Boobook
Ecological Consulting

Angry Jungle 7 Roadside Vegetation Assessment Report

Compiled by Boobook for Santos

Boobook
15 Quintin Street
PO Box 924
Roma QLD 4455
Ph. 07 4622 2646
Fax 07 4622 1325
boobook1@bigpond.com
ABN: 94 617 952 309
www.boobook.biz

Revision	Date	Description	Author	Verifier	Approved
A	12/07/2013	Draft for client review	C. Eddie	M. Eddie	C. Eddie
B	15/07/2013	Draft incorporating client comments	C. Eddie, R. Aisthorpe	M. Eddie	C. Eddie
O	16/07/2013	Final issued to client	C. Eddie	M. Eddie	C. Eddie

Table of Contents

1. Abbreviations

Table 1: Abbreviations

Abbreviation	Description
DBH	Diameter at breast height
DEHP	Department of Environment and Heritage Protection
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EH	Essential Habitat
ESA	Environmentally Sensitive Area
EVNT	Endangered, Vulnerable or Near Threatened
GLNG	Gladstone Liquefied Natural Gas
HVR	High Value Regrowth
NC Act	*Nature Conservation Act 1992*
RE	Regional Ecosystem
TAR plant	Type A Restricted Plant
TEC	Threatened Ecological Community
VM Act	*Vegetation Management Act 1999*

2. Introduction

2.1. Purpose & Scope

Boobook was commissioned by Santos to investigate and ground-truth the standing vegetation on a roadside adjoining 'Angry Jungle' (Lot 124 on Plan WV249), located about 50km east-northeast of Roma, south central Queensland. The focus of the survey was a 300 metre portion of roadside corridor between 55J 728579E 7065378N and 728854E 7065549N (the Site) which adjoins a proposed disturbance area.

Boobook was requested to undertake the following:

- Perform a desktop assessment to identify current mapped vegetation and Threatened Ecological Communities (TECs) potentially occurring at the Site;
- Conduct a field survey of the Site to assess and map the present vegetation and record the presence of other matters identified by the desktop analysis or protected by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act; DSEWPaC 2013a) and *Nature Conservation Act 1992* (NC Act) which were not identified by the desktop analysis.

2.2. Survey Team

The survey described by this report was undertaken by Boobook on 11 July 2013. This field survey was conducted by Craig Eddie (Principal Ecologist) and Angela Bendall (Field Assistant). Craig Eddie was approved by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) in writing on the 28th of January 2011 for the purpose of undertaking ecological assessment works for the Gladstone Liquefied Natural Gas (GLNG) project.

3. Methodology

3.1. Desktop & Literature Review

The desktop and literature review described by this report used a variety of electronic and paper-based sources to identify ecological values predicted to occur at the Site. Sources used to obtain information for the desktop review are as follows:

- Remnant regional ecosystem (RE) mapping version 6.1 (DEHP 2013a);
- High value regrowth (HVR) mapping version 2.1 (DEHP 2013b);
- Essential habitat (EH) mapping version 3.1 (DEHP 2013c);
- Wildnet database (Wildlife Online) (DEHP 2013d);
- Environmentally Sensitive Areas (ESA) mapping (DEHP 2013e);
- Referable wetlands mapping (DEHP 2013f);
- EPBC Act protected matters search tool (DSEWPaC 2013b).

Data searches were conducted using a 5km buffer around the coordinate -26.51215°S, 149.29644°E (datum GDA94) which corresponds to the approximate centre point of the Site.

3.2. Field Survey

Vegetation structure and species composition was assessed during walking traverses of the Site. Detailed descriptions of vegetation were compiled at three representative assessment locations within the vegetation strip of interest. Locations of each survey site are shown within Appendix A:. Assessments at the survey sites were consistent with the quaternary level of detail as per Neldner *et al.* (2012).

Quaternary assessments are those sites where all location, environmental (landform, substrate) and overall vegetation structure and species composition was recorded. Abundance of all dominant species in each layer was recorded. A list of additional species present at each site was also obtained (i.e. species that were not dominant were also recorded as being present but their abundance was not rated). Species names for flora follow Bostock and Holland (2010). The location of each survey site was determined using a handheld GPS unit (Garmin GPSmap 78S). The datum for all co-ordinates referred to in this report is GDA94. When referred to within this report the sites are identified alphanumerically using a prefix Q, e.g. Q1. At each quaternary site the following was recorded:

1. height (median and maximum/minimum) of each stratum of vegetation (i.e. ground, shrub, tree and emergent layers);
2. dominant flora in each stratum of vegetation;
3. structural formation type codes (Neldner *et al.* 2012: Table 29);
4. RE type mapped;
5. RE type observed;
6. broad geology type;
7. landform type;
8. broad soil type;
9. connectivity/patch characteristics (i.e. whether the isolated or degree of connectivity to surrounding vegetation);
10. presence and abundance of weeds (declared and non-declared species) as well as estimated % coverage of the site;
11. presence of endangered, vulnerable or near threatened flora;
12. presence of suitable habitat for endangered, vulnerable or near threatened flora;
13. a list of all other flora encountered at the Site; and
14. disturbance types (e.g. clearing, grazing, fire history, pest animal diggings): categories as per Neldner *et al.* (2012) with some minor modification to suit local variables.

