herbland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. Grassland, +/- *Atriplex* sp. Grassland (most common)
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Lycium ferocissimum* (African Boxthorn) at 3600 m, 3650 m, 3720 m on the left, and at 6630 m on the right
- *Echium plantagineum* (Salvation Jane)
- *Asphodelus fistulosus* (Onion Weed)
- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle)
- *Rumex* sp. (Dock).

Other species of interest

Exotic

- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 2030 m, 7360 m , 8680 m on the right, and at 7500 m on the left
- *Pinus radiata* (Radiata Pine) at 5440 m and 5760 m on the right.

Road 10: Hiles Lagoon Road

Road order: 10

Survey length: 9.36 km

Number of segments: 7

Direction of survey: Travelling west/north/east/north

General description

Hiles Lagoon Road was surveyed between Wanna Road and Barrier Highway. Road width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Four vegetation associations are present along Hiles Lagoon Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. Grassland, +/- *Atriplex* sp. Grassland (most common)
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 40: *Salsola tragus* +/- *Maireana brevifolia* Herbland
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Asphodelus fistulosus* (Onion Weed)
- *Marrubium vulgare* (Horehound)
- *Lycium ferocissimum* (African Boxthorn) at 4550 m and 5150 m on the left.

Common species

- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle)
- *Rumex* sp. (Dock).

Road 11: Whyte Road

Road order: 11

Survey length: 7.32 km

Number of segments: 6

Direction of survey: Travelling east from the western end

General description

Whyte Road was surveyed between Booborowie Road and Barrier Highway. Road width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Four vegetation associations are present along Whyte Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. Grassland, +/- *Atriplex* sp. Grassland (most common)
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 36: *Muehlenbeckia* sp. Shrubland
- Association 47: Native Plantation.



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Olea europaea* (Olive) at 7090 m on the left.

Common species

- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle)
- *Medicago* sp. (Medic)
- *Scabiosa atropurpurea* (Pincushion).
- *Lactuca serriola* (Prickly Lettuce)
- *Rumex* sp. (Dock)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Cynodon dactylon* var. *dactylon* (Couch)

- *Dittrichia graveolens* (Stinkweed).

Other species of interest

- *Prunus* sp. (Fruit tree) at 1700 m and 2000 m on the right.

Road 12: Willalo Road

Road order: 12

Survey length: 12.15 km

Number of segments: 16

Direction of survey: Travelling west from the eastern end

General description

Willalo Road was surveyed between Barrier Highway and The Bluff Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Four vegetation associations are present along Willalo Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. Grassland, +/- *Atriplex* sp. Grassland (most common)
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 49: Exotic Plantation.
- Association 50: Bare Ground.



Understorey condition

- Typically poor to very poor, with one moderate segment.

Exotic species description

Declared species

- *Lycium ferocissimum* (African Boxthorn) at 4260 m on the left, and at 4850 m, 4890 m, 5560 m, on the right
- *Marrubium vulgare* (Horehound)
- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Avena barbata* (Wild Oats)
- *Medicago* sp. (Medic)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Lolium perenne* (Perennial Ryegrass)
- *Cynodon dactylon* var. *dactylon* (Couch)
- *Dittrichia graveolens* (Stinkweed)
- *Scabiosa atropurpurea* (Pincushion).

- *Lactuca serriola* (Prickly Lettuce).

Other species of interest

Exotic

- *Ulex europaeus* (Gorse) at 2960 m on the left, 3330 m on the left, 3330 m on the right
- *Prunus* sp. (Fruit Tree) at 4900 m, 5910 m, 6460 m, 6830 m on the left
- *Pinus radiata* (Radiata Pine) at 7370 m, 7490 m on the right.

Native

- Patch of native *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) at 6650 m on the left.

Road 13: Franklyn Road

Road order: 13

Survey length: 12.00 km

Number of segments: 16

Direction of survey: Travelling east from the western end

General description

Franklyn Road was surveyed between Barrier Highway and Pandappa Road. Road width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Eight vegetation associations are present along Franklyn Road, these are:

- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 40: *Salsola tragus* +/- *Maireana brevifolia* Herbland
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 39: *Zygophyllum aurantiacum* Low Shrubland
- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa* Mallee
- Association 7: *Eucalyptus porosa* Low Woodland (conservation priority 1)
- Association 38: *Senna artemisioides* ssp. *filifolia* +/- *Acacia calamifolia* +/- *Dodonaea viscosa* ssp. *angustissima* +/- *Senna artemisioides* ssp. *X coriacea* Shrubland



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Lycium ferocissimum* (African Boxthorn) at 250 m and 300 m on the right, and at 2750 m and 3020 m on the left
- *Asphodelus fistulosus* (Onion Weed)
- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle)
- *Rumex* sp. (Dock)
- *Lycium ferocissimum* (African Boxthorn)
- *Cynodon dactylon* var. *dactylon* (Couch).

Other species of interest

Exotic

- *Cactus* sp. at 6730 m on the left.

Road 14: Pandappa Road

Road order: 14

Survey length: 15.39 km

Number of segments: 26

Direction of survey: Travelling east from the western end

General description

Pandappa Road was surveyed between Franklyn Road and Pine Creek Road. Road width is predominately narrow (<6 m) on both the left and right sides and widens (>15 m) for the last section.

Potential roadside Sites

There were no potential roadside sites along this road.

Vegetation description

Fifteen vegetation associations are present along Pandappa Road, these are:

- Association 3: *Senna artemisioides* ssp. *X coriacea*, *Rhagodia parabolica*, *Acacia ligulata*
Shrubland
- Association 4: *Senna artemisioides* ssp. *filifolia* Shrubland
- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa*
Mallee
- Association 18: *Acacia nyssophylla* +/- *A. victoriae* +/- *Maireana brevifolia* +/- *Senna artemisioides* ssp. *filifolia* Shrubland (conservation priority 2)
- Association 20: *Acacia victoriae* Shrubland (conservation priority 2)
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.
- Association 22: *Dissocarpus paradoxus* Shrubland
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 25: *Senna artemisioides* ssp. *X coriacea* Shrubland
- Association 27: *Maireana sedifolia* +/- *Acacia nyssophylla* +/- *Eremophila scoparia* +/- *Senna* sp. +/- *Maireana* sp. +/- *Nitraria* sp. Shrubland
- Association 31: *Dodonaea viscosa* ssp. *angustissima* +/- *Senna artemisioides* ssp. *X coriacea* +/- *Senna artemisioides* ssp. *filifolia* Shrubland (conservation priority 2)
- Association 33: *Eremophila scoparia* Shrubland (conservation priority 2)
- Association 38: *Senna artemisioides* ssp. *filifolia* +/- *Acacia calamifolia* +/- *Dodonaea viscosa* ssp. *angustissima* +/- *Senna artemisioides* ssp. *X coriacea* Shrubland
- Association 41: *Convolvulus* sp., *Maireana brevifolia* Shrubland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland.



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Asphodelus fistulosus* (Onion Weed)
- *Marrubium vulgare* (Horehound)
- *Lycium ferocissimum* (African Boxthorn) at 2800 m on the right, and at 2970 m and 4460 m on the left.

Common species

- *Centaurea calcitrapa* (Star Thistle)
- *Medicago* sp. (Medic).

Other species of interest

Exotic

- *Cactus* sp. at 3140 m 3430 m, 12100 m on the right
- *Cactus* sp. at 3840 m, 4010 m, 5230 m on the left.

Road 15: Ketchowla Road

Road order: 15

Survey length: 20.25 km

Number of segments: 14

Direction of survey: Travelling south-east from the western end

General description

Ketchowla Road was surveyed between Franklyn Road and Dares Hill Summit Road. No fenceline is present so the area 20 m either side of the road was surveyed, and the road width is considered wide (>15 m).

Potential roadside sites

There were three potential roadside sites along Ketchowla Road.

| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | RSS | 460 - 3940 m | L | 14 |
| 2 | RSS | 460 - 4250 m | R | 14 |
| 3 | RSS | 3940 – 4520 m | L | 21 |



Vegetation description

Seven vegetation associations are present along Ketchowla Road, these are:

- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis*
Mallee
- Association 12: *Eucalyptus porosa* +/- *E. dumosa* +/- *E. odorata* +/- *E. oleosa* +/- *Acacia pycnantha* +/- *Alectryon oleifolius* +/- *Callitris gracilis* Mallee (conservation priority 1)
- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa*
Mallee
- Association 18: *Acacia nyssophylla* +/- *A. victoriae* +/- *Maireana brevifolia* +/- *Senna artemisioides* ssp. *filifolia* Shrubland (conservation priority 2)
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Lycium ferocissimum* (African Boxthorn) at 2800 m on the right.

Common species

- *Asphodelus fistulosus* (Onion Weed).

Road 16: Dares Hill Summit Road

Road order: 16

Survey length: 20.54 km

Number of segments: 43

Direction of survey: Travelling east from the western end

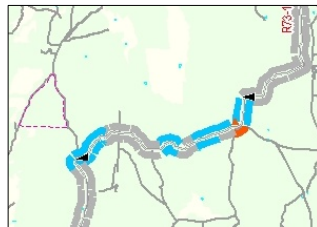
General description

Dares Hill Summit Road was surveyed between Ketchowla and the Heysen Trail track. Roadside width is narrow (<6 m) in some sections particularly towards the end of the road section, but predominately wide (>15 m). In some sections the fenceline is absent so the area within 20 m either side of the road was surveyed.

Potential roadside sites

There were ten potential roadside sites along Dares Hill Summit Road.

| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | REF, RSS | 7080 – 8200 m | L | 14, 4 |
| 2 | REF, RSS | 7080 – 8200 m | R | 14, 4 |
| 3 | RSS | 8200 – 9470 m | R | 12, 34 |
| 4 | RSS | 8680 – 9470 m | L | 12, 34 |
| 5 | RSS | 10050 – 10800 m | L | 34 |
| 6 | RSS | 10050 – 10800 m | R | 34 |
| 7 | RSS | 13000 – 14250 m | L | 34, 11 |
| 8 | RSS | 13000 – 14250 m | R | 29, 11, 30 |



Vegetation description

Sixteen vegetation associations are present along Dares Hill Summit Road, these are:

- Association 2: *Hakea leucoptera* Shrubland (conservation priority 2)
- Association 5: *Eucalyptus leucoxydon* +/- *Acacia pycnantha* Woodland
- Association 7: *Eucalyptus porosa* Low Woodland (conservation priority 1)
- Association 9: *Callitris gracilis* Woodland (conservation priority 2)
- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis* Mallee
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.
- Association 23: *Maireana aphylla* +/- *Atriplex stipitata* Shrubland (conservation priority 2)
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 26: *Maireana coronata* Shrubland

- Association 27: *Maireana sedifolia* +/- *Acacia nyssophylla* +/- *Eremophila scoparia* +/- *Senna* sp. +/- *Maireana* sp. +/- *Nitraria* sp. Shrubland
- Association 28: *Maireana* sp. Shrubland
- Association 29: *Rhagodia parabolica* +/- *Acacia ligulata* Shrubland
- Association 30: *Dodonaea lobulata* +/- *Rhagodia parabolica*, *Senna artemisioides* ssp. *X coriacea* Shrubland (conservation priority 2)
- Association 34: *Hakea leucoptera* +/- *Dodonaea lobulata* +/- *Dodonaea viscosa* ssp. *angustissima* +/- *Rhagodia parabolica* Shrubland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Typically moderate, with some good and excellent segments.

Exotic species description

Declared species

- *Asphodelus fistulosus* (Onion Weed)
- *Marrubium vulgare* (Horehound).

Common species

- *Rumex* sp. (Dock)

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 18 m on the left.

Road 17: Mount Bryan East Road

Road order: 17

Survey length: 15.99 km

Number of segments: 18

Direction of survey: Travelling north-east from the south-western end

General description

Mount Bryan East Road was surveyed between Barrier Highway and Dare Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Three vegetation associations are present along Mount Bryan East Road, including:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 45: Exotic Grassland.



Exotic species description

Declared species

- *Marrubium vulgare* (Horehound)
- *Asphodelus fistulosus* (Onion Weed)
- *Rosa canina* (Dog Rose) at 1097 m, 12900 m, 13190 m, 13210 m, on the left, and at 12730 m, 15140 m on the right
- *Lycium ferocissimum* (African Boxthorn) at 11320 m on the left.

Common species

- *Phalaris aquatica* (Phalaris)
- *Rumex* sp. (Dock)
- *Bromus* sp. (Brome)

- *Centaurea calcitrapa* (Star Thistle)
- *Medicago* sp. (Medic)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Polygonum aviculare* (Wireweed)
- *Hordeum* sp. (Barley Grass).

Understorey condition

- Typically poor to very poor, with some moderate segments.

Other species of interest

Exotic

- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 15610 on the left.

Native

- Patch of native *Cyperus* sp. at 7160 m on the right.

Road 18: Dare Road

Road order: 18

Survey length: 5.10 km

Number of segments: 14

Direction of survey: Travelling north-east from the south-western end

General description

Dare Road was surveyed between Mount Bryan East Road and Dust Hole Creek Road. Roadside width is predominately narrow (<6 m) on both the left and right sides, and only extends to moderate (6-15 m) for a short (~200 m) section.

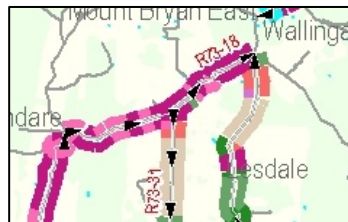
Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Three vegetation associations are present along Dare Road, including:

- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Lycium ferocissimum* (African Boxthorn) at 190 m, 330 m on the left
- *Lycium ferocissimum* (African Boxthorn) at 330 m, 880 m on the right
- *Marrubium vulgare* (Horehound)
- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Avena barbata* (Wild Oats)
- *Rumex* sp. (Dock)
- *Polygonum aviculare* (Wireweed)
- *Lactuca serriola* (Prickly Lettuce)
- *Rumex* sp. (Dock)
- *Centaurea calcitrapa* (Star Thistle).

Other species of interest

- Patch of native *Cyperus* sp. 1230 m on the right.

Road 19: Cattle Station Road

Road order: 19

Survey length: 9.19 km

Number of segments: 17

Direction of survey: Travelling north-west from the south-eastern end

General description

Cattle Station Road was surveyed between Mount Bryan East Road and Barrier Highway. Roadside width is predominately narrow (<6 m) on both the left and right sides, and extends to moderate on the right side for approximately 1 km.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Four vegetation associations are present along Cattle Station Road, including:

- Association 5: *Eucalyptus leucoxydon* +/- *Acacia pycnantha* Woodland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 45: Exotic Grassland.



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Lolium perenne* (Perennial Ryegrass)

- *Rumex* sp. (Dock)
- *Phalaris aquatica* (Phalaris),
- *Lactuca serriola* (Prickly Lettuce)
- *Centaurea calcitrapa* (Star Thistle)
- *Echium plantagineum* (Salvation Jane)
- *Trifolium angustifolium* (Narrow-leaf Clover).

Other species of interest

Exotic

- *Rubus ulmifolius* var. *ulmifolius* (Blackberry) at 2340 m on the left
- *Prunus* sp. (Fruit Tree) at 430 m on the left
- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 8180 m on the right.

Native

- Patch of native *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) at 300 m, 1430 m, and 8180 m on the right

Road 20: Petherton Road

Road order: 20

Survey length: 14.88 km

Number of segments: 30

Direction of survey: Travelling west from the eastern end

General description

Petherton Road was surveyed between Barrier Highway and North Booborowie Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

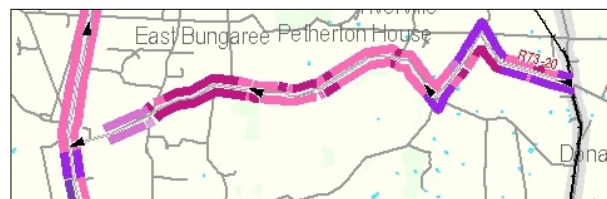
Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Four vegetation associations are present along Petherton Road, including:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 44: *Cymbopogon ambiguus* Tussock Grassland (conservation priority 1)
- Association 47: Native Plantation



Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Ulex europaeus* (Gorse) at 4910 m on the right
- *Marrubium vulgare* (Horehound)
- *Echium plantagineum* (Salvation Jane).

Common species

- *Avena barbata* (Wild Oats)
- *Rumex* sp. (Dock)
- *Bromus* sp. (Brome)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Lactuca serriola* (Prickly Lettuce)
- *Cichorium intybus* (Chicory)

- *Phalaris aquatica* (Phalaris)
- *Scabiosa atropurpurea* (Pincushion).
- *Polygonum aviculare* (Wireweed)
- *Centaurea calcitrapa* (Star Thistle).

Other species of interest

Exotic

- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 2510 m and 8830 m on the left, and at 2300 m on the right

Native

- Patch of native *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) at 9880 m on the left, and at 12760 m on the right.

Road 21: Andrews Road

Road order: 21

Survey length: 4.47 km

Number of segments: 5

Direction of survey: Travelling north from the southern end

General description

Andrews Road was surveyed between Yakilo Road and Spalding-Burra Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

One vegetation associations is present along Andrews Road, this is:

- Association 45: Exotic Grassland.



Understorey condition

- Typically very poor.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound)
- *Echium plantagineum* (Salvation Jane)
- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Avena barbata* (Wild Oats)
- *Rumex* sp. (Dock)
- *Phalaris aquatica* (Phalaris)
- *Polygonum aviculare* (Wireweed)
- *Bromus* sp. (Brome)
- *Panicum* sp. (Millet)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Lactuca serriola* (Prickly Lettuce)
- *Cichorium intybus* (Chicory)
- *Scabiosa atropurpurea* (Pincushion).

- *Centaurea calcitrapa* (Star Thistle).

Other species of interest

Exotic

- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 390 m, 1870 m, 2170 m, 2570 m, 3430 m on the left.

Road 22: Camels Hump Road

Road order: 22

Survey length: 6.62 km

Number of segments: 4

Direction of survey: Travelling east from the western end

General description

Camels Hump Road was surveyed between the council boundary and Road 137. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Three vegetation associations are present along Camels Hump Road, these are:

- Association 6: *Eucalyptus* sp. Woodland
- Association 19: *Acacia pycnantha* +/- *Allocasuarina verticillata* Woodland
- Association 45: Exotic Grassland.



Understorey condition

- Typically very poor.

Exotic species description

Declared species

- *Olea europaea* (Olive) at 640 m on the left
- *Olea europaea* (Olive) at 640 m on the right
- *Echium plantagineum* (Salvation Jane).

Common species

- *Avena barbata* (Wild Oats)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Lactuca serriola* (Prickly Lettuce)
- *Scabiosa atropurpurea* (Pincushion)
- *Rumex* sp. (Dock)
- *Centaurea calcitrapa* (Star Thistle).

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 650 m on the left
- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 180 m, 4360 m, 4450 m on the left.
- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 4340 m, 4450 m on the right.

Native

- Native *Lomandra* sp. (Mat-rush) patch at 1600 m and 2670 m on the left.

Road 23: Fourth Street

Road order: 23

Survey length: 0.67 km

Number of segments: 1

Direction of survey: Travelling north from the southern end

General description

Fourth Street was surveyed between the South Terrace and North Terrace. Roadside width is predominately wide (>15 m) on the left side and narrow (<6 m) on the right side.

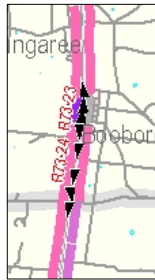
Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Two vegetation associations are present along Fourth Street, these are:

- Association 47: Native Plantation
- Association 51: Built Up.



Understorey condition

- There is no understorey.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound)
- *Echium plantagineum* (Salvation Jane).

Common species

- *Avena barbata* (Wild Oats)
- *Rumex* sp. (Dock)
- *Phalaris aquatica* (Phalaris)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Sonchus* sp. (Sow Thistle).

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 270 m on the left
- *Agave* sp. at 430 m on the left.

Road 24: Booborowie Road (2)

Road order: 24

Survey length: 1.88 km

Number of segments: 1

Direction of survey: Travelling east from the western end

General description

Booborowie Road (section 2) was surveyed between South Terrace and Burra-Spalding Road. Roadside width is predominately wide (>15 m) on the left side and narrow (<6 m) on the right side.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

One vegetation association is present along Booborowie Road:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland.



Understorey condition

- Typically very poor.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane).

Common species

- *Avena barbata* (Wild Oats)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Lactuca serriola* (Prickly Lettuce)
- *Medicago* sp. (Medic)
- *Panicum* sp. (Millet).

Other species of interest

Exotic

- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 210 m, 4540 m and 8960 m on the right
- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 4540 m and 5040 m on the left

- *Agave* sp. at 6750 m on the left
- *Agave* sp. at 6830 m on the right
- *Prunus* sp. (Fruit Tree) at 10900 m on the left
- *Pinus radiata* (Radiata Pine) at 710 m and 12140 m on the left.

Road 25: Road 137

Road order: 25

Survey length: 27.51 km

Number of segments: 31

Direction of survey: Travelling south from the northern end

General description

Road 137 was surveyed between Spalding-Burra Road and Farrell Flat Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There are three potential roadside sites along Road 137.

| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | REV | 0 – 2980 m | L | 45 |
| 2 | RSS^ | 13030 – 13790 m | R | 42 |
| 3 | RSS^ | 14980 – 15600 m | R | 45 |
| 4 | RSS^ | 17450 – 17680 m | R | 42 |

^ = threatened *Acacia glandulicarpa* (Hairy-pod Wattle) present.



Vegetation description

Six vegetation associations are present along Road 137, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 45: Exotic Grassland.
- Association 47: Native Plantation
- Association 49: Exotic Plantation.
- Association 16: *Acacia glandulicarpa* Shrubland (conservation priority 1).



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane)
- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Rumex* sp. (Dock)
- *Phalaris aquatica* (Phalaris)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Scabiosa atropurpurea* (Pincushion).
- *Centaurea calcitrapa* (Star Thistle)
- *Lactuca serriola* (Prickly Lettuce)
- *Lolium perenne* (Perennial Ryegrass)
- *Medicago* sp. (Medic)
- *Piptatherum miliaceum* (Rice Millet)
- *Bromus* sp. (Brome)
- *Sonchus* sp. (Sow Thistle).

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 12140 m on the right
- *Schinus molle* (Pepper-tree) plantings at 12540 m on the left

Native

- Native *Acacia glandulicapra* (Hairy-pod Wattle) between 13030 – 13790 m, 14980 – 15600 m on the right, and at 17290 m and 17680 m on the right.
- Native *Lomandra effusa* (Scented Mat-rush) and *Lomandra* sp. (Mat-rush) between 15600 m 16950 m on the left and right.

Road 26: The Gap Road

Road order: 26

Survey length: 8.33 km

Number of segments: 9

Direction of survey: Travelling east from the western end

General description

The Gap Road was surveyed between Merilden Road and Barrier Highway. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Three vegetation associations are present along The Gap Road, these are:

- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 49: Exotic Grassland
- Association 47: Native Plantation.



Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane)
- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Scabiosa atropurpurea* (Pincushion).
- *Lolium perenne* (Perennial Ryegrass)
- *Piptatherum miliaceum* (Rice Millet)
- *Centaurea calcitrapa* (Star Thistle)
- *Bromus* sp. (Brome)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Medicago* sp. (Medic)

- *Phalaris aquatica* (Phalaris)
- *Rumex* sp. (Dock)
- *Schinus molle* (Pepper Tree)
- *Pinus radiata* (Radiata Pine).

Other species of interest

Exotic

- *Rosa canina* (Dog Rose) at 190 m on the right
- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 660 m, and 1930 m on the right
- *Pinus radiata* (Radiata Pine) at 7650 m on the left
- *Prunus* sp. (Fruit Tree) patch at 7650 m on the left, and 8150 m on the right.

Road 27: Eastern Road

Road order: 27

Survey length: 8.96 km

Number of segments: 13

Direction of survey: Travelling east from the western end

General description

Eastern Road was surveyed between Burra-Morgan Road and Caroona Road. Roadside width is variable and predominately narrow (<6 m) on the left side and wide (>15 m) on the right side.

Potential roadside sites

There were two potential roadside sites along Eastern Road.

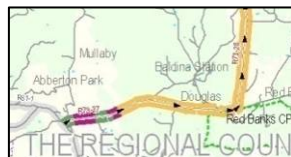
| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | REF | 2290 - 2660 m | L | 43 |
| 2 | REF | 2290 - 2660 m | R | 43 |



Vegetation description

Three vegetation associations are present along Eastern Road, these are:

- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Typically poor to very poor, with some moderate and good segments.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane)
- *Marrubium vulgare* (Horehound)
- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Avena barbata* (Wild Oats)
- *Panicum* sp. (Millet)
- *Piptatherum miliaceum* (Rice Millet)
- *Cynodon dactylon* var. *dactylon* (Couch)
- *Scabiosa atropurpurea* (Pincushion).

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 7430 m on the right.

Road 28: Caroona Road

Road order: 28

Survey length: 5.45 km

Number of segments: 3

Direction of survey: Travelling north from the southern end

General description

Caroona Road was surveyed between Eastern Road and Mangolata Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

One vegetation association is present along Caroona Road, this is:

- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.



Understorey condition

- Typically poor, with some moderate segments.

Exotic species description

Declared species

- *Asphodelus fistulosus* (Onion Weed),
- *Marrubium vulgare* (Horehound).

Road 29: Mongolata Road

Road order: 29

Survey length: 10.59 km

Number of segments: 29

Direction of survey: Travelling north from the southern end

General description

Mongolata Road was surveyed between Caroona Road and Dust Hole Creek Road. Roadside width varies from narrow (<6 m) to wide (>15 m).

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

One vegetation association is present along Mongolata Road, this is:

- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Lycium ferocissimum* (African Boxthorn) at 10350 m on the left
- *Asphodelus fistulosus* (Onion Weed)
- *Marrubium vulgare* (Horehound).

