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4th December 2023

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VEGETATION MAPPING AT TURBRIDGI GAS FACILITY, SEPTEMBER 2023

Introduction

Mattiske Consulting Pty. Ltd. (Mattiske Consulting) was commissioned in September 2023 by the Australian Gas Infrastructure Group (AGIG) to assess the flora and vegetation values of an area adjacent to the Turbridgi Gas Facility proposed for further development (Figure 1); in addition to annual vegetation monitoring. This memorandum summaries the results of the flora and vegetation relevé within the survey area. The results of the monitoring are given separately in the 2023 Mattiske Consulting Monitoring report.

Method

Two botanists from Mattiske Consulting conducted the survey on the 6th of September 2023, following the Environmental Protection Authority's (EPA) *Environmental Factor Guideline: Flora and Vegetation and Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (2016a, b). Due to the size of the area and level of degradation, relevé survey was conducted, and the following information collected:

- GPS coordinate;
- Topographical information;
- Landform and soil information;
- Period since last fire;
- Vegetation condition (based on Trudgen (1988));
- Any disturbance observations;
- List of the vascular plant species, to lowest possible taxonomic-level, found within the survey area; and,
- Individual species height to allow for vegetation structure to be determined during analysis.

A photograph was taken from the start (GDA 94, 50K, 279508 E 7589637 N) and end of the relevé line. Any plant specimens collected during the field surveys were dried and processed in accordance with the requirements of the Western Australian Herbarium (WAH). The plant species were identified using keys and descriptions in taxonomic literature and through comparisons with pressed specimens. Nomenclature of the species recorded was in accordance with the WAH (1998–).

Figure 1 shows the survey effort within the area adjacent to the Turbridgi gas facility.



- Legend**
- ▭ Survey Area
 - Tracks

Imagery: ESRI, Maxar (Oct 2022)



0 50 100m

Scale: 1:5,000
MGA94 (Zone 50)

CAD Ref: a3016F002

Date: December 2023 Rev: A A4



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Survey Effort
August 2023

Figure:

1

Results

A total of 25 vascular plant taxa was recorded within the survey area, representing 20 genera and seven plant families (Appendix A). The majority of taxa recorded were represented within the Fabaceae (9 taxa), Poaceae (5 taxa) and Chenopodiaceae (4 taxa) families.

Threatened and Priority Flora Species

No Threatened flora, as listed in the *Biodiversity Conservation (Listing of Native Species) (Flora) Order 2022* (DBCA 2022), and pursuant to section 179 of the *Environment Protection and Biodiversity Conservation Act 1999* and as listed by the DCCEEW (2023a), were recorded within the Survey Area.

No Priority taxa, as listed by the DBCA (WAH 1998–) were recorded within the survey area.

Introduced Flora Species

Three introduced flora (weed) species were recorded within the survey area, including **Cenchrus ciliaris* (Buffel Grass), **Malvastrum americanum* (Spiked Malvastrum), and **Vachellia farnesiana* var. *farnesiana* (Mimosa Bush) (Appendix A). All three introduced taxa are 'Permitted' species pursuant to Section 11 of the *Biosecurity and Agriculture Management Act 2007* (Department of Primary Industries and Regional Development 2023).

Threatened and Priority Ecological Communities

No Threatened or Priority Ecological Communities as listed by the DCCEEW (2023b) at Commonwealth level or the DBCA (2023b, c) at State level were recorded or inferred to occur within the mapping sites.

Vegetation Community

The species comprising the vegetation community recorded during September 2023 was compared with previous vegetation mapping work undertaken by Mattiske Consulting as part of a mapping survey conducted over the broader CS2–Turbridgi–Wheatstone Gas Pipeline Project Area (Mattiske Consulting 2013). On the basis of comparing dominant indicator species', the survey area is inferred to form part of the 'Inland Floodplain and Depressions' vegetation community IF1. A detailed summary of the vegetation community is given below (as described in Mattiske Consulting 2013).

IF1 *Eucalyptus victrix* low open woodland over *Acacia synchronicia*, *Acacia tetragonophylla*, *Scaevola spinescens* tall sparse shrubland with *Rhynchosia minima*, *Senna artemisioides* subsp. *oligophylla*, *Eremophila longifolia* mid sparse shrubland over *Triodia epactia* low isolated hummock grasses with *Eriachne helmsii*, *Chrysopogon fallax*, *Urochloa occidentalis* var. *occidentalis* low sparse tussock grassland

Vegetation condition was assessed using Trudgen (1988) following the *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016b). Based on the Trudgen (1988) condition scale the survey area assigned 'Poor'.

Refer to Appendix B for a full description of the survey area and vegetation community.

Discussion and Conclusion

The survey area, adjacent to Turbridgi Gas Facility, was assessed to determine the floristic and vegetation values during September 2023 (Figure 1). Based on comparison with previous Matiske Consulting (2013) works, the vegetation condition, and main species assemblage, vegetation community IF1 best describes the survey area; *Eucalyptus victrix* low open woodland over *Acacia synchronicia*, *Acacia tetragonophylla*, *Acacia coriacea* subsp. *coriacea*, *Scaevola spinescens* tall sparse shrubland with *Rhynchosia minima* over *Triodia epactia* low isolated hummock grasses with Poaceae spp. tussock grassland. Photographs of the survey area are given in Appendix B.