Active fauna searches were beyond the scope of this survey. However, fauna opportunistically sighted or heard at quaternary assessment sites was recorded as either within, outside or flying over the assessment site, and the identification method noted.

The assessment descriptions provide a snapshot of the species present during the inspection, but do not represent a complete inventory of the native flora, fauna and weeds present at the location. Subsequent visits would be necessary over a range of seasons to compile a more detailed inventory of species present. Despite these limitations, sufficient information was collected to assess the status, condition and composition of vegetation communities within the study area, such that site-specific recommendations could be developed.

4. Results & Discussion

4.1. Vegetation Mapping

4.1.1. DEHP Regional Ecosystem & Regrowth Mapping

RE mapping of the Site (DEHP 2013a) indicates that the roadside vegetation in question is mapped as non-remnant vegetation (Appendix A). No HVR is mapped for the Site.

4.1.2. Regional Ecosystems and/or Regrowth Observed

No remnant regional ecosystems were observed at the Site. Inspection of the Site showed that the roadside corridor is dominated by regrowth of Brigalow (*Acacia harpophylla*) consistent with the floristics of RE 11.9.5 '*Acacia harpophylla* and/or *Casuarina cristata* open-forest on fine-grained sedimentary rocks' (DEHP 2013g). The quaternary assessments (Appendix B, Table 2) show that the median height of the regrowth at all survey sites is 11m. This is well below the threshold height to achieve remnant status for this RE. The Biocondition benchmark for RE 11.9.5 indicates that the median height of remnant RE 11.9.5 in the eastern part of its range is 25m (DEHP 2013h).

Field and desktop assessment shows that the roadside strip is less than 30m wide. This is also well below the minimum width limit (75m) for linear vegetation mappable at 1: 100 000 scale by the Queensland Herbarium (Neldner *et*. *al*. 2012).

A summary of the quaternary assessment data is shown below in Table 2. Quaternary assessment data sheets are presented in Appendix B. A selection of images is provided in Appendix C.

Table 2: Summary of quaternary survey site vegetation descriptions at the Site

Survey Site Code	Co-ordinates (UTM, datum GDA94)	Observed Vegetation Description[1]	Equivalent RE Code (DEHP 2013g)
Q1	728816 7065531	*Acacia harpophylla* low open forest with emergent *Acacia harpophylla* and *Casuarina cristata*; midlayer dominated by *A. harpophylla* and *Geijera parviflora* saplings; grassy ground layer dominated by *Cenchrus ciliaris* and *Paspalidium caespitosum.* Median height of tallest layer 11m.	NR (11.9.5)
Q2	728723 7065470	*Acacia harpophylla* woodland; midlayer dominated by *Acacia harpophylla* saplings and *Geijera parviflora;* grassy ground layer dominated by *Paspalidium caespitosum.* Median height of tallest layer 11m.	NR (11.9.5)
Q3	728591 7065380	*Acacia harpophylla* woodland; midlayer dominated by *Geijera parviflora*; grassy ground layer dominated by *Paspalidium caespitosum.* Median height of tallest layer 11m.	NR (11.9.5)

1 common names for flora are listed in Appendix D; NR = non-remnant.

4.1.3. Threatened Ecological Communities

Although vegetation at the Site does not meet remnant vegetation criteria, the Brigalow regrowth is considered to be analogous to the Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC listed as endangered under the EPBC Act (DSEWPaC 2013c). Median height of the vegetation is 11m which is expected to exceed the 15 year age threshold required to meet TEC criteria (DSEWPaC 2013d). The regrowth is floristically equivalent to RE 11.9.5 (refer to species list in Appendix D) and the ground layer is in good condition throughout the Site. At all survey sites the ground layer is dominated by native perennial grasses.