Common species

- *Scabiosa atropurpurea* (Pincushion)
- *Centaurea calcitrapa* (Star Thistle).

Other species of interest

Exotic

- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) between 10310 m – 10590 m on the left.

Road 30: Dust Hole Creek Road

Road order: 30

Survey length: 12.90 km

Number of segments: 21

Direction of survey: Travelling north from the southern end

General description

Dust Hole Creek Road was surveyed between Mongolata Road and Dare Road. Roadside width varies from wide (>15 m) or with no fenceline present on both the left and right sides for approximately the first 6 km surveyed, to narrow (<6 m).

Potential roadside sites

There were two potential roadside sites along Dust Hole Creek Road.

| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | REF | 920 – 1480 m | L | 11 |
| 2 | REF | 920 – 1480 m | R | 11 |



Vegetation description

Seven vegetation associations are present along Dust Hole Creek Road, these are:

- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis*
Mallee
- Association 12: *Eucalyptus porosa* +/- *E. dumosa* +/- *E. odorata* +/- *E. oleosa* +/- *Acacia pycnantha* +/- *Alectryon oleifolius* +/- *Callitris gracilis* Mallee (conservation priority 1)
- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa*
Mallee
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland
- Association 23: *Maireana aphylla* +/- *Atriplex stipitata* Shrubland (conservation priority 2)
- Association 40: *Salsola tragus* +/- *Maireana brevifolia* Herbland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).

Understorey condition

- Typically poor to moderate.



Exotic species description

Declared species

- *Lycium ferocissimum* (African Boxthorn) at 120 m, and 10880 m on the right
- *Lycium ferocissimum* (African Boxthorn) at 10860 m on the left
- *Marrubium vulgare* (Horehound)
- *Asphodelus fistulosus* (Onion Weed)
- *Echium plantagineum* (Salvation Jane).

Common species

- *Centaurea calcitrapa* (Star Thistle)
- *Convolvulus* sp.(Bindweed)
- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle)
- *Cynodon dactylon* var. *dactylon* (Couch)
- *Rumex* sp. (Dock).

Other species of interest

Exotic

- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 10810 m and 11920 m on the left.

Native

- Native *Juncus gymnocaulis* (Spiny Flat-sedge) in the adjacent creekline at 4160 m on the left

Road 31: un-named road

Road order: 31

Survey length: 3.53 km

Number of segments: 8

Direction of survey: Travelling south from the northern end

General description

Un-named road was surveyed between Dare Road and White Field Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

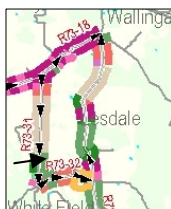
Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Five vegetation associations are present along the un-name road, these are:

- Association 4: *Senna artemisioides* ssp. *filifolia* Shrubland
- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa* Mallee
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 40: *Salsola tragus* +/- *Maireana brevifolia* Herbland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane)
- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Lactuca serriola* (Prickly Lettuce).

Other species of interest

Native

- *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) patch at 2820 m on the right.

Road 32: White Field Road

Road order: 32

Survey length: 2.02 km

Number of segments: 6

Direction of survey: Travelling east from the western end

General description

White Field Road was surveyed between an un-named road and Dust Hole Creek Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

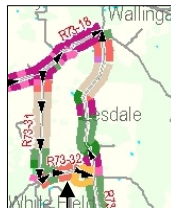
Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Five vegetation associations are present along White Field Road, these are:

- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa*
Mallee
- Association 15: *Acacia brachybotrya* +/- *A. calamifolia* +/- *Maireana brevifolia* Shrubland
(conservation priority 2)
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/-
Zygophyllum sp. Shrubland.
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana*
sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 40: *Salsola tragus* +/- *Maireana brevifolia* Herbland



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Asphodelus fistulosus* (Onion Weed)
- *Echium plantagineum* (Salvation Jane)
- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Lactuca serriola* (Prickly Lettuce).

Road 33: Porter Lagoon Road

Road order: 33

Survey length: 7.75 km

Number of segments: 14

Direction of survey: Travelling east from the western end

General description

Porter Lagoon Road was surveyed between Barrier Highway and Koonoona Road. Roadside width is predominately narrow (<6 m) on the left side, and narrow to wide (>15 m) on the right side.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Six vegetation associations are present along Porter Lagoon Road, these are:

- Association 5: *Eucalyptus leucoxydon* +/- *Acacia pycnantha* Woodland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 45: Exotic Grassland.
- Association 47: Native Plantation
- Association 49: Exotic Plantation.



Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane)
- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Lactuca serriola* (Prickly Lettuce)
- *Bromus* sp. (Brome)
- *Scabiosa atropurpurea* (Pincushion)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Centaurea calcitrapa* (Star Thistle)

- *Lolium perenne* (Perennial Ryegrass)
- *Medicago* sp. (Medic)
- *Polygonum aviculare* (Wireweed)
- *Phalaris aquatica* (Phalaris)
- *Rumex* sp. (Dock).

Other species of interest

Exotic

- *Pinus radiata* (Radiata Pine) at 1790 m on the left, and 1820 m on the right.

Road 34: Burra Road (2)

Road order: 34

Survey length: 10.77 km

Number of segments: 12

Direction of survey: Travelling south from the northern end

General description

Burra Road (section 2) was surveyed between Turner Road and Black Springs Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Two vegetation associations are present along Burra Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).

Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound)
- *Echium plantagineum* (Salvation Jane).

Common species

- *Avena barbata* (Wild Oats)
- *Lolium perenne* (Perennial Ryegrass)
- *Lactuca serriola* (Prickly Lettuce)
- *Bromus* sp. (Brome)
- *Rumex* sp. (Dock)
- *Centaurea calcitrapa* (Star Thistle)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Bromus* sp. (Brome)
- *Scabiosa atropurpurea* (Pincushion).

Other species of interest

Exotic

- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 1080 m on the left.



Road 35: Hallelujah Hills Road

Road order: 35

Survey length: 9.24 km

Number of segments: 17

Direction of survey: Travelling east/north-east from the western end

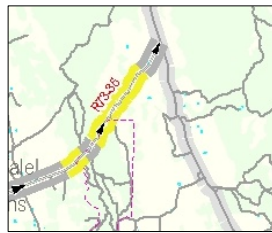
General description

Hallelujah Hills Road was surveyed between Black Springs Road and Worlds End Road. Roadside width is predominately narrow (<6 m) on both the left and right sides, and extends to moderate (6-15 m) and wide (>15 m) in some areas.

Potential roadside sites

There are four potential roadside sites along Hallelujah Hills Road.

| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | REF | 3720 – 4540 m | L | 12 |
| 2 | REF | 3720 – 4540 m | R | 12 |
| 3 | REF | 5100 – 8110 m | L | 15, 14, 43 |
| 4 | REF | 5100 – 8110 m | R | 15, 14, 7, 43 |

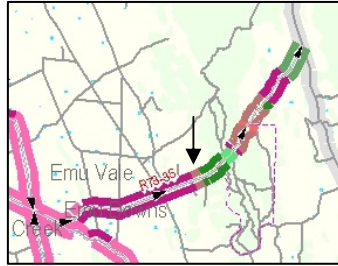


Vegetation description

Eight vegetation associations are present along Hallelujah Hills Road, these are:

- Association 7: *Eucalyptus porosa* Low Woodland (conservation priority 1)
- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa* Mallee
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.
- Association 15: *Acacia brachybotrya* +/- *A. calamifolia* +/- *Maireana brevifolia* Shrubland (conservation priority 2)
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 38: *Senna artemisioides* ssp. *filifolia* +/- *Acacia calamifolia* +/- *Dodonaea viscosa* ssp. *angustissima* +/- *Senna artemisioides* ssp. *X coriacea* Shrubland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland

- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland. (conservation priority 1).



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Lycium ferocissimum* (African Boxthorn) at 7220 m on the left
- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle)

Road 36: Bower Boundary Road

Road order: 36

Survey length: 51.21 km

Number of segments: 79

Direction of survey: Travelling south from the northern end

General description

Bower Boundary Road was surveyed between Burra-Morgan Road and Worlds End Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Seven vegetation associations are present along Bower Boundary Road, these are:

- Association 3: *Senna artemisioides* ssp. *X coriacea*, *Rhagodia parabolica*, *Acacia ligulata* Shrubland
- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis* Mallee
- Association 18: *Acacia nyssophylla* +/- *A. victoriae* +/- *Maireana brevifolia* +/- *Senna artemisioides* ssp. *filifolia* Shrubland (conservation priority 2)
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland
- Association 25: *Senna artemisioides* ssp. *X coriacea* Shrubland
- Association 27: *Maireana sedifolia* +/- *Acacia nyssophylla* +/- *Eremophila scoparia* +/- *Senna* sp. +/- *Maireana* sp. +/- *Nitraria* sp. Shrubland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).

Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound).
- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Convolvulus* sp. (Bindweed)
- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle)
- *Scabiosa atropurpurea* (Pincushion)
- Graminae sp. (un-identified Grass family).



Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 2915 m on the right, and 38140 m and 38370 m on the left.

Native

- Native *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) patch at 2650 m on the left
- Native *Melaleuca lanceolata* (Dryland Tea-tree) between 3730 m – 4550 on the left.

Road 37: Webb Gap Road

Road order: 37

Survey length: 3.25 km

Number of segments: 7

Direction of survey: Travelling east from the western end

General description

Webb Gap Road was surveyed between the council boundary (west of Range Road) and Burra Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Three vegetation associations are present along Webb Gap Road, these are:

- Association 12: *Eucalyptus porosa* +/- *E. dumosa* +/- *E. odorata* +/- *E. oleosa* +/- *Acacia pycnantha* +/- *Alectryon oleifolius* +/- *Callitris gracilis* Mallee (conservation priority 1)
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Rosa canina* (Dog Rose) at 2960 m on the left.

Common species

- *Avena barbata* (Wild Oats)
- Graminae sp. (un-identified Grass family)
- *Centaurea calcitrapa* (Star Thistle)
- *Piptatherum miliaceum* (Rice Millet)
- *Phalaris aquatica* (Phalaris)
- *Trifolium angustifolium* (Narrow-leaf Clover)

Road 38: Black Springs Road

Road order: 38

Survey length: 22.65 km

Number of segments: 24

Direction of survey: Travelling east from the western end

General description

Black Springs Road was surveyed between Cemetery Road and Church Street. Roadside width is predominately narrow (<6 m) on both the left and right sides.

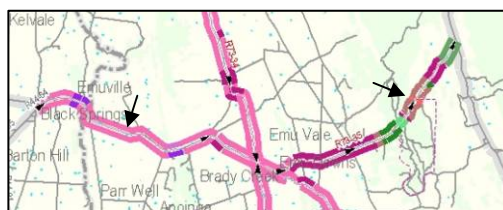
Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Eight vegetation associations are present along Black Springs Road, these are:

- Association 7: *Eucalyptus porosa* Low Woodland (conservation priority 1)
- Association 23: *Maireana aphylla* +/- *Atriplex stipitata* Shrubland (conservation priority 2)
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 38: *Senna artemisioides* ssp. *filifolia* +/- *Acacia calamifolia* +/- *Dodonaea viscosa* ssp. *angustissima* +/- *Senna artemisioides* ssp. *X coriacea* Shrubland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 47: Native Plantation
- Association 50: Bare Ground.



Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Olea europaea* (Olive) at 1080 m on the left, and 1080 m, 1450 m on the right
- *Lycium ferocissimum* (African Boxthorn) at 1080 m on the left
- *Rosa canina* (Dog Rose) at 18750 m on the right
- *Marrubium vulgare* (Horehound)
- *Echium plantagineum* (Salvation Jane).

Common species

- *Avena barbata* (Wild Oats)
- *Lactuca serriola* (Prickly Lettuce)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Bromus* sp. (Brome)
- *Centaurea calcitrapa* (Star Thistle)
- *Lolium perenne* (Perennial Ryegrass)
- *Scabiosa atropurpurea* (Pincushion)
- *Rumex* sp. (Dock)
- *Piptatherum miliaceum* (Rice Millet).

Other species of interest

Exotic

- *Rubus ulmifolius* var. *ulmifolius* (Blackberry) at 1240 m, 1450 m, and 1530 m on the right
- *Agave* sp. at 1530 m on the right
- *Pinus radiata* (Radiata Pine) at 10450 m, on the left and right, and 11930 m on the left
- *Cactus* sp. at 10740 m on the right.

Native

- Patch of native *Lomandra* sp. (Mat-rush) at 16920 m on the right.

Road 39: Bower Road

Road order: 39

Survey length: 6.13 km

Number of segments: 19

Direction of survey: Travelling north-west from the south-eastern end

General description

Bower Road was surveyed between Keller Road and Plains Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Nine vegetation associations are present along Bower Road, these are:

- Association 3: *Senna artemisioides* ssp. *X coriacea*, *Rhagodia parabolica*, *Acacia ligulata*
Shrubland
- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis*
Mallee
- Association 12: *Eucalyptus porosa* +/- *E. dumosa* +/- *E. odorata* +/- *E. oleosa* +/- *Acacia pycnantha* +/- *Alectryon oleifolius* +/- *Callitris gracilis* Mallee (conservation priority 1)
- Association 13: *Eucalyptus phenax* +/- *Eucalyptus oleosa* +/- *Eucalyptus porosa* +/- *Eucalyptus socialis* Woodland
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 25: *Senna artemisioides* ssp. *X coriacea* Shrubland
- Association 32: *Eremophila longifolia* +/- *Hakea rostrata* +/- *Pittosporum angustifolium*
Shrubland (conservation priority 2)
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane)
- *Asphodelus fistulosus* (Onion Weed),
- *Marrubium vulgare* (Horehound).

Common species

Exotic

- *Centaurea calcitrapa* (Star Thistle)
- *Piptatherum miliaceum* (Rice Millet).
- *Avena barbata* (Wild Oats)
- *Bromus* sp. (Brome)
- *Lepidium africanum* (Common Peppergrass).

Road 40: Emmaus Road

Road order: 40

Survey length: 3.48 km

Number of segments: 8

Direction of survey: Travelling west from the eastern end

General description

Emmaus Road was surveyed between Plains Road and Keller Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside Sites

There were no potential roadside sites along this road.

Vegetation description

Five vegetation associations are present along Emmaus Road, these are:

- Association 3: *Senna artemisioides* ssp. *X coriacea*, *Rhagodia parabolica*, *Acacia ligulata* Shrubland
- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis* Mallee
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 29: *Rhagodia parabolica* +/- *Acacia ligulata* Shrubland
- Association 45: Exotic Grassland.



Understorey condition

- Typically poor to very poor.

Exotic species Description

Declared Species

- *Echium plantagineum* (Salvation Jane)
- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle).

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 3030 m on the right.

Road 41: Australia Plains Road

Road order: 41

Survey length: 6.29 km

Number of segments: 16

Direction of survey: Travelling south-west from the north-east end

General description

Australia Plains Road was surveyed between Keller Road and Robertstown-Eudunda Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

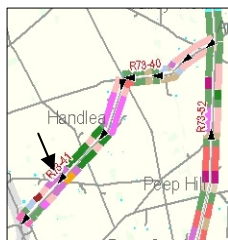
Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Eight vegetation associations are present along Australia Plains Road, these are:

- Association 3: *Senna artemisioides* ssp. *X coriacea*, *Rhagodia parabolica*, *Acacia ligulata* Shrubland
- Association 9: *Callitris gracilis* Woodland (conservation priority 2)
- Association 12: *Eucalyptus porosa* +/- *E. dumosa* +/- *E. odorata* +/- *E. oleosa* +/- *Acacia pycnantha* +/- *Alectryon oleifolius* +/- *Callitris gracilis* Mallee (conservation priority 1)
- Association 13: *Eucalyptus phenax* +/- *Eucalyptus oleosa* +/- *Eucalyptus porosa* +/- *Eucalyptus socialis* Woodland
- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa* Mallee
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 25: *Senna artemisioides* ssp. *X coriacea* Shrubland
- Association 29: *Rhagodia parabolica* +/- *Acacia ligulata* Shrubland
- Association 45: Exotic Grassland.



Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound)

Common species

- *Avena barbata* (Wild Oats)

- *Bromus* sp. (Brome)
- *Piptatherum miliaceum* (Rice Millet)
- *Scabiosa atropurpurea* (Pincushion)
- *Centaurea calcitrapa* (Star Thistle).

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 3770 m on the right
- *Pinus radiata* (Radiata Pine) at 4620 m on the right
- *Prunus* sp. (Fruit Tree) at 4620 m on the right.

Road 42: Anlaby Road

Road order: 42

Survey length: 6.53 km

Number of segments: 13

Direction of survey: Travelling north from the southern end

General description

Anlaby Road was surveyed between Hansen Road and Eudunda-Marrabel Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Six vegetation associations are present along Anlaby Road, these are:

- Association 1: *Eucalyptus leucoxylon* +/- *E. odorata* Woodland (conservation priority 2)
- Association 5: *Eucalyptus leucoxylon* +/- *Acacia pycnantha* Woodland
- Association 19: *Acacia pycnantha* +/- *Allocasuarina verticillata* Woodland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 45: Exotic Grassland.
- Association 47: Native Plantation



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Rosa canina* (Dog Rose) at 60 m, 6160 m, 6380 m on the left, and 5860 m and 6380 m on the right
- *Olea europaea* (Olive) at 30 m on the right, and 3250 m on the left
- *Lycium ferocissimum* (African Boxthorn) at 94 m on the left, and 1040 m on the right
- *Echium plantagineum* (Salvation Jane)
- *Marrubium vulgare* (Horehound).

Common species

- *Avena barbata* (Wild Oats)
- *Phalaris aquatica* (Phalaris)
- *Panicum* sp. (Millet)

- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Rumex* sp. (Dock)
- *Scabiosa atropurpurea* (Pincushion).
- *Centaurea calcitrapa* (Star Thistle)
- *Lactuca serriola* (Prickly Lettuce)
- *Phalaris aquatica* (Phalaris).

Other species of interest

Exotic

- *Prunus* sp. (Fruit Tree) at 1870 m on the right
- *Pinus radiata* (Radiata Pine) at 3650 m on the right.

Road 43: Ngapala Road (1)

Road order: 43

Survey length: 15.25 km

Number of segments: 31

Direction of survey: Travelling north from the southern end

General description

Ngapala Road was surveyed between Eudunda-Marrabel Road and Julia Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Seven vegetation associations are present along Ngapala Road, these are:

- Association 1: *Eucalyptus leucoxylo* +/- *E. odorata* Woodland (conservation priority 2)
- Association 5: *Eucalyptus leucoxylo* +/- *Acacia pycnantha* Woodland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 46: *Rosa canina* Shrubland
- Association 47: Native Plantation
- Association 48: Mixed Native/Exotic Plantation



Understorey condition

- Typically poor to very poor, with one moderate segment.

Exotic species description

Declared species

- *Rosa canina* (Dog Rose) at 520 m on the right, 11960 m on the left, 111760 m on the right, 12400 m on the left
- *Rubus ulmifolius* var. *ulmifolius* (Blackberry) at 11670 m on the left.

Common species

- *Avena barbata* (Wild Oats)
- *Phalaris aquatica* (Phalaris)
- *Bromus* sp. (Brome)
- *Scabiosa atropurpurea* (Pincushion).
- *Rumex* sp. (Dock)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Centaurea calcitrapa* (Star Thistle).

Other species of interest

- *Schinus molle* (Pepper-tree) at 10340 m on the left, and 10820 on the right
- *Populus* sp. (Poplar Tree) at 11760 m on the left.

Road 44: Ngapala Road (2)

Road order: 44

Survey length: 9.03 km

Number of segments: 14

Direction of survey: Travelling north from the southern end

General description

Ngapala Road (section 2) was surveyed between Dunstan Road and Webb Gap Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Four vegetation associations are present along Ngapala Road, these are:

- Association 1: *Eucalyptus leucoxylon* +/- *E. odorata* Woodland (conservation priority 2)
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 50: Bare Ground.



Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane)
- *Rosa canina* (Dog Rose) at 1560 m, 2060 m, and 2220 m on the right, 6320 m on the left, 6380 m on the right, and 8590 m on the left.

Common species

- *Avena barbata* (Wild Oats)
- *Phalaris aquatica* (Phalaris)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Rumex* sp. (Dock).

Other species of interest

Exotic

- *Prunus* sp. (Fruit Tree) at 6950 m on the left and right.

Road 45: Burra Road (2)

Road order: 45

Survey length: 6.05 km

Number of segments: 5

Direction of survey: Travelling north from the southern end

General Description

Burra Road (section 2) was surveyed between Ngapala Road and Black Springs Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside Sites

There were no potential roadside sites along this road.

Vegetation description

Two vegetation associations are present along Burra Road, these are:

- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).

Understorey condition

- Typically poor to very poor.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound)
- *Echium plantagineum* (Salvation Jane)
- *Rosa canina* (Dog Rose) at 30 m, 110 m, 400 m on the left, 350 m on the right, 1720 m on the left, and 2740 m on the right.

Common species

- *Avena barbata* (Wild Oats)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Chloris* sp. (Windmill Grass)
- *Scabiosa atropurpurea* (Pincushion)
- *Centaurea calcitrapa* (Star Thistle)
- *Rumex* sp. (Dock).

Other species of interest

Exotic

- *Pinus radiata* (Radiata Pine) at 1500 m on the left
- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 2510 m on the right, and 4610 m on the left.



Native

- Patch of the native *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) at 4200 m on the left.

Road 46: Powerline Road

Road order: 46

Survey length: 24.29 km

Number of segments: 42

Direction of survey: Travelling west from the eastern end

General description

Powerline Road was surveyed between Bower Boundary Road and Worlds End Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Twelve vegetation associations are present along Powerline Road, these are:

- Association 5: *Eucalyptus leucoxydon* +/- *Acacia pycnantha* Woodland
- Association 3: *Senna artemisioides* ssp. *X coriacea*, *Rhagodia parabolica*, *Acacia ligulata* Shrubland
- Association 7: *Eucalyptus porosa* Low Woodland (conservation priority 1)
- Association 8: *Myoporum platycarpum* Very Low Open Woodland (conservation priority 2)
- Association 10: *Casuarina pauper* Woodland
- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis* Mallee
- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa* Mallee
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 25: *Senna artemisioides* ssp. *X coriacea* Shrubland
- Association 27: *Maireana sedifolia* +/- *Acacia nyssophylla* +/- *Eremophila scoparia* +/- *Senna* sp. +/- *Maireana* sp. +/- *Nitraria* sp. Shrubland
- Association 33: *Eremophila scoparia* Shrubland (conservation priority 2)
- Association 37: *Myoporum platycarpum* Shrubland (conservation priority 2).



Understorey condition

- Typically moderate to poor.

Exotic species description

Declared species

- *Marrubium vulgare* (Horehound)
- *Echium plantagineum* (Salvation Jane),
- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Avena barbata* (Wild Oats)
- *Phalaris aquatica* (Phalaris)
- *Centaurea calcitrapa* (Star Thistle)
- *Plantago* sp. (Plantain)
- *Convolvulus* sp.(Bindweed)
- *Rumex* sp. (Dock)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Scabiosa atropurpurea* (Pincushion).

Other species of interest

Exotic

- *Agave* sp. at 1750 m on the right, and 18680 m on the left.

Road 47: Scenic Road

Road order: 47

Survey length: 13.48 km

Number of segments: 28

Direction of survey: Travelling south from the northern end

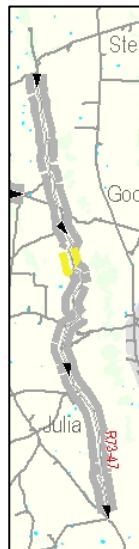
General description

Scenic Road was surveyed between Hills Road and Julia Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were two potential roadside sites along this road.

| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | REF | 5260 – 5850 m | L | 5 |
| 2 | REF | 5260 – 5850 m | R | 5 |



Vegetation description

Four vegetation associations are present along Scenic Road, these are:

- Association 1: *Eucalyptus leucoxylo* +/- *E. odorata* Woodland (conservation priority 2)
- Association 5: *Eucalyptus leucoxylo* +/- *Acacia pycnantha* Woodland (conservation priority 2)
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Rosa canina* (Dog Rose) at 3420 m on the left, 7550 m on the left and right, 7720 m, 8720 m, 8960 m, 9160 m, 9540 m on the left
- *Asphodelus fistulosus* (Onion Weed)
- *Marrubium vulgare* (Horehound).

Common species

- *Convolvulus* sp.(Bindweed)
- *Centaurea calcitrapa* (Star Thistle)
- *Rumex* sp. (Dock).

Other species of interest

Exotic

- *Pinus radiata* (Radiata Pine) plantation between 11470 m – 11510 m on the left.

Road 48: Truro Road

Road order: 48

Survey length: 18.05 km

Number of segments: 35

Direction of survey: Travelling south from the northern end.

General description

Truro Road was surveyed between Eudunda-Morgan Road and the council boundary Road (south of Levi Road). Roadside width is variable and changes frequently. Some sections are narrow (<6 m) while others are wide (>15 m), and often much wider (approximately 50 m).

Potential roadside sites

There were two potential roadside sites along this road.

| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | REF | 3700 - 5410 m | L | 12 |
| 2 | REF | 3700 - 5410 m | R | 12 |



Vegetation description

Six vegetation associations are present along Truro Road, these are:

- Association 1: *Eucalyptus leucoxylon* +/- *E. odorata* Woodland
- Association 12: *Eucalyptus porosa* +/- *E. dumosa* +/- *E. odorata* +/- *E. oleosa* +/- *Acacia pycnantha* +/- *Alectryon oleifolius* +/- *Callitris gracilis* Mallee (conservation priority 1)
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 42: *Avena barbata* +/- *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* sp. +/- *Atriplex* sp. Grassland
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1)
- Association 47: Native Plantation.