No Threatened or Priority Flora species or Ecological Communities were recorded within the survey area. Out of the 25 flora taxa recorded across the three sites, three were 'Permitted' introduced species (pursuant to Section 11 of the *Biosecurity and Agriculture Management Act 2007*).

The area extent of each of the IF1 vegetation community was assessed by Matiske Consulting (2013), comprising a total 364.42 ha of the broader CS2–Turbridgi–Wheatstone Gas Pipeline Project Area. The impact of clearing of vegetation around the survey area for further project development can only be evaluated once the size of the proposed clearing is known.

Please do not hesitate to contact us if you have any queries.

Regards,

Luisa Ducki & Dr Libby Matiske

Matiske Consulting Pty Ltd

References

Biosecurity and Agriculture Management Act 2007

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A Report on the Flora and Vegetation of the Port Kennedy Area. Unpublished report prepared for Bowman Bishaw and Associates, West Perth.

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**APPENDIX A: VASCULAR PLANT SPECIES RECORDED WITHIN
SURVEY AREA, TURBRIDGI GAS PROJECT,
SEPTEMBER 2023**

Note: * denotes introduced species

FAMILY	SPECIES
Chenopodiaceae	<i>Enchylaena tomentosa</i> <i>Rhagodia eremaea</i> <i>Salsola australis</i> <i>Sclerolaena costata</i>
Fabaceae	<i>Acacia colei</i> var. <i>colei</i> <i>Acacia coriacea</i> subsp. <i>coriacea</i> <i>Acacia sclerosperma</i> <i>Acacia synchronicia</i> <i>Acacia tetragonophylla</i> <i>Indigofera colutea</i> <i>Indigofera linifolia</i> <i>Rhynchosia minima</i> * <i>Vachellia farnesiana</i> var. <i>farnesiana</i>
Goodeniaceae	<i>Goodenia</i> sp. <i>Scaevola spinescens</i>
Malvaceae	* <i>Malvastrum americanum</i> <i>Sida rohlenae</i> <i>Sida</i> sp.
Myrtaceae	<i>Eucalyptus victrix</i>
Poaceae	* <i>Cenchrus ciliaris</i> <i>Chrysopogon fallax</i> <i>Eriachne mucronata</i> <i>Paraneurachne muelleri</i> <i>Triodia epactia</i>
Solanaceae	<i>Solanum lasiophyllum</i>

APPENDIX B: A SUMMARY OF VEGETATION COMMUNITIES RECORDED WITHIN THE SURVEY AREA, TUBRIDGI GAS PROJECT, SEPTEMBER 2023

Note: "2013" denotes vegetation community descriptions from MCPL (2013), whilst "2023" denotes the September 2023 survey effort.

Vegetation Community Description

Vegetation map code: IF1

Structural description of vegetation community

2013: *Eucalyptus victrix* open woodland over *Acacia synchronicia*, *Acacia tetragonophylla*, *Scaevola spinescens* tall sparse shrubland with *Rhynchosia minima*, *Senna artemisioides* subsp. *oligophylla*, *Eremophila longifolia* mid sparse shrubland over *Triodia epactia* low isolated hummock grasses with *Eriachne helmsii*, *Chrysopogon fallax*, *Urochloa occidentalis* var. *occidentalis* low sparse tussock grassland

2023: *Eucalyptus victrix* open woodland over *Acacia tetragonophylla*, *Acacia coriacea* subsp. *coriacea* tall sparse shrubland with *Rhynchosia minima* over *Triodia epactia* low isolated hummock grasses with *Sclerolaena costata* and **Cenchrus ciliaris* low sparse tussock grassland

Associated species

2013: *Boerhavia coccinea*, *Dactyloctenium radulans*, *Enteropogon ramosus*, *Ipomoea muelleri*, *Iseilema eremaeum*, *Pittosporum ?phillyreoides*, *Sida fibulifera*

2023: *Chrysopogon fallax*, *Eriachne mucronata*, **Malvastrum americanum*, *Paraneurachne muelleri*, **Vachellia farnesiana* var. *farnesiana*

Soils and Landforms

2013: Flats with red/brown sands over clays and occasional cracking clays

2023: Red to brown sandy clay

Representative Photograph (1)



North-east, September 2023

APPENDIX B: A SUMMARY OF VEGETATION COMMUNITIES RECORDED WITHIN THE SURVEY AREA, TUBRIDGI GAS PROJECT, SEPTEMBER 2023

Note: "2013" denotes vegetation community descriptions from MCPL (2013), whilst "2023" denotes the September 2023 survey effort.

Representative Photograph (2)



South-west, September 2023

Representative Photograph (3)



Facing East, September 2023