Virtually the entire assessment area is considered to be TEC (Appendix E). A property access track and gate is located at the northern extremity of the assessment area (refer to photographs in Appendix C). This existing clearing is dominated by the introduced Buffel Grass (*Cenchrus ciliaris*) and is not included within, but immediately abuts, the TEC to the south. Field observations showed that the TEC within the

assessment area is likely to extend in a southwesterly direction along the roadside, however, surveys of this area were beyond the scope of works. The area of Brigalow regrowth considered to be TEC is approximately 0.8ha which exceeds the minimum size threshold for this TEC (i.e. 0.5ha) (Butler 2007). Note that additional Brigalow regrowth occurs on the eastern side of the road opposite the assessment area, however, no field surveys were undertaken in this area as this was also beyond the scope of works.

4.2. Additional Observations

4.2.1. Flora

The Site contains a relatively diverse flora compared to the surrounding cleared landscape with 29 species of native flora detected (Appendix D).

One species of type A restricted (TAR) plant was recorded within the Site, this being Narrow-leaved Bottle Tree (*Brachychiton rupestris*). Five individuals were detected and the details of each are presented in Table 3 below. This list represents only those individuals encountered incidentally at or near survey sites and it is possible that additional individuals of these species are present elsewhere within the Site. The locations of TAR plants within the Site are illustrated in Appendix F.

Table 3. Type A restricted plants recorded from the Site.

SURVEY SITE CODE	EASTING, NORTHING (datum GDA94)	SPECIES	DBH (cm)	HEIGHT (m)
AJBR1	728808 7065536	*Brachychiton rupestris* Narrow-leaved Bottle Tree	15	3.5
AJBR2	728751 7065487	*Brachychiton rupestris* Narrow-leaved Bottle Tree	30	5
AJBR3	728741 7065488	*Brachychiton rupestris* Narrow-leaved Bottle Tree	25	5
AJBR4	728723 7065460	*Brachychiton rupestris* Narrow-leaved Bottle Tree	10	3
AJBR5	728710 7065458	*Brachychiton rupestris* Narrow-leaved Bottle Tree	15	3

4.2.2. Fauna

Ten species of native fauna (nine birds, one butterfly) were recorded incidentally during surveys at the Site. These are included within the quaternary assessment records in Appendix B. Fauna searches were not part of the scope of works and many additional species are expected to occur at the Site.

5. Conclusions & Recommendations

5.1. Conclusions

The following conclusions can be drawn from the results of the field survey:

- The roadside vegetation within the assessment area contains advanced regrowth of Brigalow (*Acacia harpophylla*);

- The regrowth present is floristically equivalent to RE 11.9.5 '*Acacia harpophylla* and/or *Casuarina cristata* open-forest on fine-grained sedimentary rocks' (VM class and biodiversity status: endangered);

- The roadside vegetation does not meet remnant vegetation structural criteria on the basis that the height is well below the 70% threshold height for remnant RE 11.9.5 and the width of the vegetation is below the minimum width limit for mapping of linear vegetation at 1: 100 000 scale (i.e. less than 75m width);

- The roadside vegetation is considerred to meet Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC criteria on the basis that the regrowth is greater than 15 years old, the regrowth is floristically equivalent to the undisturbed regional ecosystem 11.9.5, the ground layer is predominantly in good condition (i.e. exotic perennial plants have less than 50% cover), and the regrowth within the assessment area (0.8ha) exceeds the recommended minimum size (0.5ha) for the TEC;

- At least one TAR plant occurs within the Site:

    - Narrow-leaved Bottle Tree (*B. rupestris*).

5.2. Recommendations

The following recommendations are provided based on field and desktop survey results:

A. Any proposed developments within or surrounding the assessment area should take into account the presence of Brigalow regrowth which is considered to be analagous to the Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC.
B. Any proposed developments within or surrounding the assessment area should also take into account the presence of significant flora (i.e. TAR plants). This survey does not represent a detailed ecological assessment and further surveys would be required to fully document the ecological values and constraints within the property.

6. References

Bostock, P.D. and Holland, A.E. (eds.) (2010). *Census of the Queensland Flora 2010*. Queensland Herbarium, Brisbane.

Butler, D.W. (2007). Recovery plan for the "Brigalow (*Acacia harpophylla* dominant and co-dominant" endangered ecological community (draft of 1 May 2007). Report to the Department of the Environment and Water Resources, Canberra. Queensland National Parks and Wildlife Service, Brisbane.