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane)
- *Rosa canina* (Dog Rose) at 6170 m on the left, 15770 m on the right, 1640 m on the right, and 17220 m on the right.

Common species

- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle)
- *Scabiosa atropurpurea* (Pincushion).
- *Marrubium vulgare* (Horehound)
- *Trifolium angustifolium* (Narrow-leaf Clover)
- *Rumex* sp. (Dock)
- *Bromus* sp. (Brome)
- *Polygonum aviculare* (Wireweed).

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 330 m, 1720, and 9760 m on the right, 14160 m on the left, and 17390 m on the right
- *Agave* sp. at 330 m on the right, and 10960 m on the left
- *Prunus* sp. (Fruit Tree) at 2010 m on the left plantation between 11650 m – 12080 m on the left, and patch at 12490 m on the left
- *Pinus radiata* (Radiata Pine) at 2240 m on the right
- *Agave* sp. at 7220 on the right
- *Gomphocarpus fruticosus* (Broad-leaf Cotton-bush) at 7710 m on the left
- *Cactus* sp. at 10000 m on the left
- *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle) at 16050 m on the left.

Road 49: Foote Road (1)

Road order: 49

Survey length: 13.24 km

Number of segments: 21

Direction of survey: Travelling west from the eastern end

General description

Foote Road (section 1) was surveyed between Bower Boundary Road and Frankton Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were two potential roadside sites along this road.

| Number | Site type | Odometer reading | Side | Association no. |
|--------|-----------|------------------|------|-----------------|
| 1 | REF | 12190 – 13240 m | L | 32 |
| 2 | REF | 12190 – 12940 m | R | 32 |



Vegetation description

Four vegetation associations are present along Foote Road, these are:

- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis*
Mallee
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 32: *Eremophila longifolia* +/- *Hakea rostrata* +/- *Pittosporum angustifolium*
Shrubland (conservation priority 2).



Understorey condition

- Typically moderate to poor.

Exotic species description

Declared species

- *Asphodelus fistulosus* (Onion Weed)
- *Echium plantagineum* (Salvation Jane).

Common species

- *Centaurea calcitrapa* (Star Thistle)
- *Avena barbata* (Wild Oats)
- *Piptatherum miliaceum* (Rice Millet).

Other species of interest

Exotic

- *Agave* sp. at 3810 m, and 12350 m on the left
- *Cactus* sp. at 3810 m on the left.

Road 50: Foote Road (2)

Road order: 50

Survey length: 3.95 km

Number of segments: 7

Direction of survey: Travelling west from the eastern end

General description

Foote Road (section 2) was surveyed between Frankton Road and Neales Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Four vegetation associations are present along Foote Road, these are:

- Association 23: *Maireana aphylla* +/- *Atriplex stipitata* Shrubland (conservation priority 2)
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 25: *Senna artemisioides* ssp. X *coriacea* Shrubland
- Association 33: *Eremophila scoparia* Shrubland (conservation priority 2).



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Asphodelus fistulosus* (Onion Weed)
- *Echium plantagineum* (Salvation Jane)
- *Marrubium vulgare* (Horehound).

Common species

- *Centaurea calcitrapa* (Star Thistle)
- *Avena barbata* (Wild Oats).

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 1470 m and 3120 m on the right.

Road 51: Neales Road

Road order: 51

Survey length: 4.55 km

Number of segments: 7

Direction of survey: Travelling north from the southern end

General description

Neales Road was surveyed between Foote Road and Eudunda-Morgan Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Four vegetation associations are present along Neales Road, these are:

- Association 13: *Eucalyptus phenax* +/- *Eucalyptus oleosa* +/- *Eucalyptus porosa* +/- *Eucalyptus socialis* Woodland
- Association 15: *Acacia brachybotrya* +/- *A. calamifolia* +/- *Maireana brevifolia* Shrubland (conservation priority 2)
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 25: *Senna artemisioides* ssp. X *coriacea* Shrubland.



Understorey condition

- Typically poor to moderate.

Exotic species description

Declared species

- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Avena barbata* (Wild Oats)
- *Scabiosa atropurpurea* (Pincushion).
- *Marrubium vulgare* (Horehound)
- *Piptatherum miliaceum* (Rice Millet)
- *Foeniculum vulgare* (Fennel)
- *Centaurea calcitrapa* (Star Thistle).

Other species of interest

- *Schinus molle* (Pepper-tree) at 2940 m, 4150 m on the left, and 4150 m on the right
- *Agave* sp. at 3040 m on the left

Road 52: Plains Road

Road order: 52

Survey length: 16.86 km

Number of segments: 29

Direction of survey: Travelling north from the southern end

General description

Plains Road was surveyed between Eudunda-Morgan Road and Bower Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Eleven vegetation associations are present along Plains Road, these are:

- Association 3: *Senna artemisioides* ssp. *X coriacea*, *Rhagodia parabolica*, *Acacia ligulata* Shrubland
- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis* Mallee
- Association 13: *Eucalyptus phenax* +/- *Eucalyptus oleosa* +/- *Eucalyptus porosa* +/- *Eucalyptus socialis* Woodland
- Association 14: *Eucalyptus socialis* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. oleosa* +/- *E. porosa* Mallee
- Association 17: *Acacia ligulata* +/- *Senna artemisioides* ssp. *X coriacea* +/- *Senna artemisioides* ssp. *filifolia* Shrubland
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/- *Zygophyllum* sp. Shrubland.
- Association 23: *Maireana aphylla* +/- *Atriplex stipitata* Shrubland (conservation priority 2)
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana* sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 25: *Senna artemisioides* ssp. *X coriacea* Shrubland
- Association 32: *Eremophila longifolia* +/- *Hakea rostrata* +/- *Pittosporum angustifolium* Shrubland (conservation priority 2)
- Association 43: *Austrostipa* sp. +/- *Austrodanthonia* sp. +/- *Enneapogon* +/- *Cymbopogon* sp. +/- *Lomandra* sp. Grassland (conservation priority 1).



Understorey condition

- Typically moderate to poor.

Exotic species description

Declared species

- *Echium plantagineum* (Salvation Jane)
- *Marrubium vulgare* (Horehound)
- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Avena barbata* (Wild Oats)
- *Centaurea calcitrapa* (Star Thistle)
- Graminae sp. (un-identified Grass family)
- *Scabiosa atropurpurea* (Pincushion)
- *Piptatherum miliaceum* (Rice Millet).

Other species of interest

Native

- Patch of native *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) at 6360 m on the left

Road 53: Schulz Road

Road order: 53

Survey length: 7.96 km

Number of segments: 10

Direction of survey: Travelling east from the western end

General description

Schulz Road was surveyed between Plains Road and Southerland Road. Roadside width is predominately narrow (<6 m) on both the left and right sides.

Potential roadside sites

There were no potential roadside sites along this road.

Vegetation description

Four vegetation associations are present along Schulz Road, these are:

- Association 11: *Eucalyptus oleosa* +/- *E. brachycalyx* +/- *E. gracilis* +/- *E. odorata* +/- *E. socialis*
Mallee
- Association 21: *Atriplex stipitata* +/- *A. vesicaria* +/- *Maireana* sp. +/- *Nitraria* sp. +/-
Zygophyllum sp. Shrubland.
- Association 24: *Maireana brevifolia* +/- *Senna* sp. +/- *Acacia* sp. +/- *Atriplex* sp. +/- *Maireana*
sp. +/- *Dodonaea* sp. +/- *Hakea rostrata* Shrubland
- Association 39: *Zygophyllum aurantiacum* Low Shrubland.



Understorey condition

- Typically poor to very poor, with some moderate segments.

Exotic species description

Declared species

- *Asphodelus fistulosus* (Onion Weed).

Common species

- *Avena barbata* (Wild Oats)
- *Lepidium africanum* (Common Peppercross).

Other species of interest

Exotic

- *Schinus molle* (Pepper-tree) at 50 m on the left.

5 Conservation Priority Rating

During this survey 51 vegetation associations were determined from the analysis of the data. These associations include typical high quality native vegetation associations, degraded native vegetation associations, exotic vegetation associations and also non-typical associations such as built-up or bare ground.

Each of these vegetation associations is assigned a conservation priority rating based primarily upon the extent of its protection in National Parks and Wildlife Reserves and Heritage Agreements (Neagle 1995) and it's remnancy (i.e. contemporary extent relative to pre-European extent) (Stokes *et al* 1998). Threatened plant community lists from the two Biodiversity Plans (Graham *et al.* 2001; Kahrmanis *et al.* 2001) were also examined to determine the appropriate ratings. Definitions of conservation priority ratings are given in the table below:

Table 4. Conservation Priority Ratings for vegetation associations.

| Rating | Description |
|---------------|---|
| 1 | Very high conservation rating; includes any associations whose Conservation Status was identified by Neagle (1995) as Poor or Nil; typically includes associations that are most extensively cleared and/or most degraded. |
| 2 | High conservation rating; includes associations whose Conservation Status was identified by Neagle (1995) as either Moderate or Reasonable; typically includes associations that are moderately cleared; may include mixed native vegetation that includes significant species in the overstorey. |
| 3 | Moderate conservation rating; includes relatively common associations whose Conservation Status was identified by Neagle as either Reasonable or Excellent; may include mixed native vegetation that contains common species in the overstorey. |
| 4 | Low conservation rating; may include some mixed native +/- alien vegetation that can not be categorised readily into a formal association type. |
| 5 | Of no conservation significance; very little or no native vegetation. |
| 9 | Nil conservation rating; of no conservation significance; very little or no native vegetation. |

From the *Guide to a Roadside Vegetation Methodology for South Australia* (Stokes *et al.*1998).

The following list of vegetation associations have been assigned a priority rating in Neagle (1995), listed in Graham *et al.* (2001) or Kahrmanis *et al.* (2001) as being threatened to some extent, or listed under the *Provisional List of Threatened Ecosystems of South Australia* (DEH in progress), or have not been previously listed are dominated by a State and Regionally threatened species (*Acacia glandulicarpa*). While they may not be exactly the same as those listed in these publications, they are structurally similar and have the same dominant species and therefore are considered to qualify for the same rating. They have therefore received a higher conservation priority rating in this survey, as indicated in Table 5.

Vegetation associations of the Mid-north region with an allocated priority rating:

- *Eucalyptus porosa* Low Woodland (Neagle 1999; Robertson 1998)
- *Eucalyptus porosa* +/- *E. dumosa* +/- *E. odorata* +/- *E. oleosa* +/- *Acacia pycnantha* +/- *Alectryon oleifolius* +/- *Callitris gracilis* Mallee (Neagle 1999; Graham et al. 2001)
- *Eucalyptus leucoxylon* +/- *E. odorata* Woodland (Robertson 1998; Playfair & Heard 1995)
- *Eucalyptus leucoxylon* +/- *Acacia pycnantha* Woodland Graham et al (2001)
- *Myoporum platycarpum* Woodland (Kahrimanis et al. 2001)
- *Callitris gracilis* Woodland (Neagle 1999)
- *Casuarina pauper* Woodland (Neagle 1999)
- *Acacia brachybotrya* +/- *A. calamifolia* +/- *Maireana brevifolia* Shrubland (Graham et al. 2001; Kahrimanis et al. 2001)
- *Acacia nyssophylla* +/- *A. victoriae* +/- *Maireana brevifolia* +/- *Senna artemisioides* ssp. *filifolia* Shrubland (Kahrimanis et al. 2001)
- *Acacia victoriae* Shrubland (Malcom and Sherrah 2000)
- *Maireana aphylla* +/- *Atriplex stipitata* Shrubland (Malcom and Sherrah 2000; Kahrimanis et al. 2001);
- *Dodonaea lobulata* +/- *Rhagodia parabolica*, *Senna artemisioides* ssp. *X coriacea* Shrubland
- *Dodonaea viscosa* ssp. *angustissima* +/- *Senna artemisioides* ssp. *X coriacea* +/- *Senna artemisioides* ssp. *filifolia* Shrubland (Kahrimanis et al. 2001)
- *Acacia glandulicarpa* Shrubland.

Table 5. Vegetation associations identified during the survey, and allocated conservation priority rating.

| Structural type | Assoc. No. | Vegetation association | Cons rating | Rating reference |
|-----------------|------------|---|-------------|--|
| Woodland | 1 | <i>Eucalyptus leucoxylon</i> +/- <i>E. odorata</i> Woodland | 2 | Robertson (1998); Playfair & Heard (1995) |
| Shrubland | 2 | <i>Hakea leucoptera</i> Shrubland | 2 | This survey |
| Shrubland | 3 | <i>Senna artemisioides</i> ssp. <i>X coriacea</i> , <i>Rhagodia parabolica</i> , <i>Acacia ligulata</i> Shrubland | 3 | Graham et al. (2001) |
| Shrubland | 4 | <i>Senna artemisioides</i> ssp. <i>filifolia</i> Shrubland | 3 | Graham et al. (2001) |
| Woodland | 5 | <i>Eucalyptus leucoxylon</i> +/- <i>Acacia pycnantha</i> Woodland | 2 | Graham et al. (2001) |
| Woodland | 6 | <i>Eucalyptus</i> sp. Woodland | 3 | This survey |
| Woodland | 7 | <i>Eucalyptus porosa</i> Low Woodland | 1 | Neagle (1999) Robertson (1998) |
| Woodland | 8 | <i>Myoporum platycarpum</i> Very Low Open Woodland | 2 | Kahrimanis et al. (2001); this survey |
| Woodland | 9 | <i>Callitris gracilis</i> Woodland | 2 | Neagle (1999) |
| Woodland | 10 | <i>Casuarina pauper</i> Woodland | 2 | Neagle (1999) |
| Mallee | 11 | <i>Eucalyptus oleosa</i> +/- <i>E. brachycalyx</i> +/- <i>E. gracilis</i> +/- <i>E. odorata</i> +/- <i>E. socialis</i> Mallee | 3 | Graham et al (2001) |
| Mallee | 12 | <i>Eucalyptus porosa</i> +/- <i>E. dumosa</i> +/- <i>E. odorata</i> +/- <i>E. oleosa</i> +/- <i>Acacia pycnantha</i> +/- <i>Alectryon oleifolius</i> +/- <i>Callitris gracilis</i> Mallee | 1 | Neagle (1999) Graham et al. (2001) |
| Woodland | 13 | <i>Eucalyptus phenax</i> +/- <i>Eucalyptus oleosa</i> +/- <i>Eucalyptus porosa</i> +/- <i>Eucalyptus socialis</i> Woodland | 3 | Neagle (1999) Graham et al. (2001) |
| Mallee | 14 | <i>Eucalyptus socialis</i> +/- <i>E. brachycalyx</i> +/- <i>E. gracilis</i> +/- <i>E. oleosa</i> +/- <i>E. porosa</i> Mallee | 3 | Neagle (1999) Graham et al. (2001) |
| Shrubland | 15 | <i>Acacia brachybotrya</i> +/- <i>A. calamifolia</i> +/- <i>Maireana brevifolia</i> Shrubland | 2 | Graham et al. (2001); Kahrimanis et al (2001); this survey |
| Shrubland | 16 | <i>Acacia glandulicarpa</i> Shrubland | 1 | This survey |
| Shrubland | 17 | <i>Acacia ligulata</i> +/- <i>Senna artemisioides</i> ssp. <i>X coriacea</i> +/- <i>Senna artemisioides</i> ssp. <i>filifolia</i> Shrubland | 3 | Malcom and Sherrah (2000) |
| Shrubland | 18 | <i>Acacia nyssophylla</i> +/- <i>A. victoriae</i> +/- <i>Maireana brevifolia</i> +/- <i>Senna artemisioides</i> ssp. <i>filifolia</i> Shrubland | 2 | Kahrimanis et al. (2001); this survey |
| Woodland | 19 | <i>Acacia pycnantha</i> +/- <i>Allocasuarina verticillata</i> Woodland | 3 | Malcom and Sherrah (2000) |
| Shrubland | 20 | <i>Acacia victoriae</i> Shrubland | 2 | Malcom and Sherrah (2000) |
| Shrubland | 21 | <i>Atriplex stipitata</i> +/- <i>A. vesicaria</i> +/- <i>Maireana</i> sp. +/- <i>Nitraria</i> sp. +/- <i>Zygophyllum</i> sp. Shrubland | 3 | Graham et al. (2001) |
| Shrubland | 22 | <i>Dissocarpus paradoxus</i> Shrubland | 3 | This survey |

| Structural type | Assoc. No. | Vegetation association | Cons rating | Rating reference |
|-------------------|------------|---|-------------|---|
| Shrubland | 23 | <i>Maireana aphylla</i> +/- <i>Atriplex stipitata</i> Shrubland | 2 | Malcom and Sherrah (2000); Kahrmanis et al. (2001); this survey |
| Shrubland | 24 | <i>Maireana brevifolia</i> +/- <i>Senna</i> sp. +/- <i>Acacia</i> sp. +/- <i>Atriplex</i> sp. +/- <i>Maireana</i> sp. +/- <i>Dodonaea</i> sp. +/- <i>Hakea rostrata</i> Shrubland | 3 | Malcom and Sherrah (2000) |
| Shrubland | 25 | <i>Senna artemisioides</i> ssp. X <i>coriacea</i> Shrubland | 3 | This survey |
| Shrubland | 26 | <i>Maireana coronata</i> Shrubland | 3 | This survey |
| Shrubland | 27 | <i>Maireana sedifolia</i> +/- <i>Acacia nyssophylla</i> +/- <i>Eremophila scoparia</i> +/- <i>Senna</i> sp. +/- <i>Maireana</i> sp. +/- <i>Nitraria</i> sp. Shrubland | 3 | This survey |
| Shrubland | 28 | <i>Maireana</i> sp. Shrubland | 3 | This survey |
| Shrubland | 29 | <i>Rhagodia parabolica</i> +/- <i>Acacia ligulata</i> Shrubland | 3 | This survey |
| Shrubland | 30 | <i>Dodonaea lobulata</i> +/- <i>Rhagodia parabolica</i> , <i>Senna artemisioides</i> ssp. X <i>coriacea</i> Shrubland | 2 | This survey |
| Shrubland | 31 | <i>Dodonaea viscosa</i> ssp. <i>angustissima</i> +/- <i>Senna artemisioides</i> ssp. X <i>coriacea</i> +/- <i>Senna artemisioides</i> ssp. <i>filifolia</i> Shrubland | 2 | Kahrmanis et al. (2001) |
| Shrubland | 32 | <i>Eremophila longifolia</i> +/- <i>Hakea rostrata</i> +/- <i>Pittosporum angustifolium</i> Shrubland | 2 | This survey |
| Shrubland | 33 | <i>Eremophila scoparia</i> Shrubland | 2 | This survey |
| Shrubland | 34 | <i>Hakea leucoptera</i> +/- <i>Dodonaea lobulata</i> +/- <i>Dodonaea viscosa</i> ssp. <i>angustissima</i> +/- <i>Rhagodia parabolica</i> Shrubland | 2 | This survey |
| Shrubland | 35 | <i>Hakea rostrata</i> Shrubland | 3 | This survey |
| Shrubland | 36 | <i>Muehlenbeckia</i> sp. Shrubland | 3 | Neagle 1999 |
| Woodland | 37 | <i>Myoporum platycarpum</i> Shrubland | 2 | This survey |
| Shrubland | 38 | <i>Senna artemisioides</i> ssp. <i>filifolia</i> +/- <i>Acacia calamifolia</i> +/- <i>Dodonaea viscosa</i> ssp. <i>angustissima</i> +/- <i>Senna artemisioides</i> ssp. X <i>coriacea</i> Shrubland | 3 | This survey |
| Herbland | 39 | <i>Zygophyllum aurantiacum</i> Low Shrubland | | |
| Shrubland | 40 | <i>Salsola tragus</i> +/- <i>Maireana brevifolia</i> Herbland | 3 | This survey |
| Grassland | 41 | <i>Convolvulus</i> sp., <i>Maireana brevifolia</i> Shrubland | 4 | This survey |
| Grassland | 42 | <i>Avena barbata</i> +/- <i>Austrostipa</i> sp. +/- <i>Austroanthonia</i> sp. +/- <i>Enneapogon</i> sp. Grassland, +/- <i>Atriplex</i> sp. Grassland | 3 | This survey |
| Grassland | 43 | <i>Austrostipa</i> sp. +/- <i>Austroanthonia</i> sp. +/- <i>Enneapogon</i> +/- <i>Cymbopogon</i> sp. +/- <i>Lomandra</i> sp. Grassland | 1 | This survey |
| Tussock Grassland | 44 | <i>Cymbopogon ambiguus</i> Tussock Grassland | 1 | This survey |
| Grassland | 45 | Exotic Grassland | 5 | This survey |
| Shrubland | 46 | <i>Rosa canina</i> Shrubland | 5 | This survey |

| Structural type | Assoc. No. | Vegetation association | Cons rating | Rating reference |
|------------------------|-------------------|--------------------------------|--------------------|-------------------------|
| Plantation | 47 | Native Plantation | 3 | This survey |
| Plantation | 48 | Mixed Native/Exotic Plantation | 4 | This survey |
| Plantation | 49 | Exotic Plantation | 5 | This survey |
| Bare Ground | 50 | Bare Ground | 9 | This survey |
| Built Up | 51 | Built Up | 9 | This survey |

6 Overview Condition

The Overview Condition Rating is assigned during the field survey and records the extent to which exotic vegetation has replaced the native understorey species. This is a subjective assessment that is based upon and rated relative to the probable “pre-European” settlement state of the vegetation. Overview Condition Ratings are described in the following table:

Table 6. Overview condition rating.

| Overview condition rating | Condition terminology | Condition description of understorey |
|---------------------------|------------------------------|---|
| 1 | Excellent | Excellent quality native vegetation, containing very few or no exotic species |
| 2 | Good | Good quality native vegetation, containing few exotic species |
| 3 | Moderate | Moderate quality native vegetation, containing an even mix of native and exotic species |
| 4 | Poor | Poor quality, containing little native vegetation, exotic species being more common than natives |
| 5 | Very Poor | Very little or no native vegetation, exotic species dominating |
| 6 | Soil Deposition (Sand Drift) | Soil or sand is smothering the understorey plants resulting in the condition being unable to be assessed, exotic species may or may not be apparent |
| 9 | Not Relevant | Not relevant to assess condition as Built Up, Bare Ground or Water Course |

Adapted from Stokes et al (1998), Guide to a Roadside Vegetation Methodology for South Australia

7 Overall Significance

Vegetation Association segments receive an Overall Significance Rating, which assigns an ecological value to each segment in the survey. This rating is based on a combination of two attributes: the Conservation Priority Rating for the segment (see Table 3) and the Overview Condition Rating (see Table 5) for the segment. The matrix is detailed in the following table:

Table 7. Matrix of overall significance ratings.

| Overview condition rating | Conservation priority rating | | | | |
|---------------------------|------------------------------|---|---|-----|-----|
| | 1 | 2 | 3 | 4 | 5 |
| 1 | A | A | B | (C) | (C) |
| 2 | A | B | B | (C) | (D) |
| 3 | B | B | C | D | (D) |
| 4 | C | C | D | E | E |
| 5 | C | D | D | E | E |
| 6 | C | C | F | F | F |

Source: Stokes *et al.* (1998).

N.B. – For the Conservation Priority Rating, rating 1 represents the highest conservation value; for the Overview Condition Rating, rating 1 represents the best condition (least weed invaded). Brackets indicate that this combination is unlikely to occur.

Overall Significance Ratings provide a simple definition of the relative ecological value of the vegetation association in each segment (Stokes *et al.*, 1998). In turn this gives an indication of appropriate works that may be allowed in each category and also the management strategies that are to be followed. Table 7 provides a simple summary of what each category means.

Table 8. Categories of overall significance.

| Category | Description |
|----------|--|
| A | Should not be disturbed; contains a high priority vegetation association in excellent or good condition. |
| B | Should not be disturbed; contains a high priority vegetation association in moderate condition or a lower priority vegetation association in excellent condition. |
| C | Disturbance should be avoided whenever possible; contains a high priority vegetation association in poor condition or a lower priority association in moderate condition. |
| D | May be disturbed, subject to further assessment and planning; contains limited native vegetation in poor condition. |
| E | May be disturbed; very little or no native vegetation present. |
| F | May be of conservation significance, but is difficult to assess due to sand covering the native vegetation understorey; requires further assessment prior to any works; contains a moderate or low priority vegetation association that has been affected by sand drift. |

From Stokes *et al.* (1998) *Guide to a Roadside Vegetation Methodology for South Australia*.

Refer to Figure 3 for Overview Condition and Figure 4 for the Overall Significance of the road segments surveyed.