DEHP (2013a). *Vegetation Management Act Regional Ecosystem and Remnant Map – Version 6.1.* Regional Ecosystem Maps/ Regrowth Vegetation Maps and PMAVs. Department of Environment and

Heritage Protection, Queensland Government, Brisbane. http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/maps/index.php

DEHP (2013b). *Regrowth Vegetation Map—Version 2.1*. Regional Ecosystem Maps/ Regrowth Vegetation Maps and PMAVs. Department of Environment and Heritage Protection, Queensland Government, Brisbane. http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/maps/index.php

DEHP (2013c). *Vegetation Management Act Essential Habitat Map Version 3.1.* Regional Ecosystem Maps/ Regrowth Vegetation Maps and PMAVs. Department of Environment and Heritage Protection, Queensland Government, Brisbane. http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/maps/index.php

DEHP (2013d). *Wildlife Online*. Department of Environment and Heritage Protection, Queensland Government, Brisbane. http://www.ehp.qld.gov.au/wildlife/wildlife-online/index.html

DEHP (2013e). *Map of Environmentally Sensitive Areas*. Department of Environment and Heritage Protection, Queensland Government, Brisbane. http://www.ehp.qld.gov.au/licences-permits/maps_of_environmentally_sensitive_areas.php

DEHP (2013f). *Referable Wetlands*. Department of Environment and Heritage Protection, Queensland Government, Brisbane. http://www.ehp.qld.gov.au/ecosystems/wetlands/referable-wetlands-maps.html

DEHP (2013g). *Regional Ecosystem Description Database*. Department of Environment and Heritage Protection, Queensland Government, Brisbane. http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/index.php

DEHP (2013h). *BioCondition Benchmarks for Regional Ecosystem Condition Assessment*.

DSEWPaC (2013a). *Environment Protection and Biodiversity Conservation Act 1999*. Department of Sustainability, Environment, Water, Population and Communities, Australian Government, Canberra. http://www.comlaw.gov.au/Series/C2004A00485

DSEWPaC (2013b). *EPBC Protected Matters Search Tool*. Department of Sustainability, Environment, Water, Population and Communities, Australian Government, Canberra. http://www.environment.gov.au/epbc/pmst/index.html

DSEWPaC (2013c). Brigalow (*Acacia harpophylla* dominant and co-dominant) in Community and Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. http://www.environment.gov.au/sprat.

DSEWPaC (2013d). Brigalow regrowth and the EPBC Act. Department of Sustainability, Environment, Water, Population and Communities, Canberra. http://www.environment.gov.au/biodiversity/threatened/publications/pubs/brigalow-regrowth.pdf

Neldner, V.J., Wilson, B. A., Thompson, E.J. and Dillewaard, H.A. (2012) *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland. Version 3.2.* Department of Science, Information Technology, Innovation and the Arts, Brisbane.

Appendix A: Map of field survey sites and DEHP regional ecosystem mapping.

Appendix B: Quaternary survey site assessment records for the Site

Site No.	Q1	**Recorder:**	Craig Eddie, Angela Bendall	**Date**	11/07/2013
Purpose	**Angry Jungle 7 Roadside Vegetation Assessment**			**Time**	**1045**
Locality:	Road adjoining Angry Jungle				
Zone:	55J	728816 **E**	7065531 **N**	**Datum**	GDA94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	11	10 – 12	V
T1	5	5 – 7	M
T2		-	
T3		-	
S1	1.5	1 – 2.5	V
S2			
G	0.4	0.05 – 1	M

Structural formation: Low open forest

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum; ***d*** – dominant; ***c*** – codominant; **s -** subdominant, ***a*** – associated.

Str.	Rel. dom.	Scientific Name
T1	D	*Acacia harpophylla*
T2	D	*Acacia harpophylla*
S1	D	*Geijera parviflora*
S1	A	*Acacia harpophylla*
G	D	*Paspalidium caespitosum*
G	A	*Cenchrus ciliaris* (Non-native)

Geology, landform, soils

Geology code and rock types: fine grained sediments

Landform: Gently undulating terrain

Soils: Brown clay

DERM Mapped RE Code: Non-remnant

Observed RE Code: Non-remnant (11.9.5) **Landzone:** 9

Vegetation Short Description

Acacia harpophylla low open forest with emergent *Acacia harpophylla* and *Casuarina cristata;* midlayer dominated by *A. harpophylla* and *Geijera parviflora* saplings; grassy ground layer dominated by *Cenchrus ciliaris* and *Paspalidium caespitosum*

Connectivity/Patch Characteristics

Linear roadside strip (c. 22m wide) surrounded by cleared paddocks, adjoins shade line to north-west