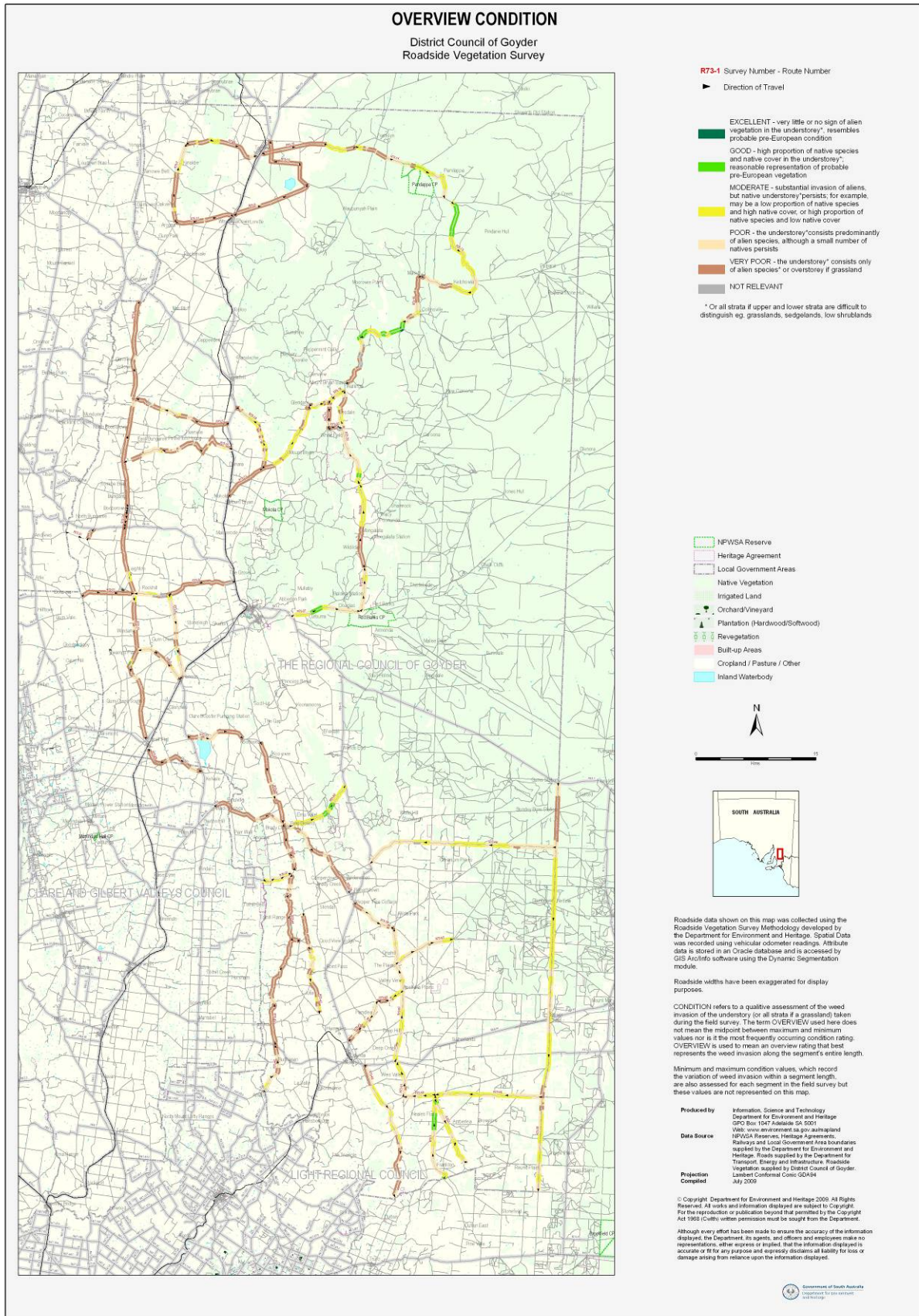


Figure 3. Overview condition.

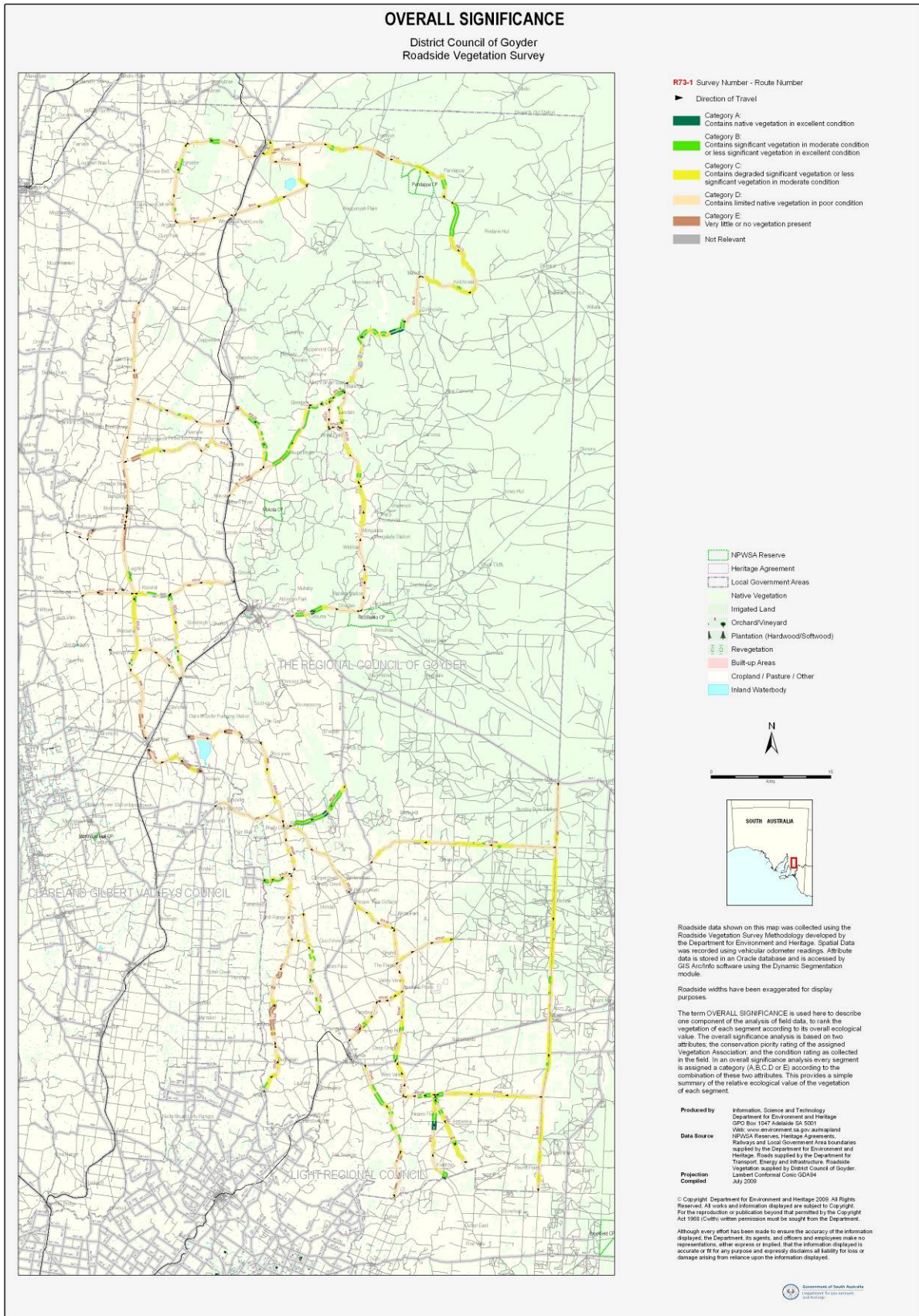


Figure 4. Overall significance.

8 Vegetation Association Descriptions

A vegetation association is defined as a community of plants that has a floristically uniform structure and composition, which is often described by its dominant species. Vegetation associations are made up of different layers of vegetation; the tallest layer, often made up of trees is called the overstorey, the next layer below, often made up of tall to medium shrubs is called the mid-storey, and the lowest layer, the understorey, is made up of low shrubs, grasses and other herbaceous plants. These layers and their associated dominant species can also be used to describe a vegetation association. An emergent species is defined as a plant species that occasionally rises above the dominant overstorey layer, without becoming the dominant overstorey stratum.

Vegetation association descriptions that have been used in this report are general descriptions only that have been derived from observations made during the survey and from botanical literature. Past disturbances in roadside reserves are many and include clearance, grazing, wood cutting and invasion of exotic species. Grazing and selective logging since European settlement may have altered the species composition of an association and associations listed here may therefore be constructs of this legacy of human interference. Some associations may originally have occurred as a different association, but because of clearance of the majority of larger tree species from the association it now appears as a different association. In some areas native grasslands that now occur may be remnants of open woodlands where the overstorey trees and shrubs have been cleared.

These disturbances and the fact that many roadsides are quite narrow and linear may influence the type of association found there, and due to this linear and fragmented nature may not exactly match associations found in other surveys or in nearby conservation parks. Therefore some associations that have been recorded here may only apply to this survey, and may differ from descriptions of vegetation associations compiled by other authors.

The following association descriptions give an indication of the commonness of the association (using the general categories 'one of the most un-common, un-common, and ranked one – five most common), the overall distance covered, where it was found in the survey area, the common native understorey species and common exotic species that occur in the associations. Also included are the Overall Significance Ratings and the length and number of segments for each category, the road order on which each association was found and the Conservation Priority Rating given to each association.

Representative photographs have been attached to each association description, and are intended to give a general indication of what each association looks like in the survey area. All photos were taken by the author, and within the boundaries of the survey area.

Refer to Figure 5: Vegetation Associations

A list of vegetation associations recorded during this survey can be found in Figure 5.

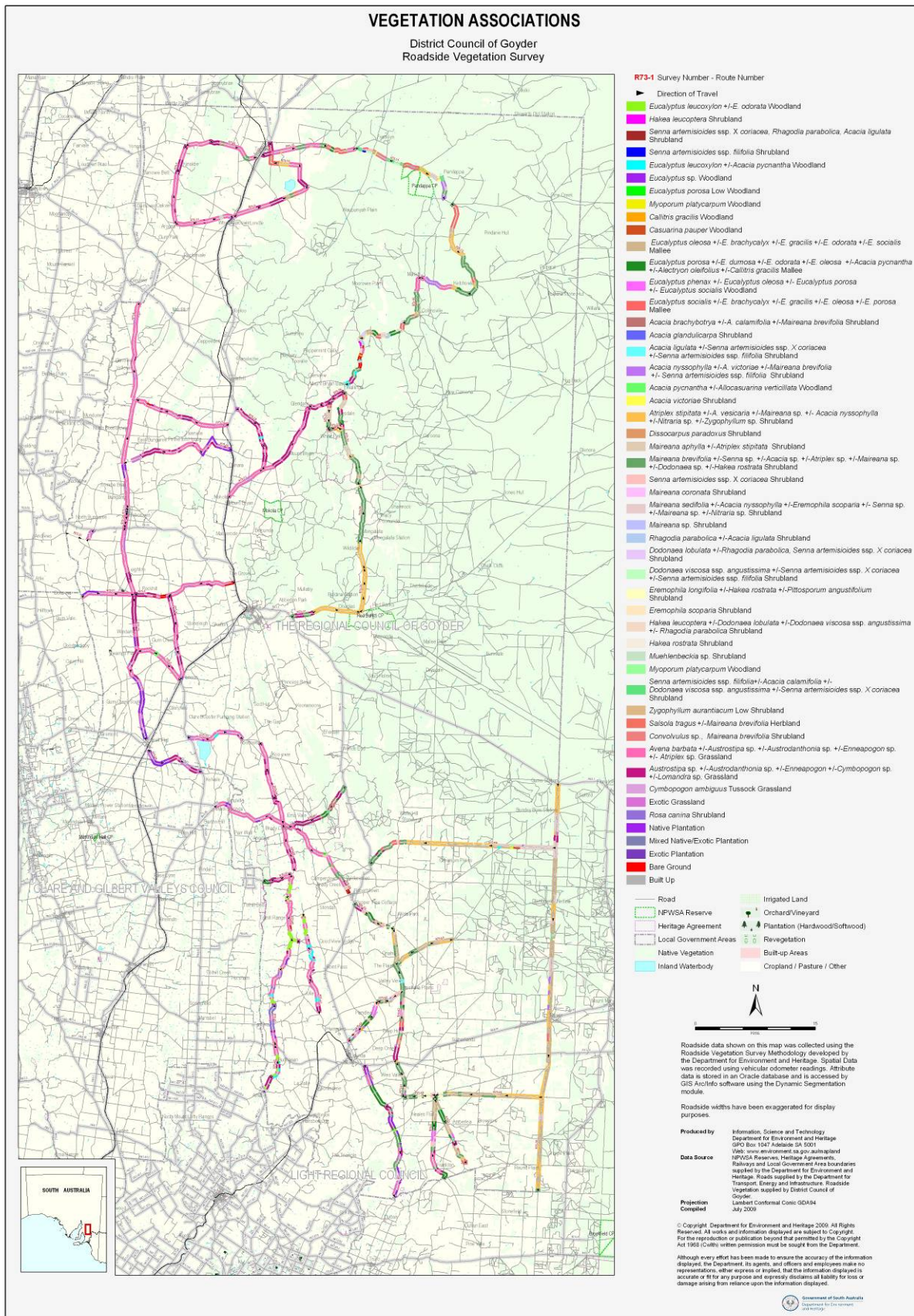


Figure 5. Vegetation associations.

Association 1: *Eucalyptus leucoxylon* +/- *Eucalyptus odorata* Woodland - Forest

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|------|------|-------|---|-------|
| Length (km) | 0 | 0.52 | 6.69 | 12.02 | 0 | 19.23 |
| Number of segments | 0 | 11 | 161 | 211 | 0 | 383 |

Conservation Priority Rating: 2.

Road Order: 42, 43, 44, 47.

Eucalyptus leucoxylon +/- *Eucalyptus odorata* Woodland - Forest is un-common within the survey area with 19.23 km identified.

Native species in the understorey include the shrubs *Maireana brevifolia* (Short-leaf Bluebush), *Bursaria spinosa* ssp. *spinosa* (Sweet Bursaria), the lily *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily), and grasses *Austrostipa* sp. (Spear Grass), and *Austrodanthonia* sp.

Exotic species in the understorey include *Avena barbata* (Wild Oats), *Phalaris aquatica* (Phalaris), *Rosa canina* (Dog Rose), *Echium plantagineum* (Salvation Jane), and *Scabiosa atropurpurea* (Pincushion).



Figure 6. *Eucalyptus leucoxylon* +/- *Eucalyptus odorata* Low Woodland along Cattle Station Road.

Association 2: *Hakea leuoptera* Tall Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|------|------|----|---|-------|
| Length (km) | 0 | 0.68 | 0.13 | 0 | 0 | 0.81 |
| Number of segments | 0 | 11 | 0 | 11 | 0 | 7 |

Conservation Priority Rating: 2.

Road Order: 16.

Hakea leuoptera Tall Shrubland is one of the most un-common vegetation associations within the survey area with just 0.81 km identified.

The understorey is dominated by natives, with little to no exotic weed species.

Native species in the understorey include the shrubs *Maireana brevifolia* (Short-leaf Bluebush), *Dodonaea viscosa* (Sticky Hop Bush), and *Ptilotus obovatus*.



Figure 7. *Hakea leuoptera* Tall Shrubland along Dares Hill Road.

Association 3: *Senna artemisioides* ssp. *X coriacea*, *Rhagodia parabolica*, *Acacia ligulata* Tall Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|------|---|-------|
| Length (km) | 0 | 0 | 0 | 0.31 | 0 | 0.31 |
| Number of segments | 0 | 0 | 0 | 11 | 0 | 11 |

Conservation Priority Rating: 3.

Road Order: 3, 14, 39, 40, 41, 46, 52.

Senna artemisioides ssp. *X coriacea*, *Rhagodia parabolica*, *Acacia ligulata* Tall Shrubland is one of the most un-common vegetation associations present within the survey area with just 0.31 km identified.

Avena barbata (Wild Oat) was present in the understorey.



Figure 8. *Senna artemisioides* ssp. *X coriacea*, *Rhagodia parabolica*, *Acacia ligulata* Tall Shrubland.

Association 4: *Senna artemisioides* ssp. *X filifolia* Tall Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|------|---|-------|
| Length (km) | 0 | 0 | 0 | 0.36 | 0 | 0.36 |
| Number of segments | 0 | 0 | 0 | 11 | 0 | 11 |

Conservation Priority Rating: 3.

Road Order: 2, 14, 31.

Senna artemisioides ssp. *X filifolia* Tall Shrubland is one of the most un-common vegetation associations present within the survey area with just 0.36 km identified. However it is very similar to Association 38: *Senna artemisioides* ssp. *filifolia* +/- *Acacia calamifolia*, +/- *Dodonaea viscosa* ssp. *angustissima*, +/- *Senna artemisioides* ssp. *X coriacea* Shrubland.

The native *Salsola kali* (Buckbush), and the exotic *Asphodelus fistulosus* (Onion Weed) are present in the understorey.

Association 5: *Eucalyptus leucoxylon* +/- *Acacia pycnantha* Woodland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|------|------|------|---|-------|
| Length (km) | 0 | 2.14 | 4.17 | 3.15 | 0 | 9.46 |
| Number of segments | 0 | 51 | 91 | 91 | 0 | 142 |

Conservation Priority Rating: 2.

Road Order: 16, 19, 33, 42, 43, 46, 47.

Eucalyptus leucoxylon +/- *Acacia pycnantha* Woodland is un-common within the survey area with 9.46 km identified.

Native species in the understorey include the shrubs *Acacia acinacea* (Wreath Wattle), *Maireana sedifolia* (Bluebush), *Maireana brevifolia* (Short-leaf Bluebush), *Rhagodia parabolica* (Mealy Saltbush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Zygophyllum aurantiacum*, *Atriplex stipitata* (Bitter Saltbush), *Bursaria spinosa* ssp. *spinosa* (Sweet Bursaria), and *Vittadinia* sp. (New Holland Daisy), the lily *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily), and grasses *Austrostipa* sp. (Spear Grass), and *Austrodanthonia* sp.

Exotic species in the understorey include *Avena barbata* (Wild Oats) and *Phalaris aquatica* (Phalaris).



Figure 9. *Eucalyptus leucoxylon* +/- *Acacia pycnantha* Woodland along Cattle Station Road.

Association 6: *Eucalyptus* species Woodland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|------|---|-------|
| Length (km) | 0 | 0 | 0 | 2.05 | 0 | 2.05 |
| Number of segments | 0 | 0 | 0 | 11 | 0 | 11 |

Conservation Priority Rating: 3.

Road Order: 22.

Eucalyptus species Woodland is un-common within the survey area with just 2.05 km identified.

The native *Rhagodia parabolica* (Mealy Saltbush) is present in the understorey.

Exotic species in the understorey include *Avena barbata* (Wild Oats), *Phalaris aquatica* (Phalaris), *Rosa canina* (Dog Rose) and *Scabiosa atropurpurea* (Pincushion).

Association 7: *Eucalyptus porosa* Low Woodland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|---|---|-------|
| Length (km) | 0 | 0 | 0.49 | 0 | 0 | 0.49 |
| Number of segments | 0 | 0 | 21 | 0 | 0 | 21 |

Conservation Priority Rating: 1.

Road Order: 35, 38, 46.

Eucalyptus porosa Low Woodland is one of the most un-common vegetation associations present within the survey area, with just 0.49 km identified.

The native species in the understorey include the shrubs *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), and *Rhagodia parabolica* (Mealy Saltbush), and the grasses *Austrostipa* sp., and *Austrodanthonia* sp.

The exotic *Avena barbata* (Wild Oats), *Phalaris aquatica* (Phalaris), and *Scabiosa atropurpurea* (Pincushion), are present in the understorey.



Figure 10. *Eucalyptus porosa* Low Woodland along Frankton Road.

Association 8: *Myoporum platycarpum* Very Open Low Woodland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|---|---|-------|
| Length (km) | 0 | 0 | 0.41 | 0 | 0 | 0.41 |
| Number of segments | 0 | 0 | 11 | 0 | 0 | 11 |

Conservation Priority Rating: 2.

Road Order: 46.

Myoporum platycarpum Very Open Low Woodland is one of the most un-common vegetation associations present within the survey area, with just 0.41 km identified.

The native *Maireana sedifolia* (Bluebush), *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Acacia nyssophylla* (Spine Bush), and *Zygophyllum aurantiacum*, are present in the understorey.

Note this association is very similar to Association 37: *Myoporum platycarpum* Shrubland, only differentiated by the height and very minor differences in understorey species composition.

No exotic species were recorded in the understorey.

Association 9: *Callitris gracilis* Low Woodland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|------|---|-------|
| Length (km) | 0 | 0 | 0.45 | 0.36 | 0 | 0.81 |
| Number of segments | 0 | 0 | 11 | 21 | 0 | 32 |

Conservation Priority Rating: 2.

Road Order: 16, 41.

Callitris gracilis Low Woodland is one of the most un-common vegetation associations within the survey area with just 0.81 km identified.

The native *Rhagodia parabolica* (Mealy Saltbush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), are present in the understorey.

The exotic *Scabiosa atropurpurea* (Pincushion) occurs in the understorey.



Figure 11. *Callitris gracilis* Low Woodland along Australia Plains Road.

Association 10: *Casuarina pauper* Low Woodland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|------|---|-------|
| Length (km) | 0 | 0 | 0 | 0.84 | 0 | 0.84 |
| Number of segments | 0 | 0 | 0 | 11 | 0 | 11 |

Conservation Priority Rating: 2.

Road Order: 46.

Casuarina pauper Low Woodland is one of the most un-common vegetation associations present within the survey area, with just 0.84 km identified.

The native *Dissocarpus paradoxus* and *Maireana sedifolia* (Bluebush) are present in the understorey.

No exotic species were recorded as present in the understorey.

Association 11: *Eucalyptus oleosa*, +/- *Eucalyptus brachycalyx*, +/- *Eucalyptus gracilis*, +/- *Eucalyptus odorata*, +/- *Eucalyptus socialis* Mallee

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|------|-------|-------|---|-------|
| Length (km) | 0 | 6.98 | 66.29 | 26.46 | 0 | 99.73 |
| Number of segments | 0 | 111 | 921 | 482 | 0 | 1514 |

Conservation Priority Rating: 3.

Road Order: 1, 2, 15, 16, 30, 36, 39, 40, 46, 49, 52, 53.

Eucalyptus oleosa, +/- *Eucalyptus brachycalyx*, +/- *Eucalyptus gracilis*, +/- *Eucalyptus odorata*, +/- *Eucalyptus socialis* Mallee is the third most common vegetation association present within the survey area, with 99.73 km identified.

The native species in the understorey include the shrubs *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), *Acacia ligulata* (Umbrella Bush), *Acacia oswaldii* (Umbrella Wattle), *Grevillea huegelii* (Comb Grevillea), *Hakea rostrata* (Beaked Hakea), *Alectryon oleifolius* ssp. *canescens* (Bullock Bush), *Eremophila longifolia* (Weeping Emubush), and *Pittosporum angustifolium* (Native Apricot). Also in the understorey are the shrubs, *Atriplex stipitata* (Bitter Saltbush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), *Maireana pyramidata* (Black Bluebush), *Rhagodia parabolica* (Mealy Saltbush), *Nitraria billardierei* (Nitre-bush), *Sclerolaena diacantha* (Grey Bindyi), *Zygophyllum aurantiacum* (Shrubby Twinleaf), and *Zygophyllum apiculatum* (Pointed Twinleaf). The native grasses in the understorey include *Austrostipa* sp., and *Austrodanthonia* sp.

The exotic *Avena barbata* (Wild Oats), *Phalaris aquatica* (Phalaris), *Cynodon dactylon* (Couch), and *Scabiosa atropurpurea* (Pincushion), are present in the understorey.



Figure 12. *Eucalyptus oleosa*, +/- *Eucalyptus brachycalyx*, +/- *Eucalyptus gracilis*, +/- *Eucalyptus odorata*, +/- *Eucalyptus socialis* Mallee along Powerline Road.

Association 12: *Eucalyptus porosa* +/- *Eucalyptus dumosa*, +/- *Eucalyptus odorata*, +/- *Eucalyptus oleosa*, +/- *Acacia pycnantha*, +/- *Alectryon oleifolius*, +/- *Callitris gracilis* Mallee

| Overall significance | A | B | C | D | E | Total |
|----------------------|------|------|-------|---|---|-------|
| Length (km) | 6.32 | 15.8 | 10.34 | 0 | 0 | 32.46 |
| Number of segments | 91 | 331 | 242 | 0 | 0 | 664 |

Conservation Priority Rating: 1.

Road Order: 1, 2, 15, 30, 37, 39, 41, 48.

Eucalyptus porosa +/- *Eucalyptus dumosa*, +/- *Eucalyptus odorata*, +/- *Eucalyptus oleosa*, +/- *Acacia pycnantha*, +/- *Alectryon oleifolius*, +/- *Callitris gracilis* Mallee is un-common within the survey area with 32.46 km identified.

The native species in the understorey include the shrubs *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), *Acacia calamifolia* (Wallowa), *Acacia ligulata* (Umbrella Bush), *Acacia glandulicarpa* (Hairy-pod Wattle), *Hakea leucoptera* ssp. *leucoptera* (Silver Needlewood), *Exocarpos aphyllus* (Leafless Cherry) and *Bursaria spinosa* ssp. *spinosa* (Sweet Bursaria). Also in the understorey are the shrubs, *Atriplex stipitata* (Bitter Saltbush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), *Maireana pyramidata* (Black Bluebush), *Acacia ligulata*, +/- *Senna artemisioides* ssp. *X coriacea*, +/- *Senna artemisioides* ssp. *filifolia* Shrubland and *Zygophyllum apiculatum* (Pointed Twinleaf). The native grasses in the understorey include *Austrostipa* sp., *Austrodanthonia* sp. and *Enneapogon* sp.

The exotic *Avena barbata* (Wild Oats) and *Cynodon dactylon* (Couch) are present in the understorey.



Figure 13. *Eucalyptus porosa* +/- *Eucalyptus dumosa*, +/- *Eucalyptus odorata*, +/- *Eucalyptus oleosa*, +/- *Acacia pycnantha*, +/- *Alectryon oleifolius*, +/- *Callitris gracilis* Mallee along Frankton Road.

Association 13: *Eucalyptus phenax* +/- *Eucalyptus oleosa*, +/- *Eucalyptus porosa*, +/- *Eucalyptus socialis* Low Woodland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|------|---|-------|
| Length (km) | 0 | 0 | 1.52 | 5.78 | 0 | 7.3 |
| Number of segments | 0 | 0 | 31 | 101 | 0 | 132 |

Conservation Priority Rating: 3.

Road Order: 39, 41, 51, 52.

Eucalyptus phenax +/- *Eucalyptus oleosa*, +/- *Eucalyptus porosa*, +/- *Eucalyptus socialis* Low Woodland is un-common within the survey area with 7.3 km identified.

The native species in the understorey include the shrubs *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Acacia ligulata* (Umbrella Wattle), *Acacia nyssophylla* (Spine Bush), and *Exocarpos aphyllus* (Leafless Cherry). Also in the understorey are the shrubs, *Maireana brevifolia* (Short-leaf Bluebush), *Maireana pyramidata* (Black Bluebush), *Maireana sedifolia* (Bluebush), *Salsola kali* (Buckbush) and *Rhagodia parabolica* (Mealy Saltbush). The native grasses in the understorey include *Austrostipa* sp. and *Austrodanthonia* sp.

The exotic *Scabiosa atropurpurea* (Pincushion) and Gramineae sp. are present in the understorey.

Association 14: *Eucalyptus socialis*, +/- *Eucalyptus brachycalyx*, +/- *Eucalyptus gracilis*, +/- *Eucalyptus oleosa*, +/- *Eucalyptus porosa* Open Mallee

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|-----|-------|------|---|-------|
| Length (km) | 0 | 7.8 | 21.73 | 9.67 | 0 | 39.2 |
| Number of segments | 0 | 61 | 281 | 202 | 0 | 544 |

Conservation Priority Rating: 3.

Road Order: 2, 13, 14, 15, 30, 31, 32, 35, 41, 46, 52.

Eucalyptus socialis, +/- *Eucalyptus brachycalyx*, +/- *Eucalyptus gracilis*, +/- *Eucalyptus oleosa*, +/- *Eucalyptus porosa* Open Mallee is un-common within the survey area with 39.2 km identified.

The native species in the understorey include the shrubs *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), *Alectryon oleifolius* ssp. *canescens* (Bullock Bush), *Acacia ligulata* (Umbrella Bush), *Acacia brachybotrya* (Grey Mulga-bush), *Acacia calamifolia* (Wallowa), *Hakea rostrata* (Beaked Hakea), *Beyeria lechenaultii* (Pale Turpentine Bush), *Eremophila scoparia* (Broom Emubush), *Pittosporum angustifolium* (Native Apricot), *Myoporum parvifolium* (Creeping Boobialla), and *Exocarpos aphyllus* (Leafless Cherry). Also in the understorey are the smaller shrubs, *Atriplex stipitata* (Bitter Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), *Maireana aphylla* (Cotton-bush), *Maireana sedifolia* (Bluebush), *Salsola kali* (Buckbush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Dissocarpus paradoxus* (Ball Bindyi), *Nitraria billardierei* (Nitre-bush), *Sclerolaena diacantha* (Grey Bindyi) and *Rhagodia parabolica* (Mealy Saltbush). The native lily *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) and native grasses *Austrostipa* sp. and *Austrodanthonia* sp. are also present in the understorey.

The exotic *Avena barbata* (Wild Oats) and *Cynodon dactylon* (Couch) are present in the understorey but not common.



Figure 14. *Eucalyptus socialis*, +/- *Eucalyptus brachycalyx*, +/- *Eucalyptus gracilis*, +/- *Eucalyptus oleosa*, +/- *Eucalyptus porosa* Open Mallee along Franklyn Road.

Association 15: *Acacia brachybotrya*, +/- *Acacia calamifolia*, +/- *Maireana brevifolia* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|-----|------|---|---|-------|
| Length (km) | 0 | 3.8 | 0.27 | 0 | 0 | 7.87 |
| Number of segments | 0 | 132 | 22 | 0 | 0 | 113 |

Conservation Priority Rating: 2.

Road Order: 32, 35, 51.

Acacia brachybotrya, +/- *Acacia calamifolia*, +/- *Maireana brevifolia* Shrubland is un-common within the survey area with 7.87 km identified.

Emergent native species include *Eucalyptus porosa* (Mallee Box), *Eucalyptus socialis*, *Eucalyptus oleosa* (Red Mallee), *Acacia calamifolia* (Wallowa) and *Acacia pycnantha* (Golden Wattle).

The native species in the understorey include the shrubs *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Maireana brevifolia* (Short-leaf Bluebush), *Rhagodia parabolica* (Mealy Saltbush), *Salsola kali* (Buckbush), *Vittadinia* sp., (New Holland Daisy), the native lily *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) and native grasses *Austrostipa* sp., *Austrodanthonia* sp. and *Lomandra* sp. are also present in the understorey.

No exotic species were recorded as present in the understorey.



Figure 15. *Acacia brachybotrya*, +/- *Acacia calamifolia*, +/- *Maireana brevifolia* Shrubland along Hallelujah Hills Road.

Association 16: *Acacia glandulicarpa* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|------|---|---|---|---|-------|
| Length (km) | 0.23 | 0 | 0 | 0 | 0 | 0.23 |
| Number of segments | 11 | 0 | 0 | 0 | 0 | 11 |

Conservation Priority Rating: 1.

Road Order: 25.

Acacia glandulicarpa Shrubland is the most un-common vegetation association within the survey area, with just 0.23 km identified.

The association is dominated by the State Endangered *Acacia glandulicarpa* (Hairy-pod Wattle).

The native species in the understorey include *Lomandra* sp., and the native grasses *Austrostipa* sp. and *Austrodanthonia* sp.

The exotic *Avena barbata* (Wild Oats) is present in the understorey.



Figure 16. *Acacia glandulicarpa* Shrubland along Road 137.

Association 17: *Acacia ligulata*, +/- *Senna artemisioides* ssp. *X coriacea*, +/- *Senna artemisioides* ssp. *filifolia* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|---|---|-------|
| Length (km) | 0 | 0 | 0.98 | 0 | 0 | 0.98 |
| Number of segments | 0 | 0 | 21 | 0 | 0 | 21 |

Conservation Priority Rating: 3.

Road Order: 52.

Acacia ligulata, +/- *Senna artemisioides* ssp. *X coriacea*, +/- *Senna artemisioides* ssp. *filifolia* Shrubland is one of the most un-common vegetation associations within the survey area with just 0.98 km identified.

Alectryon oleifolius ssp. *canescens* (Bullock Bush) is present as an emergent.

The native species in the understorey include *Rhagodia parabolica* (Mealy Saltbush) and *Zygophyllum aurantiacum* (Shrubby Twinleaf), and the native grass *Austrodanthonia* sp.

No exotic species were recorded as present in the understorey.



Figure 17. *Acacia ligulata*, +/- *Senna artemisioides* ssp. *X coriacea*, +/- *Senna artemisioides* ssp. *filifolia* Shrubland along Plains Road.

Association 18: *Acacia nyssophylla*, +/- *Acacia victoriae*, +/- *Maireana brevifolia*, +/- *Senna artemisioides* ssp. *filifolia* Tall Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|------|------|---|---|-------|
| Length (km) | 0 | 3.05 | 6.67 | 0 | 0 | 9.81 |
| Number of segments | 0 | 51 | 71 | 0 | 0 | 122 |

Conservation Priority Rating: 2.

Road Order: 14, 15, 36.

Acacia nyssophylla, +/- *Acacia victoriae*, +/- *Maireana brevifolia*, +/- *Senna artemisioides* ssp. *filifolia* Tall Shrubland is un-common within the survey area with 9.81 km identified.

Emergent native species include *Eucalyptus socialis* (Red Mallee), *Eucalyptus oleosa* (Red Mallee), *Eucalyptus gracilis* (Yorrell), *Alectryon oleifolius* ssp. *canescens* (Bullock Bush), *Pittosporum angustifolium* (Native Apricot) and *Eremophila longifolia* (Weeping Emubush).

The native species in the understorey include the shrubs *Eremophila scoparia* (Broom Emubush), *Atriplex stipitata* (Bitter Saltbush), *Atriplex vesicaria* (Bladder Saltbush), *Maireana sedifolia* (Bluebush), *Salsola kali* (Buckbush), *Nitraria billardierei* (Nitre-bush), *Salsola kali* (Buskbush), *Zygophyllum aurantiacum* (Shrubby Twinleaf) and *Zygophyllum apiculatum* (Pointed Twinleaf). The native grasses *Austrostipa* sp., *Austrodanthonia* sp. and *Enneapogon* sp. are also present in the understorey.

The exotic *Asphodelus fistulosus* (Onion Weed), *Psilocaulon granulicaule* (Match-head Plant), and *Cynodon dactylon* var. *dactylon* (Couch) are present in the understorey.

Association 19: *Acacia pycnantha* +/- *Allocasuarina verticillata* Low Woodland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|------|---|-------|
| Length (km) | 0 | 0 | 0.15 | 1.14 | 0 | 1.29 |
| Number of segments | 0 | 0 | 11 | 31 | 0 | 42 |

Conservation Priority Rating: 3.

Road Order: 5, 6, 22, 42.

Acacia pycnantha +/- *Allocasuarina verticillata* Low Woodland is un-common within the survey area with just 1.29 km identified.

Eucalyptus leucoxylon (South Australian Blue Gum) is present as an emergent species.

The native species in the understorey include *Vittadinia* sp. (New Holland Daisy) the lily *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily), and the native grasses *Austrostipa* sp., and *Austrodanthonia* sp.

The exotic *Avena barbata* (Wild Oats), *Echium plantagineum* (Salvation Jane), *Trifolium angustifolium* (Narrow-leaf Clover) are present in the understorey but not common.



Figure 18. *Acacia pycnantha* +/- *Allocasuarina verticillata* Low Woodland along Cup Gum Road.

Association 20: *Acacia victoriae* Tall Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|---|---|-------|
| Length (km) | 0 | 0 | 0.86 | 0 | 0 | 0.86 |
| Number of segments | 0 | 0 | 41 | 0 | 0 | 41 |

Conservation Priority Rating: 2.

Road Order: 14.

Acacia victoriae Tall Shrubland is one of the most un-common vegetation associations present within the survey area, with just 0.86 km identified.

The native species in the understorey include *Acacia nyssophylla* (Spine Bush), *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), *Maireana brevifolia* (Short-leaf Bluebush), *Atriplex vesicaria* (Bladder Saltbush), *Rhagodia parabolica* (Mealy Saltbush), *Dissocarpus paradoxus* (Ball Bindyi), and the native grass *Austrostipa* sp.

The exotic *Asphodelus fistulosus* (Onion Weed) is present in the understorey.



Figure 19. *Acacia victoriae* Tall Shrubland along Pandappa Road.

Association 21: *Atriplex stipitata*, +/- *Atriplex vesicaria*, +/- *Maireana* sp., +/- *Nitraria* sp., +/- *Zygophyllum* sp. Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|------|-------|------|---|--------|
| Length (km) | 0 | 2.76 | 32.83 | 87.1 | 0 | 137.86 |
| Number of segments | 0 | 31 | 441 | 1062 | 0 | 1555 |

Conservation Priority Rating: 3.

Road Order: 10, 13, 14, 15, 16, 27, 28, 29, 30, 32, 35, 36, 39, 46, 49, 52, 53.

Atriplex stipitata, +/- *Atriplex vesicaria*, +/- *Maireana* sp., +/- *Nitraria* sp., +/- *Zygophyllum* sp. Shrubland is the third most common vegetation association present within the survey area, with 137.86 km identified.

Emergent species include *Eucalyptus socialis* (Red Mallee), *Eucalyptus oleosa* (Red Mallee), *Eucalyptus gracilis* (Yorrell), *Alectryon oleifolius* ssp. *canescens* (Bullock Bush), *Pittosporum angustifolium* (Native Apricot), *Grevillea huegelii* (Comb Grevillea), *Acacia nyssophylla* (Spine Bush), and *Eremophila longifolia* (Weeping Emubush).

Additional native species in the understorey include *Maireana pyramidata* (Black Bluebush), *Maireana brevifolia* (Short-leaf Bluebush), *Maireana sedifolia* (Bluebush), *Rhagodia parabolica* (Mealy Saltbush), *Nitraria billardierei* (Nitre-bush), *Zygophyllum aurantiacum* (Shrubby Twinleaf), *Zygophyllum apiculatum* (Pointed Twinleaf), *Salsola kali* (Buckbush), *Dissocarpus paradoxus* (Ball Bindyi), *Vittadinia* sp., (New Holland Daisy), and the native grass *Austrostipa* sp., *Austrodanthonia* sp.,

The exotic *Asphodelus fistulosus* (Onion Weed), *Psilocaulon granulicaule* (Match-head Plant), and *Cynodon dactylon* var. *dactylon* (Couch) are present in the understorey.



Figure 20. *Atriplex stipitata*, +/- *Atriplex vesicaria*, +/- *Maireana* sp., +/- *Nitraria* sp., +/- *Zygophyllum* sp. Shrubland along Ketchowla Road.

Association 22: *Dissocarpus paradoxus* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|------|---|-------|
| Length (km) | 0 | 0 | 0 | 0.72 | 0 | 0.72 |
| Number of segments | 0 | 0 | 0 | 21 | 0 | 21 |

Conservation Priority Rating: 3.

Road Order: 14.

Dissocarpus paradoxus Shrubland is one of the most un-common vegetation associations within the survey area with just 0.72 km identified.

Emergent species present include *Acacia nyssophylla* (Spine Bush) and *Alectryon oleifolius* ssp. *canescens* (Bullock Bush).

The native grass *Austrostipa* sp., are present in the understorey.

The exotic *Asphodelus fistulosus* (Onion Weed), and *Marrubium vulgare* (Horehound), are present in the understorey.



Figure 21. *Dissocarpus paradoxus* Shrubland along Pandappa Road.

Association 23: *Maireana aphylla* +/- *Atriplex stipitata* Low Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|-----|---|-------|
| Length (km) | 0 | 0 | 4.18 | 6.9 | 0 | 11.08 |
| Number of segments | 0 | 0 | 61 | 81 | 0 | 142 |

Conservation Priority Rating: 2.

Road Order: 16, 30, 38, 50, 52.

Maireana aphylla +/- *Atriplex stipitata* Low Shrubland is un-common within the survey area with 11.08 km identified.

Emergent species present include *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), *Eucalyptus socialis* (Red Mallee), *Eucalyptus porosa* (Mallee Box), and *Eucalyptus gracilis* (Yorrell).

Species present in the understorey include *Maireana brevifolia* (Short-leaf Bluebush), *Vittadinia* sp., (New Holland Daisy), *Lomandra* sp. (Mat-rush), and the grass *Austrostipa* sp.

Exotic species present include *Avena barbata* (Wild Oats), and *Centaurea calcitrapa* (Star Thistle).

Association 24: *Maireana brevifolia*, +/- *Senna* sp., +/- *Acacia* sp., +/- *Atriplex* sp., +/- *Maireana* sp., +/- *Hakea rostrata* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|-------|------|---|--------|
| Length (km) | 0 | 0 | 36.05 | 87.9 | 0 | 123.95 |
| Number of segments | 0 | 0 | 281 | 1472 | 0 | 1753 |

Conservation Priority Rating: 3.

Road Order: 16, 18, 27, 31, 32, 35, 38, 39, 40, 41, 46, 48, 49, 50, 51, 52, 53.

Maireana brevifolia, +/- *Senna* sp., +/- *Acacia* sp., +/- *Atriplex* sp., +/- *Maireana* sp., +/- *Hakea rostrata* Shrubland is the fourth most common vegetation association present within the survey area, with 123.95 km identified.

The association is dominated by *Maireana brevifolia* (Short-leaf Bluebush), with co-dominates including *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Acacia nyssophylla* (Spine Bush), *Atriplex stipitata* (Bitter Saltbush), *Atriplex vesicaria* (Bladder Saltbush), *Maireana aphylla* (Cotton-bush), *Maireana pyramidata* (Black Bluebush),

Emergent species include *Eucalyptus porosa* (Mallee Box), *Eucalyptus socialis* (Red Mallee), *Eucalyptus odorata* (Peppermint Box), *Eucalyptus leucoxylon* (South Australian Blue Gum), *Pittosporum angustifolium* (Native Apricot), *Eremophila longifolia* (Weeping Emubush), *Acacia victoriae* (Elegant Wattle), as well as tall shrubs *Nitraria billardierei* (Nitre-bush), *Rhagodia parabolica* (Mealy Saltbush), *Maireana aphylla* (Cotton-bush). The exotic *Lycium ferocissimum* (African Boxthorn) was also emergent.

Species present in the understory include *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Acacia nyssophylla* (Spine Bush), *Dissocarpus paradoxus* (Ball Bindyi), *Rhagodia parabolica* (Mealy Saltbush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), *Sclerolaena diacantha* (Grey Bindyi), *Sclerolaena obliquicuspis* (Oblique-spined Bindyi), *Zygophyllum aurantiacum* (Shrubby Twinleaf), *Zygophyllum apiculatum* (Pointed Twinleaf), Also present are the native grasses *Austrostipa* sp., *Austrodanthonia* sp., *Enneapogon* sp. and *Cymbopogon ambiguus* (Lemon Grass).

Exotic species present include *Avena barbata* (Wild Oats), *Marrubium vulgare* (Horehound), *Asphodelus fistulosus* (Onion Weed), *Olea europaea* (Olive),

Association 25: *Senna artemisioides* ssp. *X coriacea* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|------|---|-------|
| Length (km) | 0 | 0 | 8.48 | 9.08 | 0 | 17.56 |
| Number of segments | 0 | 0 | 141 | 282 | 0 | 423 |

Conservation Priority Rating: 3.

Road Order: 14, 36, 39, 40, 41, 46, 50, 51, 52.

Senna artemisioides ssp. *X coriacea* Shrubland is un-common within the survey area with 17.56 km identified.

The association is dominated by *Senna artemisioides* ssp. *X coriacea* (Desert Senna), with co-dominates including *Acacia nyssophylla* (Spine Bush), *Dodonaea viscosa* (Sticky Hop-bush), *Hakea rostrata* (Beaked Hakea), *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), and *Rhagodia parabolica* (Mealy Saltbush).

Emergent species include *Eucalyptus phenax* (White Mallee), *Eucalyptus odorata* (Peppermint Box), *Eucalyptus brachycalyx* (Gilja), *Eucalyptus socialis* (Red Mallee), *Eucalyptus leucoxyton* (South Australian Blue Gum), *Pittosporum angustifolium* (Native Apricot), *Eremophila longifolia* (Weeping Emubush), *Alectryon oleifolius* ssp. *canescens* (Bullock Bush), and *Pittosporum angustifolium* (Native Apricot).

Species present in the understorey include *Acacia ligulata* (Umbrella Bush), *Atriplex stipitata* (Bitter Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), *Maireana sedifolia* (Bluebush), *Maireana pyramidata* (Black Bluebush), *Rhagodia parabolica* (Mealy Saltbush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Zygophyllum aurantiacum* (Shrubby Twinleaf), *Zygophyllum apiculatum* (Pointed Twinleaf), and the grasses *Austrostipa* sp. and *Austrodanthonia* sp.

Exotic species present include *Asphodelus fistulosus* (Onion Weed), *Centaurea calcitrapa* (Star Thistle), *Bromus* sp. (Brome), *Avena barbata* (Wild Oats), and *Piptatherum miliaceum* (Rice Millet).

Association 26: *Maireana coronata* Low Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|------|---|-------|
| Length (km) | 0 | 0 | 0 | 0.29 | 0 | 0.29 |
| Number of segments | 0 | 0 | 0 | 11 | 0 | 11 |

Conservation Priority Rating: 3.

Road order: 16.

Maireana coronata Low Shrubland was one of the most un-common vegetation associations within the survey area, with just 0.29 km identified.

Emergent species include *Callitris glaucophylla* (White Cypress-pine) and *Eucalyptus* sp.

No additional understorey species are present.

Association 27: *Maireana sedifolia* +/- *Acacia nyssophylla* +/- *Eremophila scoparia* +/- *Senna* sp. +/- *Maireana* sp. +/- *Nitraria* sp. Open Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|------|---|-------|
| Length (km) | 0 | 0 | 8.89 | 20.8 | 0 | 29.72 |
| Number of segments | 0 | 0 | 151 | 152 | 0 | 303 |

Conservation Priority Rating: 3.

Road Order: 14, 16, 36, 46.

Maireana sedifolia +/- *Acacia nyssophylla* +/- *Eremophila scoparia* +/- *Senna* sp. +/- *Maireana* sp. +/- *Nitraria* sp. Open Shrubland is un-common within the survey area with 29.72 km identified.

The association is dominated by *Maireana sedifolia* (Bluebush), with co-dominates *Acacia nyssophylla* (Spine Bush), *Eremophila scoparia* (Broom Emubush), *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), *Maireana sedifolia* (Bluebush), and *Nitraria billardiarei* (Nitre-bush).

Emergent species include *Eucalyptus oleosa* (Red Mallee), *Eucalyptus gracilis* (Yorrell), *Pittosporum angustifolium* (Native Apricot), *Senna artemisioides* ssp. *X coriacea* (Desert Senna), and *Myoporum parvifolium* (Creeping Boobiella).

Species present in the understorey include *Eremophila scoparia* (Broom Emubush), *Atriplex stipitata* (Bitter Saltbush), *Maireana aphylla* (Cotton-bush), *Maireana brevifolia* (Short-leaf Bluebush), *Maireana sedifolia* (Bluebush), *Maireana pyramidata* (Black Bluebush), *Rhagodia parabolica* (Mealy Saltbush), *Nitraria billardiarei* (Nitre-bush), *Zygophyllum aurantiacum* (Shrubby Twinleaf), *Zygophyllum apiculatum* (Pointed Twinleaf), and the grass *Austrostipa* sp.,



Figure 22. *Maireana sedifolia* +/- *Acacia nyssophylla* +/- *Eremophila scoparia* +/- *Senna* sp. +/- *Maireana* sp. +/- *Nitraria* sp. Open Shrubland along Pandappa Road.

Association 28: *Maireana* sp. Low Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|------|---|-------|
| Length (km) | 0 | 0 | 0 | 0.29 | 0 | 0.29 |
| Number of segments | 0 | 0 | 0 | 11 | 0 | 11 |

Conservation Priority Rating: 3.

Road Order: 16.

Maireana sp. Low Shrubland is one of the most un-common vegetation associations within the survey area, with just 0.29 km identified during this survey.

The association is dominated by *Maireana* sp.

Emergent species include *Callitris glaucophylla* (White Cypress-pine).

The native grass *Austrostipa* sp., is present in the understorey.

Association 29: *Rhagodia parabolica* +/- *Acacia ligulata* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|------|------|------|---|-------|
| Length (km) | 0 | 0.21 | 1.16 | 1.59 | 0 | 2.96 |
| Number of segments | 0 | 11 | 41 | 42 | 0 | 94 |

Conservation Priority Rating: 3.

Road Order: 16, 40, 41.

Rhagodia parabolica +/- *Acacia ligulata* Shrubland is un-common within the survey area with just 2.96 km identified.

Emergent species include *Eucalyptus porosa* (Mallee Box), *Eucalyptus phenax* (White Mallee), *Eucalyptus socialis* (Red Mallee), *Melaleuca lanceolata* (Dryland Tea-tree), *Hakea leucoptera* ssp. *leucoptera* (Silver Needlewood), *Myoporum platycarpum* (False Sandalwood), and *Acacia victoriae* (Elegant Wattle).

Understorey species include *Dodonaea lobulata* (Lobed-leaf Hop-bush), *Atriplex vesicaria* (Bladder Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Zygophyllum aurantiacum* (Shrubby Twinleaf), *Zygophyllum apiculatum* (Pointed Twinleaf) and the native grass *Austrostipa* sp.

Exotic species present include *Piptatherum miliaceum* (Rice Millet).

Association 30: *Dodonaea lobulata* +/- *Rhagodia parabolica*, *Senna artemisioides* ssp. *X coriacea* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|------|---|---|---|-------|
| Length (km) | 0 | 0.68 | 0 | 0 | 0 | 0.68 |
| Number of segments | 0 | 22 | 0 | 0 | 0 | 22 |

Conservation Priority Rating: 2.

Road Order: 16.

Dodonaea lobulata +/- *Rhagodia parabolica*, *Senna artemisioides* ssp. *X coriacea* Shrubland is one of the most un-common vegetation associations within the survey area with just 0.68 km identified.

Emergent species include *Alectryon oleifolius* ssp. *canescens* (Bullock Bush) and *Myoporum platycarpum* (False Sandalwood).

Understorey species include *Atriplex stipitata* (Bitter Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), *Zygophyllum apiculatum* (Pointed Twinleaf).



Figure 23. *Dodonaea lobulata* +/- *Rhagodia parabolica*, *Senna artemisioides* ssp. *X coriacea* Shrubland along Dares Hill Summit Road.

Association 31: *Dodonaea viscosa* ssp. *angustissima*, +/- *Senna artemisioides* ssp. *X coriacea*, +/- *Senna artemisioides* ssp. *filifolia* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|------|---|-------|
| Length (km) | 0 | 0 | 1.12 | 0.66 | 0 | 1.78 |
| Number of segments | 0 | 0 | 21 | 11 | 0 | 32 |

Conservation Priority Rating: 2.

Road Order: 14.

Dodonaea viscosa ssp. *angustissima*, +/- *Senna artemisioides* ssp. *X coriacea*, +/- *Senna artemisioides* ssp. *filifolia* Shrubland is un-common within the survey area with just 1.78 km identified.

Emergent species include *Eucalyptus* sp.

Understorey species include *Dissocarpus paradoxus* (Ball Bindyi) and *Salsola tragus* (Buckbush).

Exotic species include *Asphodelus fistulosus* (Onion Weed).



Figure 24. *Dodonaea viscosa* ssp. *angustissima* +/- *Senna artemisioides* ssp. *X coriacea* +/- *Senna artemisioides* ssp. *filifolia* Tall Shrubland along Pandappa Road.

Association 32: *Eremophila longifolia* +/- *Hakea rostrata* +/- *Pittosporum angustifolium* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|------|------|---|---|-------|
| Length (km) | 0 | 4.25 | 2.28 | 0 | 0 | 6.53 |
| Number of segments | 0 | 81 | 101 | 0 | 0 | 182 |

Conservation Priority Rating: 2.

Road Order: 39, 49, 52.

Eremophila longifolia +/- *Hakea rostrata* +/- *Pittosporum angustifolium* Shrubland is un-common within the survey area with 6.53 km identified.

Emergent specie include *Eucalyptus porosa* (Mallee Box), *Eucalyptus phenax* (White Mallee), *Eucalyptus oleosa* (Red Mallee), and *Callitris glaucophylla* (White Cypress-pine).

Understorey species include *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), *Acacia ligulata* (Umbrella Bush), *Exocarpos aphyllus* (Leafless Cherry), *Maireana brevifolia* (Short-leaf Bluebush), *Atriplex stipitata* (Bitter Saltbush), *Maireana sedifolia* (Bluebush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Vittadinia* sp., (New Holland Daisy), and the native grass *Austrostipa* sp.



Figure 25. *Eremophila longifolia* +/- *Hakea rostrata* +/- *Pittosporum angustifolium* Shrubland.

Association 33: *Eremophila scoparia* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|------|------|---|---|-------|
| Length (km) | 0 | 0.95 | 0.17 | 0 | 0 | 1.12 |
| Number of segments | 0 | 31 | 11 | 0 | 0 | 42 |

Conservation Priority Rating: 2.

Road Order: 14, 46, 50.

Eremophila scoparia Shrubland is un-common within the survey area with just 1.12 km identified.

Emergent species include *Eucalyptus oleosa* (Red Mallee) and *Eucalyptus gracilis* (Yorrell).

Understorey species include *Grevillea huegelii* (Comb Grevillea), *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Dodonaea viscosa* (Sticky Hop-bush), *Atriplex stipitata* (Bitter Saltbush), *Maireana sedifolia* (Bluebush), *Zygophyllum aurantiacum* (Shrubby Twinleaf), and *Zygophyllum apiculatum* (Pointed Twinleaf).

Association 34: *Hakea leucoptera* +/- *Dodonaea lobulata*, +/- *Dodonaea viscosa* ssp. *angustissima*, +/- *Rhagodia parabolica* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|------|------|------|---|---|-------|
| Length (km) | 0.68 | 3.19 | 0.65 | 0 | 0 | 4.52 |
| Number of segments | 21 | 71 | 11 | 0 | 0 | 103 |

Conservation Priority Rating: 2.

Road Order: 16.

Hakea leucoptera +/- *Dodonaea lobulata*, +/- *Dodonaea viscosa* ssp. *angustissima*, +/- *Rhagodia parabolica* Shrubland is un-common within the survey area with just 4.52 km identified.

Emergent species include *Eucalyptus socialis* (Red Mallee), *Eucalyptus porosa* (Mallee Box), *Eremophila longifolia* (Weeping Emubush), *Callitris glaucophylla* (White Cypress-pine), *Alectryon oleifolius* ssp. *canescens* (Bullock Bush), and *Eremophila longifolia* (Weeping Emubush).

Understorey species include *Dodonaea lobulata* (Lobed-leaf Hop-bush), *Maireana brevifolia* (Short-leaf Bluebush), *Senna artemisioides* ssp. *X. filifolia* (Fine-leaf Desert Senna), *Atriplex vesicaria* (Bladder Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), *Rhagodia parabolica* (Mealy Saltbush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush),



Figure 26. *Hakea leucoptera* +/- *Dodonaea lobulata*, +/- *Dodonaea viscosa* ssp. *angustissima*, +/- *Rhagodia parabolica* Shrubland along Dares Hill Summit Road.

Association 35: *Hakea rostrata* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|---|---|-------|
| Length (km) | 0 | 0 | 0.51 | 0 | 0 | 0.51 |
| Number of segments | 0 | 0 | 11 | 0 | 0 | 11 |

Conservation Priority Rating: 3.

Road Order: 2.

Hakea rostrata Shrubland is one of the most un-common vegetation associations present within the survey area, with just 0.51 km identified.

Understorey species include *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), *Hakea rostrata* (Beaked Hakea), *Rhagodia parabolica* (Mealy Saltbush) and the native grass *Austrostipa* sp.

Association 36: *Muehlenbeckia* sp. Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|---|---|-------|
| Length (km) | 0 | 0 | 0.92 | 0 | 0 | 0.92 |
| Number of segments | 0 | 0 | 21 | 0 | 0 | 21 |

Conservation Priority Rating: 3.

Road Order: 11.

Muehlenbeckia sp. (Lignum) Shrubland is one of the most un-common vegetation associations present within the survey area, with just 0.92 km identified.

Understorey species include the native grass *Enneapogon* sp.

Exotic species include *Avena barbata* (Wild Oats).



Figure 27. *Muehlenbeckia* sp. Shrubland along Bower Road.

Association 37: *Myoporum platycarpum* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|------|---|---|---|---|-------|
| Length (km) | 0.41 | 0 | 0 | 0 | 0 | 0.41 |
| Number of segments | 11 | 0 | 0 | 0 | 0 | 11 |

Conservation Priority Rating: 2.

Road Order: 46.

Myoporum platycarpum Shrubland is one of the most un-common vegetation associations within the survey area with just 0.41 km identified.

Understorey species include *Acacia nyssophylla* (Spine Bush), *Maireana sedifolia* (Bluebush), and *Zygophyllum aurantiacum* (Shrubby Twinleaf).

Note this association is very similar to Association 8: *Myoporum platycarpum* Very Low Open Woodland, differentiated by the height and very minor different understorey species composition.

Association 38: *Senna artemisioides* ssp. *filifolia* +/- *Acacia calamifolia*, +/- *Dodonaea viscosa* ssp. *angustissima*, +/- *Senna artemisioides* ssp. *X coriacea* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|------|---|-------|
| Length (km) | 0 | 0 | 5.35 | 3.67 | 0 | 9.02 |
| Number of segments | 0 | 0 | 121 | 122 | 0 | 243 |

Conservation Priority Rating: 3.

Road Order: 2, 13, 14, 31, 35, 38.

Senna artemisioides ssp. *filifolia* +/- *Acacia calamifolia*, +/- *Dodonaea viscosa* ssp. *angustissima*, +/- *Senna artemisioides* ssp. *X coriacea* Shrubland is un-common within the survey area with 9.02 km identified.

Emergent species include *Eucalyptus oleosa* (Red Mallee), *Eucalyptus gracilis* (Yorrell), *Eucalyptus socialis* (Red Mallee), *Eucalyptus leptophylla* (Narrow-leaf Red Mallee), *Alectryon oleifolius* ssp. *canescens* (Bullock Bush), *Pittosporum angustifolium* (Native Apricot), *Acacia nyssophylla* (Spine Bush), *Acacia victoriae* (Elegant Wattle), *Melaleuca lanceolata* (Dryland Tea-tree), *Pittosporum angustifolium* (Native Apricot), *Eremophila longifolia* (Weeping Emubush), and *Eremophila scoparia* (Broom Emubush).

Understorey species include *Hakea rostrata* (Beaked Hakea), *Atriplex vesicaria* (Bladder Saltbush), *Acacia ligulata* (Umbrella Bush), *Maireana aphylla* (Cotton-bush), *Maireana sedifolia* (Bluebush), *Nitraria billardiarei* (Nitre-bush), *Rhagodia parabolica* (Mealy Saltbush), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Dissocarpus paradoxus* (Ball Bindyi), *Zygophyllum apiculatum* (Pointed Twinleaf), *Vittadinia* sp., (New Holland Daisy), the native grass *Austrostipa* sp., and the lily *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily).

Exotic species include *Asphodelus fistulosus* (Onion Weed) and *Echium plantagineum* (Salvation Jane),



Figure 28. *Senna artemisioides* ssp. *filifolia* +/- *Acacia calamifolia*, +/- *Dodonaea viscosa* ssp. *angustissima*, +/- *Senna artemisioides* ssp. *X coriacea* Shrubland along Pandappa Road.

Association 39: *Zygophyllum aurantiacum* Low Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|------|---|-------|
| Length (km) | 0 | 0 | 0 | 2.68 | 0 | 2.68 |
| Number of segments | 0 | 0 | 0 | 52 | 0 | 52 |

Conservation Priority Rating: 3.

Road Order: 9, 13, 53.

Zygophyllum aurantiacum Low Shrubland is un-common within the survey area with just 2.68 km identified.

Emergent species include the native *Eucalyptus oleosa* (Red Mallee), *Acacia nyssophylla* (Spine Bush), *Maireana aphylla* (Cotton-bush), as well as the exotic *Lycium ferocissimum* (African Boxthorn).

Understorey species present include *Atriplex stipitata* (Bitter Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), *Salsola kali* (Buckbush), *Vittadinia* sp., (New Holland Daisy), and the native grass *Austrostipa* sp.

Exotic species include *Asphodelus fistulosus* (Onion Weed).



Figure 29. *Zygophyllum aurantiacum* Low Shrubland along Wonna Road.

Association 40: *Salsola tragus* +/- *Maireana brevifolia* Herbland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|------|---|-------|
| Length (km) | 0 | 0 | 0 | 9.68 | 0 | 9.68 |
| Number of segments | 0 | 0 | 0 | 161 | 0 | 161 |

Conservation Priority Rating: 3.

Road Order: 8, 9, 10, 13, 30, 31, 32.

Salsola tragus +/- *Maireana brevifolia* Herbland is un-common within the survey area with 9.68 km identified.

Emergent species include the *Eucalyptus socialis* (Red Mallee), *Acacia victoriae* (Elegant Wattle), *Acacia nyssophylla* (Spine Bush), *Acacia calamifolia* (Wallowa), *Rhagodia parabolica* (Mealy Saltbush), *Maireana brevifolia* (Short-leaf Bluebush), and *Zygophyllum aurantiacum* (Shrubby Twinleaf). The exotic *Ceratonia siliqua* (Carob Tree) and *Lycium ferocissimum* (African Boxthorn) were also emergent species.

Understorey species include *Atriplex vesicaria* (Bladder Saltbush), *Salsola kali* (Buckbush), *Vittadinia* sp., (New Holland Daisy), and the native grass *Austrostipa* sp.

Additional weed specie present include *Avena barbata* (Wild Oats), *Echium plantagineum* (Salvation Jane), and *Marrubium vulgare* (Horehound).



Figure 30. *Salsola tragus* +/- *Maireana brevifolia* Herbland along Belalie Road.

Association 41: *Convolvulus* sp., *Maireana brevifolia* Low Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|---|------|-------|
| Length (km) | 0 | 0 | 0 | 0 | 2.14 | 2.14 |
| Number of segments | 0 | 0 | 0 | 0 | 21 | 21 |

Conservation Priority Rating: 4.

Road Order: 14.

Convolvulus sp., *Maireana brevifolia* Low Shrubland is un-common within the survey area with just 2.14 km identified.

Emergent species include *Acacia victoriae* (Elegant Wattle).

Understorey species include *Dissocarpus paradoxus* (Ball Bindyi), *Salsola kali* (Buckbush), and the native grass *Austrostipa* sp.

Exotic species present include *Marrubium vulgare* (Horehound).

Association 42: *Avena barbata*, +/- *Austrostipa* sp., +/- *Austrodanthonia* sp., +/- *Enneapogon* sp., +/- *Atriplex* sp. Tussock Grassland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|--------|---|---------|
| Length (km) | 0 | 0 | 4.48 | 390.71 | 0 | 395.19 |
| Number of segments | 0 | 0 | 71 | 4042 | 0 | 4113.00 |

Conservation Priority Rating: 3.

Road Order: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 24, 25, 33, 34, 35, 37, 38, 43, 44, 45, 47, 48.

Avena barbata, +/- *Austrostipa* sp., +/- *Austrodanthonia* sp., +/- *Enneapogon* sp., +/- *Atriplex* sp. Tussock Grassland is the most common vegetation association present within the survey area, with 395.19 km identified.

Emergent species include *Eucalyptus socialis* (Red Mallee), *Eucalyptus porosa* (Mallee Box), *Eucalyptus leucoxylon* (South Australian Blue Gum), *Eucalyptus odorata* (Peppermint Box), *Senna artemisioides* ssp. *X fillifolia* (Fine-leaf Desert Senna), *Eremophila longifolia* (Weeping Emubush), *Pittosporum angustifolium* (Native Apricot), *Alectryon oleifolius* ssp. *canescens* (Bullock Bush), *Hakea leucoptera* ssp. *Leucoptera* (Silver Needlewood), *Acacia nyssophylla* (Spine Bush), *Acacia pycnantha* (Golden Wattle), *Acacia victoriae* (Elegant Wattle), *Maireana brevifolia* (Short-leaf Bluebush), and *Maireana coronata* (Crown Fissure-plant). The exotic *Lycium ferocissimum* (African Boxthorn), *Pinus radiata* (Radiata Pine), and *Rosa canina* (Dog Rose) are also emergent species.

Understorey species include *Atriplex vesicaria* (Bladder Saltbush), *Lomandra effusa* (Scented Mat-rush), *Vittadinia* sp., (New Holland Daisy), *Enchylaena tomentosa* var. *tomentosa* (Ruby Saltbush), *Dianella revoluta* var. *revoluta* (Black-anther Flax-lily) and the native grasses *Enneapogon* sp., *Austrostipa* sp., and *Austrodanthonia* sp.

Exotic species include *Marrubium vulgare* (Horehound), *Centaurea calcitrapa* (Star Thistle), *Asphodelus fistulosus* (Onion Weed), *Hirschfeldia incana* (Hoary Mustard), *Trifolium angustifolium* (Narrow-leaf Clover), *Bromus* sp. (Brome), *Lactuca serriola* (Prickly Lettuce), *Lepidium africanum* (Common Peppergrass), *Medicago* sp. (Medic), *Scabiosa atropurpurea* (Pincushion), *Rosa canina* (Dog Rose), and *Avena barbata* (Wild Oats),



Figure 31. *Avena barbata*, +/- *Austrostipa* sp., +/- *Austrodanthonia* sp., +/- *Enneapogon* sp., +/- *Atriplex* sp. Tussock Grassland along Leighton Road.

Association 43: *Austrostipa* sp., +/- *Austrodanthonia* sp., +/- *Enneapogon* sp., +/- *Cymbopogon* sp., +/- *Lomandra* sp. Grassland

| Overall significance | A | B | C | D | E | Total |
|----------------------|------|--------|---------|---|---|---------|
| Length (km) | 0.74 | 53.47 | 93.27 | 0 | 0 | 148.55 |
| Number of segments | 21 | 791.00 | 1603.00 | 0 | 0 | 2425.00 |

Conservation Priority Rating: 1.

Road Order: 16, 17, 18, 19, 20, 25, 26, 27, 30, 31, 33, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 47, 48, 52.

Austrostipa sp., +/- *Austrodanthonia* sp., +/- *Enneapogon* sp., +/- *Cymbopogon* sp., +/- *Lomandra* sp. Grassland is the second most common vegetation association present within the survey area, with 148.55 km identified.

Emergent species include *Eucalyptus leucoxylon* (South Australian Blue Gum), *Eucalyptus porosa* (Mallee Box), *Eucalyptus odorata* (Peppermint Box), *Hakea rostrata* (Beaked Hakea), *Acacia brachybotrya* (Grey Mulga-bush), *Acacia calamifolia* (Wallowa), *Acacia nyssophylla* (Spine Bush), *Acacia microcarpa* (Manna Wattle), *Acacia pycnantha* (Golden Wattle), *Acacia victoriae* (Elegant Wattle), *Senna artemisioides* ssp. *X coriacea* (Desert Senna), *Senna artemisioides* ssp. *X filifolia* (Fine-leaf Desert Senna), *Hakea rostrata* (Beaked Hakea), *Acacia calamifolia* (Wallowa), *Pittosporum angustifolium* (Native Apricot), *Bursaria spinosa* ssp. *spinosa* (Bursaria spinosa), *Callitris glaucophylla* (White Cypress-pine), *Pittosporum angustifolium* (Native Apricot), *Maireana brevifolia* (Short-leaf Bluebush). The exotic *Pinus radiata* (Radiata Pine) is also emergent species.

Species present in the understorey include *Salsola kali* (Buckbush), *Lomandra* sp. (Mat-rush), *Lomandra effusa* (Scented Mat-rush), *Salsola kali* (Buckbush), *Vittadinia* sp., (New Holland Daisy), and the native grasses *Enneapogon* sp., *Austrostipa* sp., and *Austrodanthonia* sp.

Exotic species present in the understorey include *Rosa canina* (Dog Rose), *Scabiosa atropurpurea* (Pincushion), *Trifolium angustifolium* (Narrow-leaf Clover), *Marrubium vulgare* (Horehound), *Lactuca serriola* (Prickly Lettuce), *Echium plantagineum* (Salvation Jane), *Centaurea calcitrapa* (Star Thistle), *Phalaris aquatica* (Phalaris), *Lepidium africanum* (Common Peppergrass), *Aira* sp. (Hair-grass), and *Avena barbata* (Wild Oats).



Figure 32. *Austrostipa* sp., +/- *Austrodanthonia* sp., +/- *Enneapogon* sp., +/- *Cymbopogon* sp., +/- *Lomandra* sp. Grassland along Iron Mile Road.

Association 44: *Cymbopogon ambiguus* Tussock Grassland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|---|---|-------|
| Length (km) | 0 | 0 | 1.01 | 0 | 0 | 1.01 |
| Number of segments | 0 | 0 | 31 | 0 | 0 | 31 |

Conservation Priority Rating: 1.

Road Order: 20.

Cymbopogon ambiguus Tussock Grassland is un-common within the survey area with just 1.01 km identified.

Co-dominant species also include the native grass *Austrodanthonia* sp. and exotic *Avena barbata* (Wild Oats).

Emergent species include the weeds *Avena barbata* (Wild Oats) and *Lactuca serriola* (Prickly Lettuce).

Association 45: Exotic Grassland - Herbland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|---|-------|-------|
| Length (km) | 0 | 0 | 0 | 0 | 43.81 | 43.81 |
| Number of segments | 0 | 0 | 0 | 0 | 843 | 843 |

Conservation Priority Rating: 5.

Road Order: 21, 22, 25, 26, 33, 40, 41, 42.

Exotic Grassland is un-common within the survey area with 43.81 km identified.

Emergent species include *Eucalyptus leucoxylon* (South Australian Blue Gum), *Eucalyptus socialis* (Red Mallee), *Eucalyptus odorata* (Peppermint Box), *Eucalyptus phenax* (White Mallee), *Callitris glaucophylla* (White Cypress-pine), *Bursaria spinosa* ssp. *spinosa* (Bursaria spinosa), *Acacia ligulata* (Umbrella Bush), *Acacia pycnantha* (Golden Wattle), *Allocasuarina verticillata* (Drooping Sheoak), *Eremophila longifolia* (Weeping Emubush), *Maireana brevifolia* (Short-leaf Bluebush), and the exotic *Pinus radiata* (Radiata Pine) and *Rosa canina* (Dog Rose).

Understorey species present include *Maireana brevifolia* (Short-leaf Bluebush), *Salsola kali* (Buckbush), *Vittadinia* sp., (New Holland Daisy), and the native grasses *Themeda triandra* (Kangaroo Grass), *Austrostipa* sp., *Austrodanthonia* sp. and *Chloris* sp. (Windmill Grass).

Exotic species include *Centaurea calcitrapa* (Star Thistle), *Cynodon dactylon* var. *dactylon* (Couch), *Bromus* sp. (Brome), *Scabiosa atropurpurea* (Pincushion), *Echium plantagineum* (Salvation Jane), *Marrubium vulgare* (Horehound), *Medicago* sp. (Medic), *Lactuca serriola* (Prickly Lettuce), *Trifolium angustifolium* (Narrow-leaf Clover), *Avena barbata* (Wild Oats), *Setaria verticillata* (Whorled Pigeon-grass), and *Phalaris aquatica* (Phalaris).



Figure 33. Example of Exotic Grassland – Herbland, *Centaurea calcitrapa* (Star Thistle) along Ngalpla Road.

Association 46: *Rosa canina* Shrubland

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|---|------|-------|
| Length (km) | 0 | 0 | 0 | 0 | 6.53 | 6.53 |
| Number of segments | 0 | 0 | 0 | 0 | 111 | 111 |

Conservation Priority Rating: 5.

Road Order: 43.

Rosa canina Shrubland is un-common within the survey area with 6.53 km identified.

Emergent species include *Allocasuarina verticillata* (Drooping Sheoak), *Eucalyptus leucoxylon* (South Australian Blue Gum), and *Acacia pycnantha* (Golden Wattle).

Understorey species include the native grasses *Austrostipa* sp., and *Austrodanthonia* sp.

The dominant species, *Rosa canina* (Dog Rose) is exotic. Other exotic species present include *Avena barbata* (Wild Oats), *Phalaris aquatica* (Phalaris), and *Scabiosa atropurpurea* (Pincushion).



Figure 34. *Rosa canina* Shrubland along Ngapala Road.

Association 47: Native Plantation

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|------|-------|---|-------|
| Length (km) | 0 | 0 | 0.31 | 36.87 | 0 | 36.87 |
| Number of segments | 0 | 0 | 11 | 522 | 0 | 522 |

Conservation Priority Rating: 3.

Road Order: 6, 11, 20, 23, 25, 26, 33, 38, 42, 43, 48.

Native Plantation is un-common within the survey area with 36.87 km identified.

The dominate species in this association include non-indigenous *Eucalyptus* sp., *Melaleuca* sp. (Tea-tree sp.), and *Acacia* sp. (Wattle sp.), as well as the planted local species, *Allocasuarina verticillata* (Drooping Sheoak), *Acacia pycnantha* (Golden Wattle), which may or may not be from local seed stock.

Understorey species include *Maireana brevifolia* (Short-leaf Bluebush), *Muehlenbeckia* sp. (Lignum), *Lomandra* sp. (Mat-rush), and the native grasses *Austrostipa* sp., *Austrodanthonia* sp. and *Enneapogon* sp.

Exotic species present include *Avena barbata* (Wild Oats), *Echium plantagineum* (Salvation Jane), *Lolium perenne* (Perennial Ryegrass), *Scabiosa atropurpurea* (Pincushion), *Hirschfeldia incana* (Hoary Mustard), *Piptatherum miliaceum* (Rice Millet), and *Pinus radiata* (Radiata Pine).



Figure 35. Native Plantation (*Acacia paradoxa*; Kangaroo Thorn) along Petherton Road.

Association 48: Mixed Native/Exotic Plantation

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|---|------|-------|
| Length (km) | 0 | 0 | 0 | 0 | 0.94 | 0.94 |
| Number of segments | 0 | 0 | 0 | 0 | 31 | 31 |

Conservation Priority Rating: 4.

Road Order: 43.

Mixed Native/Exotic Plantation is one of the most un-common vegetation associations within the survey area with just 0.94 km identified.

Dominant and co-dominate species of this association include non-indigenous *Eucalyptus* sp., *Melaleuca* sp. (Tea-tree), and *Pinus radiata* (Radiata Pine).

Understorey species include the native grasses *Austrostipa* sp., and *Austrodanthonia* sp.

Additional exotic species present include *Avena barbata* (Wild Oats), *Echium plantagineum* (Salvation Jane), *Scabiosa atropurpurea* (Pincushion) and *Rosa canina* (Dog Rose).

Association 49: Exotic Plantation

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|---|------|-------|
| Length (km) | 0 | 0 | 0 | 0 | 2.49 | 2.49 |
| Number of segments | 0 | 0 | 0 | 0 | 41 | 41 |

Conservation Priority Rating: 5

Road Order: 6, 25, 12, 26.

Exotic Plantation is un-common within the survey area with just 2.49 km identified.

Dominant and co-dominate species of this association include *Pinus radiata* (Radiata Pine), *Prunus* sp. (Plum), *Olea europaea* (Olive), and Compositae sp.(Daisy family).

Emergent species include *Callitris glaucophylla* (White Cypress-pine), *Eucalyptus leucoxylon* (South Australian Blue Gum), *Hakea leucoptera* ssp. *leucoptera* (Silver Needlewood), and the exotic *Lactuca serriola* (Prickly Lettuce).

Native understorey species present include the grasses *Austrostipa* sp., and *Austrodanthonia* sp.

Association 50: Bare Ground

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|---|---|-------|
| Length (km) | 0 | 0 | 0 | 0 | 0 | 8.67 |
| Number of segments | 0 | 0 | 0 | 0 | 0 | 212 |

Conservation Priority Rating: 9.

Road Order: 3, 12, 16, 38, 44.

Bare Ground is un-common within the survey area with 8.67 km identified.



Figure 36. Bare Ground along Leighton Road.

Association 51: Built Up

| Overall significance | A | B | C | D | E | Total |
|----------------------|---|---|---|---|---|-------|
| Length (km) | 0 | 0 | 0 | 0 | 0 | 0.67 |
| Number of segments | 0 | 0 | 0 | 0 | 0 | 11 |

Conservation Priority Rating: 9

Road Order: 23.

Built Up, was one of the most un-common 'vegetation associations' within the survey area, identified for just 0.67 km of the survey area.

This category includes built-up areas and is associated with townships where no native vegetation exists. It covers areas where buildings, footpaths, parks, gardens and property frontages may occur. Consequently, these areas are completely disturbed and vegetation associations can not be defined.

9 Proposed Potential Roadside Management Sites

Any segment recorded during the field survey can be marked as a potential management site, depending on the condition of the site. The types of sites detailed below were recorded during this survey and their locations and details are listed in the tables that follow (Table 8, 9 & 10). The Regional Council of Goyder should work closely with the Department for Environment and Heritage and local landcare and conservation groups to establish priority sites within the council area.

Refer to Map 6: Proposed Potential Sites

9.1 Roadside Significant Site (RSS)

Roadside Significant Sites includes sites with high quality native vegetation that have high ecological and conservation value. For the purpose of this survey, any sites that have an overview condition rating of 1 or 2 have been designated roadside significant sites. Some additional sites that had an overview condition rating of 3 also have been designated as roadside significant sites within this survey area, due to the paucity of higher quality sites. Roadside Significant Sites are marked on site under the roadside marker system.

Refer to Table 8 - Proposed Potential Roadside Significant Sites (RSS).

9.2 Reference site (REF)

A Reference site shows a representative example of a plant community proposed for detailed on ground assessment. It is also thought to best represent a vegetation community that may be close to its pre-European condition. For the purpose of this survey, any sites that have an overview condition rating of 1 have been designated Reference sites. Any reference site will also automatically be a RSS site, and will be included in the RSS table (Table 8).

Refer to Table 9 - Proposed Potential Reference Sites (REF).

9.3 Revegetation site (REV)

Revegetation sites are areas that are believed to be suitable for revegetating with local provenance native plant species. In this survey segments lacking any native vegetation that are also in a very poor condition, and coinciding with a wide road reserve (greater than 15 metres) have been designated Revegetation sites. Most of these sites occur in areas of exotic grassland or exotic herblands, and may include areas that are currently being cropped or grazed by local farmers.

Refer to Table 10 - Proposed Potential Revegetation Sites (REV).

9.4 Requirements for Roadside Marker System (RSS sites)

During the survey, 47 potential roadside significant sites (RSS) (see Table 8) were identified, including 14 sites which are both RSS and RFF sites. Each site, to be included in the roadside marker system, will require markers to be made. Once the markers are made up one is placed at the beginning of the site and the other at the end of the site. Please refer to Transport SA (2000) and Transport SA (2002) for more details on roadside significant sites and the roadside marker system.

The equipment required for each site includes two star droppers, two metal signs and two bolts to join the signs to the star droppers. For these to be made by a contractor costs approximately \$30 per site (2006 price, ex GST). Therefore for 47 sites, the cost of getting the markers made up is \$2,130 (ex GST). This price does not include the cost of installing the markers.

In addition to the above cost a computer database or spreadsheet system will need to be set up and maintained by the Regional Council of Goyder. This will help to ensure that the system is updated, is user friendly and of use and relevance to council staff who will need to know readily and easily about the location and importance of specific RSS sites.

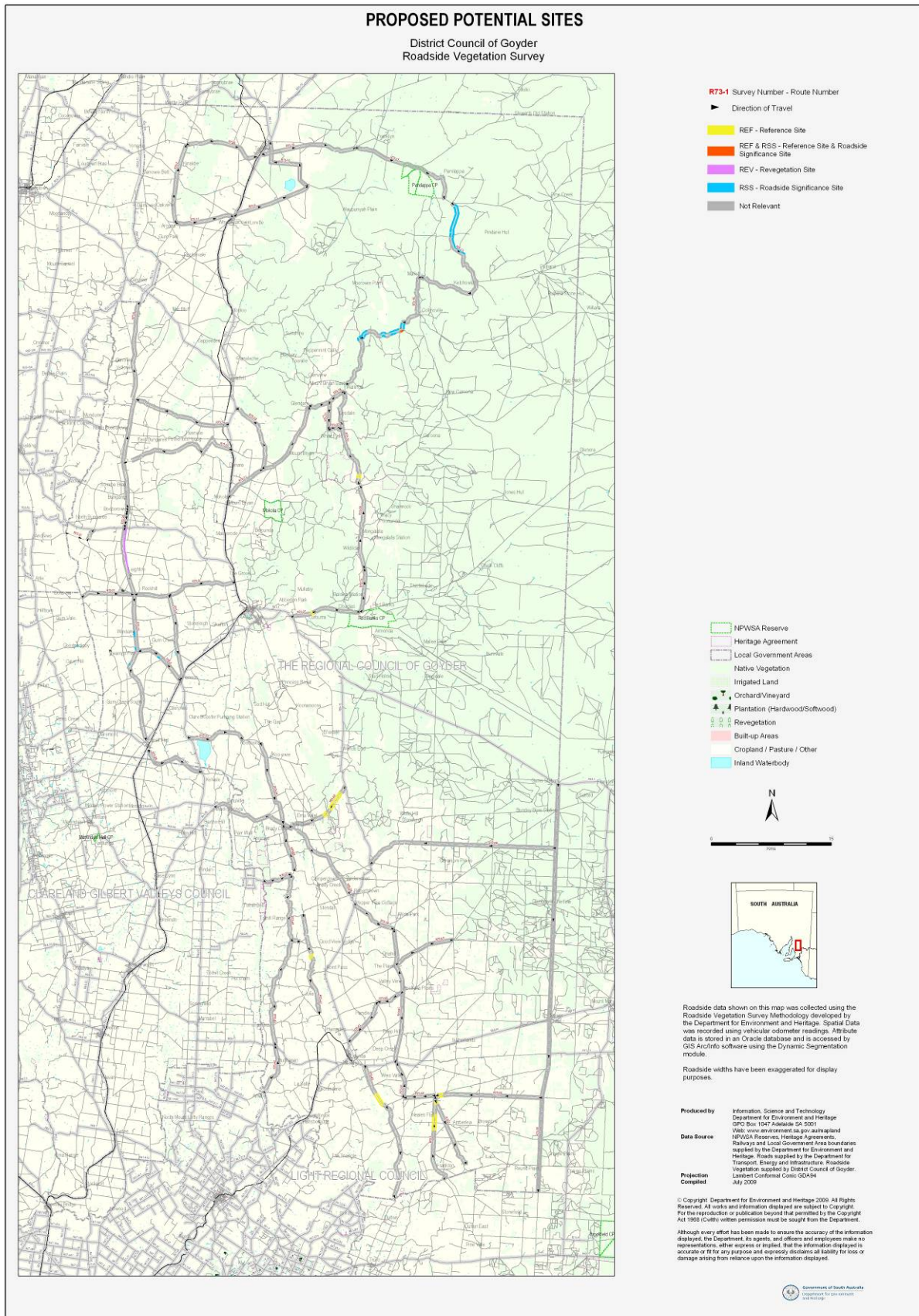


Figure 37. Proposed Potential Sites

Table 9. Proposed Potential Roadside Significant Sites (RSS).

N.B. REF sites (see Table 10 below) are also considered RSS sites and are detailed in both tables.

| No. | Road order | Number | Site type | Odometer reading | Side | Association no. |
|-----|------------|--------|-----------|------------------|------|-----------------|
| 1 | 1 | 1 | RSS | 6830 – 6910 m | R | 12 |
| 2 | 1 | 2 | RSS | 7930 – 8910 m | L | 11 |
| 3 | 2 | 1 | RSS | 0 – 580 m | R | 11 |
| 4 | 15 | 1 | RSS | 460 - 3940 m | L | 14 |
| 5 | 15 | 2 | RSS | 460 - 4250 m | R | 14 |
| 6 | 15 | 3 | RSS | 3940 – 4520 m | L | 21 |
| 7 | 16 | 3 | RSS | 8200 – 9470 m | R | 12, 34 |
| 8 | 16 | 4 | RSS | 8680 – 9470 m | L | 12, 34 |
| 9 | 16 | 5 | RSS | 10050 – 10800 m | L | 34 |
| 10 | 16 | 6 | RSS | 10050 – 10800 m | R | 34 |
| 11 | 16 | 7 | RSS | 1300 – 14250 m | L | 34, 11 |
| 12 | 16 | 8 | RSS | 13000 – 14250 m | R | 29, 11, 30 |
| 13 | 25 | 2 | RSS | 13030 – 13790 m | R | 42 |
| 14 | 25 | 3 | RSS | 14980 – 15600 m | R | 45 |
| 15 | 25 | 4 | RSS | 17450 – 17680 m | R | 42 |
| 16 | 16 | 1 | REF/RSS | 7080 – 8200 m | L | 14, 4 |
| 17 | 16 | 2 | REF/RSS | 7080 – 8200 m | R | 14, 4 |
| 18 | 27 | 1 | REF/RSS | 2290 - 2660 m | L | 43 |
| 19 | 27 | 2 | REF/RSS | 2290 - 2660 m | R | 43 |
| 20 | 30 | 1 | REF/RSS | 920 – 1480 m | L | 11 |
| 21 | 30 | 2 | REF/RSS | 920 – 1480 m | R | 11 |
| 22 | 35 | 1 | REF/RSS | 3720 – 4540 m | L | 12 |
| 23 | 35 | 2 | REF/RSS | 3720 – 4540 m | R | 12 |
| 24 | 35 | 3 | REF/RSS | 5100 – 8110 m | L | 15, 14, 43 |
| 25 | 35 | 4 | REF/RSS | 5100 – 8110 m | R | 15, 14, 7, 43 |
| 26 | 47 | 1 | REF/RSS | 5260 – 5850 m | L | 5 |
| 27 | 47 | 2 | REF/RSS | 5260 – 5850 m | R | 5 |
| 28 | 48 | 1 | REF/RSS | 3700 - 5410 m | L | 12 |
| 29 | 48 | 2 | REF/RSS | 3700 - 5410 m | R | 12 |
| 30 | 49 | 1 | REF/RSS | 12190 – 13240 m | L | 32 |
| 31 | 49 | 2 | REF/RSS | 12190 – 12940 m | R | 32 |

Table 10. Proposed Potential Reference Sites (REF).

N.B. Reference sites are also included in Table 9 as Roadside Significant Sites

| No. | Road order | Number | Site type | Odometer reading | Side | Association no. |
|-----|------------|--------|-----------|------------------|------|-----------------|
| 1 | 16 | 1 | REF | 7080 – 8200 m | L | 14, 4 |
| 2 | 16 | 2 | REF | 7080 – 8200 m | R | 14, 4 |
| 3 | 27 | 1 | REF | 2290 - 2660 m | L | 43 |
| 4 | 27 | 2 | REF | 2290 - 2660 m | R | 43 |
| 5 | 30 | 1 | REF | 920 – 1480 m | L | 11 |
| 6 | 30 | 2 | REF | 920 – 1480 m | R | 11 |
| 7 | 35 | 1 | REF | 3720 – 4540 m | L | 12 |
| 8 | 35 | 2 | REF | 3720 – 4540 m | R | 12 |
| 9 | 35 | 3 | REF | 5100 – 8110 m | L | 15, 14, 43 |
| 10 | 35 | 4 | REF | 5100 – 8110 m | R | 15, 14, 7, 43 |
| 11 | 47 | 1 | REF | 5260 – 5850 m | L | 5 |
| 12 | 47 | 2 | REF | 5260 – 5850 m | R | 5 |
| 13 | 48 | 1 | REF | 3700 - 5410 m | L | 12 |
| 14 | 48 | 2 | REF | 3700 - 5410 m | R | 12 |
| 15 | 49 | 1 | REF | 12190 – 13240 m | L | 32 |
| 16 | 49 | 2 | REF | 12190 – 12940 m | R | 32 |

Table 11. Proposed Potential Revegetation Sites (REV).

| No. | Road order | Number | Site type | Odometer reading | Side | Association no. |
|-----|------------|--------|-----------|------------------|------|-----------------|
| 1 | 25 | 1 | REV | 0 – 2980 m | L | 45 |

10 Native Plant Species of Conservation Significance

Although the roadside vegetation surveys are not designed or carried out with the purpose of identifying species of conservation significance, especially understorey species, several species of conservation significance were recorded (Table 12). It is considered that many other threatened species are likely to occur on other roads in the survey area, but were not recorded due to the nature of a roadside vegetation survey. If further more intensive surveys were carried out other species of conservation significance would be likely to be identified.

Table 12. Conservation significant plant species recorded during the survey.

| Species | Common name | Aus status | SA status | NL status | MU status |
|-----------------------------|---------------------|------------|-----------|-----------|-----------|
| <i>Acacia glandulicarpa</i> | Hairy-pod Wattle | VU | E | V | V |
| <i>Maireana rohrlachii</i> | Rohrlach's Bluebush | | R | V | R |
| <i>Maireana aphylla</i> | Cotton-bush | | | V | R |
| <i>Cymbopogon ambiguous</i> | Lemon-grass | | | V | R |
| <i>Acacia victoriae</i> | Elegant Wattle | | | | R |
| <i>Myoporum parvifolium</i> | Creeping Boobialla | | R | R | K |

Key

NL = Northern Lofty Botanical Region

MU = Murray Botanical Region

(the survey area falls on the boundary of these two regions).

National status

EN Endangered under the *Environment Protection and Biodiversity Conservation Act 1999*.

State status

E Endangered under the *National Parks and Wildlife Conservation Act 1975*

Regional status

K Uncertain: likely to be either Threatened or Rare but insufficient data available for a more precise assessment.

R Rare: has a low overall frequency of occurrence (may be locally common with a very restricted distribution or may be scattered sparsely over a wider area). Not currently exposed to significant or widespread threats, but warrants monitoring and protective measures to prevent reduction of population sizes.

11 Management Recommendations

Refer to Figure 4: Overall Significance.

Management issues occurring on roadsides in this area will generally fall into the following two areas:

- Management of council roadworks during construction and maintenance activities. This will include things like road maintenance, grading or road widening.
- Management of the roadside vegetation in terms of weed control, feral animal control, bushcare and revegetation activities.

Both of these areas will need to be managed by council staff to ensure vegetation of high ecological value is not disturbed. The following general management recommendations can be made for each Overall Significance category.

11.1 Category A

Category A vegetation associations contain a high priority vegetation association in excellent or good condition. These areas should not be disturbed. General management recommendations for this category are included below.

11.1.1 Road Works

- All types of road works such as grading or road widening should be avoided in these areas at all costs. Disturbance should definitely be avoided outside of the shoulder area. Alternative areas should be selected for this type of work.

11.1.2 Weed Control

Weed control is generally not required in these segments because of the excellent condition the understorey has to be in to be classified as Category A. However, it is recommended that surveillance of these areas be ongoing to monitor the weed situation and to implement control programs if any weeds do begin to encroach on these areas. Category A areas should be recommended to become Bushcare sites, where resources and the availability of volunteers allow this. Only minimal impact and sensitive approaches to weed control should be carried out in these areas. This should predominantly consist of hand weeding, and possibly cutting and swabbing and sensitive spot spraying. If implemented this would ensure that these areas are maintained in their current excellent condition. The preferred option for council would be to recruit local volunteers to work as bushcarers on these sites. If local people were unavailable suitably qualified contractors could be employed to carry out this work.

11.1.3 Revegetation

Revegetation programs are not necessary in Category A sites, due to the good quality native vegetation already present, and should not be implemented in these areas.

11.1.4 RSS Markers

Category A sites with an overview condition rating of 1 will be designated as Reference (REF) and Roadside Significant Sites (RSS). Those with an overview condition rating of 2 will be designated as Roadside Significant Sites (RSS). It is recommended that the RSS markers be placed on site as soon as possible, so that these areas are highlighted to council staff and their contractors.



Figure 38. Example of Category A type vegetation.

11.2 Category B

Category B vegetation associations contain a high priority vegetation association in moderate condition or a lower priority association in excellent condition. These areas should not be disturbed.

11.2.1 Road works

All types of council road works such as grading or road widening should be avoided in these areas at all costs. Disturbance should be avoided outside of the shoulder area. Alternative areas should be selected for this type of work.

11.2.2 Weed control

The understorey in Category B is in a moderate to excellent condition, usually with a minor weed problem or with small scale outbreaks of significant weeds that are still manageable. In general only a low level weed control program should be needed in these segments. Category B areas should be recommended to become Bushcare sites, where resources and the availability of volunteers allow this. Only minimal impact and sensitive approaches to weed control should be carried out in these areas. This should predominantly consist of hand weeding, and possibly cutting and swabbing and sensitive spot spraying.

Surveillance of these areas should be ongoing to monitor the weed situation and the control programs that have been implemented. Proper control programs should ensure that these areas maintain their excellent condition or improve their moderate condition. The preferred option for council would be to recruit local volunteers to work as bushcarers on these sites. If local people were unavailable suitably qualified contractors could be employed to carry out this work. Contractors would be more suitably qualified to carry out any heavier work or spraying work.

11.2.3 Revegetation

Revegetation programs are not necessary in Category B sites, due to the good quality native vegetation already present, and should not be implemented in these areas.

11.2.4 RSS markers

Category B sites with an overview condition rating of 1 will be designated as Reference and Roadside Significant Sites (RSS). Those with an overview condition rating of 2 will be designated as Roadside Significant Sites (RSS). It is recommended that the RSS markers be placed on site as soon as possible, so that these areas are highlighted to council staff and their contractors.

Example of Category B type vegetation:



Figure 39. Example photo of Category B roadside vegetation.

11.3 Category C

Category C vegetation associations contain a high priority vegetation association in poor condition or a lower priority association in moderate condition. Disturbance should be avoided whenever possible.

11.3.1 Road works

Disturbance outside of the shoulder area should be restricted to areas of lower quality vegetation. In higher quality sections of this category disturbance should be avoided. In general council road works such as grading or road widening should be restricted to areas of the lowest quality vegetation. Further investigation would be required in specified areas prior to work being conducted to ensure it is restricted to the poorer quality areas and that no significant native species are affected. Council Environment Officers or suitably qualified contractors could carry out this work.

11.3.2 Weed control

The understorey in Category C is usually in a moderate to poor condition with weed problems that are more extensive, and with a more diverse range of exotic species being present. A more intensive weed control program will be needed in these segments to improve the condition of the vegetation. Minimal impact and sensitive approaches to weed control are recommended. In Category C this is more likely to consist of cutting and swabbing and sensitive spraying.

Surveillance of these areas should be ongoing to monitor the weed situation and the control programs that have been implemented. Suitably qualified contractors should be employed to carry out this work.

11.3.3 Revegetation

Revegetation programs are generally not required in Category C sites and should not be implemented in these areas. However, some limited planting in the poorer quality areas could be undertaken. This could be implemented to thicken up some of the unnaturally sparse areas, and improve vegetation corridors where patches of vegetation have been cleared. Further investigation into suitable sites would be required, and should be restricted to the wider road reserves (>10m) so that the safety of vehicular traffic is assured and road visibility is not restricted.

11.3.4 RSS markers

No Category C sites have been designated as Roadside Significant Sites (RSS) or Reference Sites (REF).

Example of Category C type vegetation:



Figure 40. Example photo of Category C roadside vegetation.

11.4 Category D

Category D vegetation associations contain limited native vegetation in poor condition. May be disturbed, subject to further assessment and planning.

11.4.1 Road works

Disturbance outside of the shoulder area should be restricted to areas of the lowest quality vegetation. In higher quality sections of this category disturbance should be avoided. In general council road works such as grading or road widening should be restricted to areas of the lowest quality. Further investigation would be required in areas of obvious native vegetation prior to work being conducted to minimise or eliminate the impact on native species.

11.4.2 Weed control

The understorey in Category D is usually in a poor condition with weed problems that are more extensive, and with a more diverse range of exotic species being present. A more intensive weed control program will be needed in these segments to improve the condition of the vegetation. Weed control programs should be targeted at Declared species and other serious environmental weeds (see General Management Issue Section). Minimal impact and sensitive approaches to weed control are recommended. In Category D this is more likely to consist of cutting and swabbing, slashing and sensitive spraying. The general aim of weed control in these areas will be to stop the movement of Declared and environmental weeds to better quality areas of native vegetation and surrounding farmland.

Surveillance of these areas should be ongoing to monitor the weed situation and the control programs that have been implemented. Suitably qualified contractors should be employed to carry out this work.

11.4.3 Revegetation

Revegetation programs are generally suitable in Category D sites but they should be carefully located in appropriate areas. Further investigation into suitable sites would be required, before a revegetation program is planned. Programs could be implemented to thicken up some of the unnaturally sparse areas, and improve vegetation corridors where patches of vegetation have been cleared, fragmenting the native vegetation. Revegetation should be targeted at the weediest areas, and the wider road reserves (>10m) so that the safety of vehicular traffic is assured and road visibility is not restricted. The revegetation (REV) sites recommended in this report can be used as a guide to suitable areas, but more areas could be chosen by council staff. Care should be taken to avoid areas of native grassland when planning revegetation programs.

11.4.4 RSS markers

No Category D sites have been designated as Roadside Significant Sites (RSS) or Reference Sites (REF).

Example of Category D native vegetation:



Figure 41. Example of Category D roadside vegetation.

11.5 Category E

Category E vegetation associations contain very little or no native vegetation. May be disturbed, generally with no further assessment of native vegetation required.

11.5.1 Road works

Although the majority of sites in this category will have very little or no native vegetation present, occasional scattered trees or patches of degraded native vegetation may still exist. Disturbance outside of the shoulder area should if possible be restricted to areas where native vegetation does not exist.

11.5.2 Weed control

The native understorey in Category E is usually non-existent with only the occasional scattered native plants or overstorey species remaining. Weeds in these areas are more extensive, and with a more diverse range of exotic species being present. Weed control programs should be restricted to Declared species and other serious environmental weeds (see General Management Issue Section).

A more intensive weed control program will be needed in these segments to improve the condition of the vegetation. Minimal impact and sensitive approaches to weed control are recommended. In Category E this will consist of cutting and swabbing, slashing and sensitive spraying. The general aim of weed control in these areas will be to stop the movement of Declared and environmental weeds to better quality areas of native vegetation and surrounding farmland.

Surveillance of these areas should be ongoing to monitor the weed situation and the control programs that have been implemented. Suitably qualified contractors should be employed to carry out this work.

11.5.3 Revegetation

Revegetation programs are recommended for Category E sites but they should be carefully located in appropriate areas. Further investigation into suitable sites would be required, before a revegetation program is planned. Programs could be implemented to thicken up some of the unnaturally sparse areas, and improve vegetation corridors where patches of vegetation have been cleared, fragmenting the native vegetation. Revegetation should be targeted at the wider road reserves (>10m) so that the safety of vehicular traffic is assured and road visibility is not restricted. The revegetation (REV) sites recommended in this report can be used as a guide to suitable areas, but more areas could be chosen by council staff. Care should be taken to avoid areas of native grassland when planning revegetation programs.

11.5.4 RSS markers

No Category E sites have been designated as Roadside Significant Sites (RSS) or Reference Sites (REF).

Example of Category E type vegetation:



Figure 42. Example of Category E roadside vegetation.

12 General Management Issues

12.1 Exotic species

Invasion of exotic species into areas of roadside native vegetation is one of the most significant threats facing these remnants. Due to the linear nature of roadside vegetation remnants, they are very susceptible to exotic species invasion. Local councils and landholders have a responsibility to control and manage the exotic species occurring on their roadsides.

An integrated approach to weed control should be used i.e. using several different approaches such as herbicides, biological control, bushcare and other management practices. Additionally, all landholders and the local council need to target particular species in a combined effort. There is little point in controlling a weed species in one area, if on an adjacent property or roadside the weeds remain uncontrolled and able to spread. The local council should initiate control programs which aim to involve all landholders and lead the way by using best practice weed control techniques.

The Regional Council of Goyder should consult with the local Authorised Officer from the SA Murray Darling Basin Natural Resources Management (NRM) Board, the Northern and Yorke NRM Board, or the Bush Management Adviser, Department for Environment and Heritage regarding weed control strategies to ensure works programs are run in conjunction with the priorities of the NRM Board.

Weed control programs should initially be targeted at Declared species (see Table 12) and other serious environmental weeds (see Table 13). Minimal impact and sensitive approaches to weed control are always recommended. Methods that can be used include cutting and swabbing, slashing and sensitive spraying. The general aim of weed control in all areas will be to stop the movement of Declared and environmental weeds to better quality areas of native vegetation and surrounding farmland. If possible the eradication of particular species from an area should be the aim, but this will generally only be possible for species with a low or restricted distribution, e.g. Desert Ash.

Monitoring of weed control programs should be ongoing to ensure the weed situation is improving and the control programs that have been implemented are having the desired effect. Suitably qualified contractors or properly trained council employees should be employed to carry out this work.

Note that when Gramineae sp. were recorded throughout this survey, the plants had not grown to a stage where identification was possible.

12.1.1 Declared weeds

Under the *Natural Resources Management Act 2004* it is the responsibility of the landholder to control declared pest plants within road reserves immediately adjacent their land, up to half way across the road reserve. It is the responsibility of the Regional Council of Goyder to control these weeds in the other fifty percent of each roadside within the council area. Table 12 lists the 15 declared weed species recorded during this survey. Weed control should initially be targeted at these species, particularly where they occur in high quality native vegetation. Particular attention should be paid to weeds that are currently in low numbers and have the potential to spread significantly in this region, for example Gorse, or Olives. The presence of declared weeds has been included in each road description.

Table 13. Declared weeds recorded during the roadside vegetation survey.

| Species | Common name |
|--|------------------|
| <i>Asphodelus fistulosus</i> | Onion Weed |
| <i>Echium plantagineum</i> | Salvation Jane |
| <i>Lycium ferocissimum</i> | African Boxthorn |
| <i>Marrubium vulgare</i> | Horehound |
| <i>Olea europaea</i> ssp. <i>europaea</i> | Olive |
| <i>Rosa canina</i> | Dog Rose |
| <i>Rubus ulmifolius</i> var. <i>ulmifolius</i> | Blackberry |
| <i>Ulex europaeus</i> | Gorse |

12.1.2 Environmental weeds

Many exotic species are not on the 'Declared Plants' list, yet they are known weeds that will invade and severely degrade native vegetation. Because of this they are described as environmental weeds. For the purpose of this report environmental weeds have been divided in to high priority weeds and lower priority weeds. Where possible, it is recommended that the council target the high priority weeds for control, as these species are often as high a priority as the Declared weeds. Weed control should be targeted at these species, particularly where they occur in high quality native vegetation. Table 13 lists the 24 high priority environmental weed species recorded during this survey, and Table 14 lists the 36 lower priority environmental weed species recorded during this survey.

Table 14. High priority environmental weeds recorded during this survey

| Species | Common name |
|--|--------------|
| <i>Foeniculum vulgare</i> | Fennel |
| <i>Olea europaea</i> ssp. <i>europaea</i> | Olive |
| <i>Pinus radiata</i> | Radiata Pine |
| <i>Rosa canina</i> | Dog Rose |
| <i>Rubus ulmifolius</i> var. <i>ulmifolius</i> | Blackberry |
| <i>Ulex europaeus</i> | Gorse |

Table 15. Lower priority environmental weeds recorded during this survey.

| Species | Common name |
|--|--------------------|
| <i>Avena barbata</i> | Wild Oats |
| <i>Carthamus lanatus</i> | Saffron Thistle |
| <i>Centaurea calcitrapa</i> | Star Thistle |
| <i>Cirsium vulgare</i> | Spear Thistle |
| <i>Cynodon dactylon</i> var. <i>dactylon</i> | Couch |
| <i>Foeniculum vulgare</i> | Fennel |
| <i>Hirschfeldia incana</i> | Hoary Mustard |
| <i>Lolium perenne</i> | Perennial Ryegrass |
| <i>Phalaris aquatica</i> | Phalaris |
| <i>Piptatherum miliaceum</i> | Rice Millet |
| <i>Pinus radiata</i> | Radiata Pine |
| <i>Phalaris aquatica</i> | Phalaris |
| <i>Scabiosa atropurpurea</i> | Pincushion |
| <i>Schinus molle</i> | Pepper Tree |

12.2 Revegetation

Revegetation of areas that have been cleared in the past is an essential tool that should be used by council staff to improve the condition of suitable roadsides. One of the main benefits of revegetation in many parts of South Australia is simply to get native vegetation back into an area, as many areas have been over cleared, and have little or no native vegetation remaining. Revegetation in these areas will create areas of habitat for wildlife, and used in the right location can link up areas of existing remnants thus creating corridors for wildlife movement. Other benefits include buffering existing remnants of native vegetation, improving the visual amenity of an area, reducing the risk of soil erosion and soil salinity, and possibly to reduce fire risk.

It is important to locate revegetation projects in the correct locations, especially where no native species are present. Contractors or council staff should be particularly careful not to disturb areas of native grassland, which may be harder for non-experts to find. In areas where native vegetation does occur, careful infill planting of particular species can be done to enhance the habitat value or biodiversity value of the vegetation. This should only be done by native vegetation experts who are very familiar with the local vegetation associations, and who definitely know if certain species have been removed or are dying out. Revegetation should mainly be directed towards wide sections of roadside, greater than 10 metres wide. In these wider roadsides, revegetation will have more habitat value, and have less edge effects from exotic species. One important consideration is that revegetation programs should not restrict the line of sight of vehicles or greatly reduce road visibility, and should not pose any other hazards to road users.

Direct seeding methods should be used for larger scale projects because it is more cost effective and quicker to get a larger area covered. It is more suited to areas where no native vegetation exists. Tubestock plantings can be targeted for smaller sites, sites where immediate results are required or sites where access for a direct seeding machine would be difficult. Tubestock are also useful when particular species are definitely required in a certain area, as direct seeding methods can not guarantee what species will germinate. Tubestock planting is often useful to infill small gaps between native vegetation areas. Where possible, all seed used for either direct seeding or tubestock should be collected from within five kilometres of the site, or from the nearest patch of remnant native vegetation. By doing this the genetic integrity of a local species is maintained, and individuals are more likely to grow with vigour and survive in the area because they are adapted to the local conditions.

Species selection is important in any revegetation program, as is the selection of species from different strata i.e. trees, shrubs, grasses and herbs. Reference and Roadside Significant Sites can be used to determine what species would be suitable in a particular area. Imitating the structure and species mix of the local vegetation is a good way of determining what species should be used. Generally those local species that are growing well in an area are the species that should be put back into the revegetation sites in that area. Local experts or consultants could be used to formulate a viable revegetation plan for the area.

12.3 Bushcare

The recommended approach to manage high quality remnants of native vegetation is to use bushcare techniques. Intact areas of remnant native vegetation that have a high quality understorey with minimal disturbance can be recommended as bushcare sites. These will coincide with Reference and Roadside Significant Sites that have been recommended earlier. Disturbance in these sites is usually restricted to weed infestations of a minor nature that could be controlled by the implementation of a minimal impact weed control program based on bushcare principles. Trained bushcare volunteers or qualified weed control/bushcare contractors should carry out any weed control in these areas. Methods used are always minimal impact with the aim of not disturbing native plants or the soil in any way, thereby allowing the native plants to increase in size, vigour and abundance, whilst reducing or eliminating the exotic plant species. The principles listed below should be followed by bushcare workers or volunteers, while they are working on site.

Bushland Weeding Code (adapted from Robertson 1997)

- Start in the least affected areas.
- Look before you weed - know where the native plants are.
- Choose the most effective and selective weeding technique for the plant and the location.
- Adapt to the season and weather conditions. Don't pull or grub weeds when the soil is dry and roots break off when pulled, or tramp through when soil is so soft that your feet damage plants at each step.
- Minimise the amount of trampling over the site and scatter the team of workers so that they do not form a new trail. Wear soft soled shoes and clothes which do not carry weed seeds or drag on foliage. Wear gloves.
- Before you pull, grub or poison large weeds, pull the small weeds which are growing underneath them.
- Avoid damage to native plants. Don't drop or fell large weeds onto native plants or drag boughs through the bush.
- Disturb soil as little as possible. Replace any disturbed soil, press it down and replace plant litter.
- Remove from the bush any parts of weeds that could regrow: ripe fruits, seed heads, bulbs, rhizomes and runners. Break up the rest into small pieces and leave them scattered to form mulch, especially over the spots where weeds have been removed.
- Do follow up work before moving on to weed a new area.
- Remove weed seeds or bulbils that could scatter into the weeded zone.
- Where native plants are regenerating among dense weeds, clear them some growing space but do not create large openings.

12.4 Feral animals

Vulpes vulpes (Fox), *Felis catus* (Cat) and *Oryctolagus cuniculus* (Rabbit) are feral animals that are considered to have a significant impact on native flora and fauna.

Vulpes vulpes (Fox) and *Felis catus* (Cat) are considered to be major predators of native fauna, and where common are known to have a significant impact on local native fauna populations. Where possible, integrated control strategies involving the local council and landholders should be implemented throughout the survey area, and in particular adjacent to large tracts of native vegetation. A few *V. vulpes* (Fox) and *F. catus* (Cat) were observed during the survey.

Oryctolagus cuniculus (Rabbit) is also considered to cause a large amount of damage to native plants through grazing and to native animals through competition and destruction of habitat. Several warrens and *O. cuniculus* (Rabbit) were observed in the survey area. Where possible, integrated control strategies involving the local council and landholders should be implemented throughout the survey area to help reduce numbers of this species.

12.5 Vegetation clearance

When conducting road works activities such as grading or road widening care should be taken to minimise the impact of such activities upon the roadside vegetation. Areas where there is Category A or Category B vegetation present should not be disturbed by road works at all, with road works restricted to areas where the roadside contains the lowest quality vegetation.

In order to prevent disturbance to roadside vegetation during road works, movement of equipment into the roadside area should be minimised wherever possible. If it is absolutely necessary to move into the road reserve, native vegetation should be avoided.

To minimise or eliminate damaging road works activities all council staff and contractors who may be involved in road works activities should be made aware of the need to prevent any impact on native species and unnecessary soil disturbance. An emphasis must be placed on avoiding native vegetation whenever encroachment into the roadside is unavoidable. Appropriate training of council staff and contractors should be a priority.

During this survey a few roads contained evidence of roadside native vegetation clearance, although it is unsure who was responsible. This resulted in clearance and/or damage to native vegetation along with soil disturbance. Regional Council of Goyder should be encouraging their staff and landholders in the area to look after and protect the small amount of remnant native vegetation in the area, in accordance with the legislation under the *Native Vegetation Act* (1991).

13 References

- DEH (in progress) *Provisional List of South Australian Threatened Ecosystems*. Department for Environment and Heritage, Adelaide.
- Graham, A., Oppermann, A., Inns, R. (2001) *Biodiversity Plan for the Northern Agricultural Districts*. Department for Environment and Heritage. Adelaide.
- Jessop, J. P., & Toelken, H. R. (1986) *Flora of South Australia, Parts 1 – 4*. South Australian Government Printing Division, Adelaide.
- Jessop, J. P. (1993) *A List of the Vascular Plants of South Australia* (Edition IV). Government of South Australia, Adelaide.
- Kahrimanis, M.J., Carruthers, S., Oppermann, A., Inns, R. (2001) *Biodiversity Plan for the South Australian Murray-Darling Basin*. Department for Environment and Heritage. Adelaide.
- Lang, P.J., Kraehenbuehl, D.N. (2007) *Plants of Particular Conservation Significance in South Australia's Agricultural Regions*. August 2005 update of unpublished database. Department for Environment and Heritage, Adelaide.
- Malcolm, L., Sherrah, M. (2000) *Floristic Vegetation Mapping of South Australia Mid North Region*, Information and Data Analysis Branch, Planning SA., Dept for Transport, Urban Planning and the Arts. Adelaide.
- Neagle, N. (1995) *An Update of the Conservation Status of the Major Plant Associations of South Australia*. Department of Environment & Natural Resources, Adelaide.
- Playfair, R.M., Heard, L.M.B. (1995) *A Native Vegetation Survey of the Burra Hills Region of South Australia*. GAR Unit, Information and Data Analysis Branch, Department of Housing and Urban Development. Adelaide.
- Robertson, M. (1997). *Stop Bushland Weeds: A guide to successful weeding in South Australia's bushland*. The Nature Conservation Society of South Australia Inc.
- Stokes, A. L., Heard, L. M. B., Carruthers, S., Reynolds, T. (1998) *Draft Guide to the Roadside Vegetation Survey Methodology for South Australia*. Geographical Analysis and Research unit, Planning SA, Environmental Unit, Transport SA and Department of Transport, Urban Planning and the Arts, Adelaide.
- Transport SA (2000) *Protection of Roadside Significant Sites. Guidelines for activities along Transport SA maintained roads*. Government of South Australia, Adelaide.
http://www.transport.sa.gov.au/pdfs/environment/external_guidelines_for_RSS.pdf
- Transport SA (2002) *Roadside Significant Sites. Protecting sites of environmental and cultural significance*. Government of South Australia.
http://www.transport.sa.gov.au/pdfs/environment/roadside_marker.pdf

14 Further Reading

- Blood, K. (2001) *Environmental Weeds – A Field Guide for SE Australia*. CRC Weed Management Systems. C. H. Jerram & Associates – Science Publishers.
- Boomsma, C.D., and Lewis, N. B. (unknown) *The Native Forest and Woodland Vegetation of South Australia* – Bulletin 25. Government Printer, Adelaide.
- Dashorst, G.R.M., Jessop, J. P. (1998) *Plants of the Adelaide Plains and Hills*. Second Edition. Botanic Gardens of Adelaide and State Herbarium, Adelaide.
- Gibbs, J. (2001) *Grass Identification Manual*. Native Grass Resources Group Inc. South Australia, Adelaide.
- Heard, L., Channon, B. (eds.) (1997) *Guide to a Native Vegetation Survey (Agricultural Region) Using the Biological Survey of South Australia Methodology*. Department of Housing and Urban Development, Adelaide.
- Nicolle, D. (1997) *Eucalypts of South Australia*. Lane Print Group. South Australia, Morphett Vale.
- Prescott, A. (1994) *It's Blue with Five Petals. Wildflowers of the Adelaide Region*. Revised Edition. Openbook Publishers, Adelaide.
- Specht, R.L. (1972) *The Vegetation of South Australia* (Second Edition). Government Printer, Adelaide.
- Whibley, D.J.E. (1992) *Acacia's of South Australia* (2nd Edition). The Flora and Fauna Handbooks Committee. South Australia, Adelaide.

Appendix 1. Flora Species List

(All species recorded during the reconnaissance trip and field survey)

| Scientific name | Common name | AUS | SA | NL | MU |
|--|------------------------|-----|----|----|----|
| AIZOACEAE | | | | | |
| * <i>Galenia</i> sp. | | | | | |
| * <i>Psilocaulon granulicaule</i> | Match-head Plant | | | | |
| AMARANTHACEAE | | | | | |
| <i>Ptilotus</i> sp. | Mulla Mulla | | | | |
| <i>Ptilotus spathulatus f. spathulatus</i> | Pussy-tails | | | | |
| ANACARDIACEAE | | | | | |
| * <i>Schinus molle</i> | Pepper-tree | | | | |
| ASCLEPIADACEAE | | | | | |
| <i>Gomphocarpus fruticosus</i> | Broad-leaf Cotton-bush | | | | |
| BORAGINACEAE | | | | | |
| * <i>Echium plantagineum</i> | Salvation Jane | | | | |
| CASUARINACEAE | | | | | |
| <i>Allocasuarina</i> sp. | Sheoak/Oak-bush | | | | |
| <i>Allocasuarina verticillata</i> | Drooping Sheoak | | | | |
| <i>Casuarina pauper</i> | Black Oak | | | | |
| CHENOPODIACEAE | | | | | |
| <i>Atriplex stipitata</i> | Bitter Saltbush | | | | |
| <i>Atriplex vesicaria</i> | Bladder Saltbush | | | | |
| <i>Chenopodium</i> sp. | Goosefoot | | | | |
| <i>Dissocarpus paradoxus</i> | Ball Bindyi | | | | |
| <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> | Ruby Saltbush | | | | |
| <i>Maireana aphylla</i> | Cotton-bush | | | V | R |
| <i>Maireana brevifolia</i> | Short-leaf Bluebush | | | | |
| <i>Maireana coronata</i> | Crown Fissure-plant | | | | |
| <i>Maireana pyramidata</i> | Black Bluebush | | | | |
| <i>Maireana rohrlachii</i> | Rohrlach's Bluebush | | R | V | R |
| <i>Maireana sedifolia</i> | Bluebush | | | | |
| <i>Maireana</i> sp. | Bluebush/Fissure-plant | | | | |
| <i>Rhagodia parabolica</i> | Mealy Saltbush | | | | |
| <i>Salsola kali</i> | Buckbush | | | | |
| <i>Sclerolaena diacantha</i> | Grey Bindyi | | | | |
| <i>Sclerolaena obliquicuspis</i> | Oblique-spined Bindyi | | | | |
| <i>Sclerolaena</i> sp. | Bindyi | | | | |
| COMPOSITAE | | | | | |
| * <i>Carthamus tinctorius</i> | Safflower | | | | |
| * <i>Centaurea calcitrapa</i> | Star Thistle | | | | |
| * <i>Cichorium intybus</i> | Chicory | | | | |
| <i>Compositae</i> sp. | Daisy Family | | | | |
| * <i>Cynara cardunculus</i> ssp. <i>flavescens</i> | Artichoke Thistle | | | | |
| * <i>Dittrichia graveolens</i> | Stinkweed | | | | |
| * <i>Lactuca serriola</i> | Prickly Lettuce | | | | |
| <i>Olearia pimeleoides</i> ssp. <i>pimeleoides</i> | Pimelea Daisy-bush | | | | |
| * <i>Onopordum acanthium</i> | Scotch Thistle | | | | |
| * <i>Onopordum acaulon</i> | Horse Thistle | | | | |
| <i>Sonchus</i> sp. | Sow-thistle | | | | |
| <i>Vittadinia</i> sp. | New Holland Daisy | | | | |
| CONVOLVULACEAE | | | | | |
| <i>Convolvulus</i> sp. | Bindweed | | | | |
| CRUCIFERAE | | | | | |
| * <i>Hirschfeldia incana</i> | Hoary Mustard | | | | |

| Scientific name | Common name | AUS | SA | NL | MU |
|---|------------------------|-----|----|----|----|
| * <i>Lepidium africanum</i> | Common Peppercross | | | | |
| <i>Lepidium</i> sp. | Peppercross | | | | |
| CUPRESSACEAE | | | | | |
| <i>Callitris glaucophylla</i> | White Cypress-pine | | | | |
| <i>Callitris gracilis</i> | Southern Cypress Pine | | | | N |
| CYPERACEAE | | | | | |
| <i>Cyperus gymnocaulos</i> | Spiny Flat-sedge | | | | |
| DIPSACACEAE | | | | | |
| * <i>Scabiosa atropurpurea</i> | Pincushion | | | | |
| EUPHORBIACEAE | | | | | |
| <i>Beyeria lechenaultii</i> | Pale Turpentine Bush | | | | |
| GRAMINEAE | | | | | |
| * <i>Aira</i> sp. | Hair-grass | | | | |
| <i>Austrodanthonia</i> sp. | | | | | |
| <i>Austrostipa</i> sp. | Spear-grass | | | | |
| * <i>Avena barbata</i> | Bearded Oat | | | | |
| <i>Bromus</i> sp. | Brome | | | | |
| <i>Chloris</i> sp. | Windmill Grass/Chloris | | | | |
| <i>Cymbopogon ambiguus</i> | Lemon-grass | | | | R |
| * <i>Cynodon dactylon</i> var. <i>dactylon</i> | Couch | | | | |
| <i>Enneapogon</i> sp. | Bottle-washers/Nineawn | | | | |
| <i>Gramineae</i> sp. | Grass Family | | | | |
| * <i>Hordeum</i> sp. | | | | | |
| * <i>Lolium perenne</i> | Perennial Ryegrass | | | | |
| * <i>Lolium</i> sp. | Ryegrass | | | | |
| <i>Panicum</i> sp. | Panic/Millet | | | | |
| * <i>Phalaris aquatica</i> | Phalaris | | | | |
| * <i>Phalaris</i> sp. | Canary Grass | | | | |
| * <i>Piptatherum miliaceum</i> | Rice Millet | | | | |
| * <i>Setaria verticillata</i> | Whorled Pigeon-grass | | | | |
| <i>Themeda triandra</i> | Kangaroo Grass | | | | |
| LABIATAE | | | | | |
| * <i>Marrubium vulgare</i> | Horehound | | | | |
| LEGUMINOSAE | | | | | |
| <i>Acaia baileyana</i> | Cootamundra Wattle | | | | |
| <i>Acacia brachybotrya</i> | Grey Mulga-bush | | | | |
| <i>Acacia calamifolia</i> | Wallowa | | | | |
| <i>Acacia glandulicarpa</i> | Hairy-pod Wattle | V | E | E | E |
| <i>Acacia ligulata</i> | Umbrella Bush | | | | |
| <i>Acacia microcarpa</i> | Manna Wattle | | | | |
| <i>Acacia nyssophylla</i> | Spine Bush | | | | |
| <i>Acacia oswaldii</i> | Umbrella Wattle | | | | |
| <i>Acacia paradoxa</i> | Kangaroo Thorn | | | | |
| <i>Acacia pycnantha</i> | Golden Wattle | | | | |
| <i>Acacia</i> sp. | Wattle | | | | |
| <i>Acacia victoriae</i> | Elegant Wattle | | | | R |
| <i>Acacia victoriae</i> ssp. <i>victoriae</i> | Elegant Wattle | | | | |
| * <i>Ceratonia siliqua</i> | Carob Tree | | | | |
| * <i>Medicago</i> sp. | Medic | | | | |
| <i>Senna artemisioides</i> ssp. <i>artemisioides</i> x ssp. <i>coriacea</i> | Desert Senna | | | | |
| <i>Senna artemisioides</i> ssp. <i>artemisioides</i> x ssp. <i>filifolia</i> | Desert Senna | | | | |
| * <i>Ulex europaeus</i> | Gorse | | | | |
| LILIACEAE | | | | | |
| * <i>Allium</i> sp. | | | | | |

| Scientific name | Common name | AUS | SA | NL | MU |
|---|---------------------------|-----|----|----|----|
| <i>*Asphodelus fistulosus</i> | Onion Weed | | | | |
| <i>Dianella revoluta</i> var. <i>revoluta</i> | Black-anther Flax-lily | | | | |
| <i>Dianella</i> sp. | Flax-lily | | | | |
| <i>Lomandra effusa</i> | Scented Mat-rush | | | | |
| <i>Lomandra</i> sp. | | | | | |
| MYOPORACEAE | | | | | |
| <i>Eremophila longifolia</i> | Weeping Emubush | | | | |
| <i>Eremophila scoparia</i> | Broom Emubush | | | | |
| <i>Myoporum parvifolium</i> | Creeping Boobialla | | R | K | R |
| <i>Myoporum platycarpum</i> | False Sandalwood | | | | |
| MYRTACEAE | | | | | |
| <i>Eucalyptus brachycalyx</i> | Gilja | | | | |
| <i>Eucalyptus cladocalyx</i> | Sugar Gum | | | | |
| <i>Eucalyptus dumosa</i> | White Mallee | | | | |
| <i>Eucalyptus gracilis</i> | Yorrell | | | | |
| <i>Eucalyptus leptophylla</i> | Narrow-leaf Red Mallee | | | | |
| <i>Eucalyptus leucoxylon</i> | South Australian Blue Gum | | | | |
| <i>Eucalyptus odorata</i> | Peppermint Box | | | | |
| <i>Eucalyptus oleosa</i> | Red Mallee | | | | |
| <i>Eucalyptus oleosa</i> ssp. <i>oleosa</i> | Red Mallee | | | | |
| <i>Eucalyptus phenax</i> | | | | | |
| <i>Eucalyptus porosa</i> | Mallee Box | | | | |
| <i>Eucalyptus socialis</i> | | | | | |
| <i>Eucalyptus</i> sp. | | | | | |
| <i>Melaleuca lanceolata</i> | Dryland Tea-tree | | | | |
| <i>Melaleuca</i> sp. | Tea-tree | | | | |
| OLEACEAE | | | | | |
| <i>*Olea europaea</i> | Olive | | | | |
| PINACEAE | | | | | |
| <i>*Pinus radiata</i> | Radiata Pine | | | | |
| PITTOSPORACEAE | | | | | |
| <i>Bursaria spinosa</i> ssp. <i>spinosa</i> | Sweet Bursaria | | | | |
| <i>Pittosporum angustifolium</i> | Native Apricot | | | | |
| PLANTAGINACEAE | | | | | |
| <i>*Plantago lanceolata</i> | Ribwort | | | | |
| <i>Plantago</i> sp. | Platain | | | | |
| POLYGONACEAE | | | | | |
| <i>Muehlenbeckia</i> sp. | Lignum | | | | |
| <i>*Polygonum aviculare</i> | Wireweed | | | | |
| <i>*Rumex pulcher</i> ssp. <i>pulcher</i> | Fiddle Dock | | | | |
| <i>Rumex</i> sp. | Dock | | | | |
| PROTEACEAE | | | | | |
| <i>Grevillea huegelii</i> | Comb Grevillea | | | N | |
| <i>Hakea leucoptera</i> ssp. <i>leucoptera</i> | Silver Needlewood | | | | |
| <i>Hakea rostrata</i> | Beaked Hakea | | | | |
| ROSACEAE | | | | | |
| <i>*Prunus</i> sp. | Plum | | | | |
| <i>*Rosa canina</i> | Dog Rose | | | | |
| SANTALACEAE | | | | | |
| <i>Exocarpos aphyllus</i> | Leafless Cherry | | | | |
| SAPINDACEAE | | | | | |
| <i>Alectryon oleifolius</i> ssp. <i>canescens</i> | Bullock Bush | | | U | |
| <i>Dodonaea lobulata</i> | Lobed-leaf Hop-bush | | | | |
| <i>Dodonaea viscosa</i> | Sticky Hop-bush | | | | |
| SOLANACEAE | | | | | |

| Scientific name | Common name | AUS | SA | NL | MU |
|--------------------------------|---------------------|-----|----|----|----|
| <i>Lycium australe</i> | Australian Boxthorn | | | | |
| * <i>Lycium ferocissimum</i> | African Boxthorn | | | | |
| THYMELAEACEAE | | | | | |
| <i>Pimelea</i> sp. | Riceflower | | | | |
| UMBELLIFERAE | | | | | |
| * <i>Foeniculum vulgare</i> | Fennel | | | | |
| ZYGOPHYLLACEAE | | | | | |
| <i>Nitraria billardiarei</i> | Nitre-bush | | | | |
| <i>Zygophyllum apiculatum</i> | Pointed Twinleaf | | | | |
| <i>Zygophyllum aurantiacum</i> | | | | | |

Regional Conservation Status

National Conservation Status

VU Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*.

South Australian Conservation Status

The codes are based on Schedules of the *National Parks and Wildlife Act 1972* (SA) as amended in 2007.

E Endangered (Schedule 7, Part 2)

V Vulnerable (Schedule 8, Part 2)

R Rare (Schedule 9, Part 2)

Regional Conservation Status

The regions are as defined by the State Herbarium (Plant Biodiversity Centre). These are illustrated in the back covers of 'Flora of South Australia' (Ed. Jessop & Toelken, 1986) and 'A List of the Vascular Plants of South Australia (Edition IV)' (Ed. Jessop, 1993).

X Extinct/Presumed extinct: not located despite thorough searching of all known and likely habitats; known to have been eliminated by the loss of localised population(s); or not recorded for more than 50 years from an area where substantial habitat modification has occurred.

E Endangered: rare and in danger of becoming extinct in the wild.

T Threatened: likely to be either Endangered or Vulnerable but insufficient data available for more precise assessment.

V Vulnerable: rare and at risk from potential threats or long term threats that could cause the species to become endangered in the future.

K Uncertain: likely to be either Threatened or Rare but insufficient data available for a more precise assessment.

R Rare: has a low overall frequency of occurrence (may be locally common with a very restricted distribution or may be scattered sparsely over a wider area). Not currently exposed to significant or widespread threats, but warrants monitoring and protective measures to prevent reduction of population sizes.

U Uncommon: less common species of interest but not rare enough to warrant special protective measures.

Q Not yet assessed but flagged as being of possible significance.

Codes

AUS – Australia

SA – South Australia

ML – Northern Lofty

MU – Murray

* - exotic species

Note: All species scientific names follow Lang and Kraehenbuehl (2007).