Weeds: R = rare (<10 plants observed); U = uncommon (11 – 50 plants observed); C = common = (>50 plants observed)

data available upon request

% Weed Cover: 40

EVNT Flora Present: Nil

EVNT Flora Likely: *Homopholis belsonii*

Photo Nos. BBK4 19801 - 19818

Additional Flora:	
Eremophila mitchellii	*Brachychiton rupestris* (TAR)
Abutilon oxycarpum	
Alectryon diversifolius	
Parsonsia lanceolata	
Spartothamnella puberula	
Sarcostemma viminale	
Solanum parvifolium	
Parsonsia eucalyptophylla	
Solanum sp. infertile (*coracinum/mitchellianum*)	
Ancistrachne uncinulata	
Einadia nutans	
Capparis lasiantha	
Lysiana exocarpi	

Fauna Habitat Features – (note coarse/fine woody debris, rocks/boulders, mistletoe, termite mounds, hollows, leaf litter, burrows, shrubs, food trees, loose bark, soil cracks, caves/crevices)

Density Scores: 0 = 0%; 1 = <25%; 2 = 26-50%; 3 = 51-75%; 4 = 75-99%; 5 = 100%.

Rocks – embedded	0	Boulders	0	Shrub layer	1	Ground cover	3
Rocks – loose	0	Fallen bark	0	Leaf litter	1	Bare ground	1

Abundance Scores: 0 = absent; 1 = 1-5; 2 = 6-20; 3 = 21-50; 4 = 51-75; 5 = 76-100; 6 = >100

Crevices/ledges	0	Large logs (>30cm diameter)	1	Trees / logs bearing loose bark	1
Underhangs /overhangs / caves	0	Logs with hollows	0	Termite mounds	0
Small logs (<30cm diameter.)	2	Hollow bearing trees	0	Mistletoe	1

Other	
Soil cracks	present
Water	Nil
Other (eg. food trees):	*Casuarina cristata*

Disturbances
Unknown historical disturbance (>15 years old)

Incidental Fauna Observations (HE= heard, SE= seen, EV= evidence, FO= flying over)	
Caper White (2) SE	
Spiny-cheeked Honeyeater (1) HE	
Brolga (1) HE off-site	
Yellow Thornbill (1) HE	
Striped Honeyeater (1) HE off-site	

Additional Notes

Voucher Specimens
nil

Site No.	Q2	**Recorder:**	Craig Eddie, Angela Bendall	**Date**	11/07/2013
Purpose	**Angry Jungle 7 Roadside Vegetation Assessment**			**Time**	**1200**

Locality:
(inc. distance/direction to nearest town) Road adjoining Angry Jungle

Zone: 55J 728723 **E** 7065470 **N** GDA94 **Datum**

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E			
T1	11	10 – 13	S
T2	8	7 – 9	S
T3			
S1	3	2 – 4.5	V
S2			
S3			
G	0.3	0.05 – 0.5	M

Structural formation: Woodland

Ecologically dominant layer: T1

Plant species

Record relative (numerical) dominance for each stratum;
d – dominant; ***c*** – codominant; **s -** subdominant, ***a*** – associated.

Str.	Rel. dom.	Scientific Name
T1	D	*Acacia harpophylla*
T2	D	*Acacia harpophylla*
T2	A	*Eremophila mitchellii*
S1	D	*Acacia harpophylla*
S1	S	*Geijera parviflora*
G	D	*Paspalidium caespitosum*
G	A	*Cenchrus ciliaris (non-native)*

Geology, landform, soils

Geology code and rock types: fine grained sediments

Landform: Gently undulating terrain (gentle hillslope)

Soils: Brown clay

DERM Mapped RE Code: Non-remnant

Observed RE Code: Non-remnant (11.9.5) **Landzone:** 9

Vegetation Short Description

Acacia harpophylla woodland; midlayer dominated by *Acacia harpophylla* saplings and *Geijera parviflora;* grassy ground layer dominated by *Paspalidium caespitosum.*

Connectivity/Patch Characteristics

Linear roadside strip (c. 22m wide) surrounded by cleared paddocks

Weeds: R = rare (<10 plants observed); U = uncommon (11 – 50 plants observed); C = common = (>50 plants observed)
data available upon request

% Weed Cover: <5

EVNT Flora Present: Nil

EVNT Flora Likely: *Homopholis belsonii*

Field Wpt Code:

Photo Nos. BBK4 19826 – 19837 (site) 19838 – 19843 (from road)

Additional Flora:	
Pittosporum angustifolium	
Ehretia membranifolia	
Jasminum didymum	
Senna coronilloides	
Einadia nutans	
Carissa ovata	
Enchylaena tomentosa	
Abutilon oxycarpum	
Cyperus gracilis	
Solanum sp. infertile (*coracinum/mitchellianum*)	
Enteropogon sp. infertile	
Solanum parvifolium	

Fauna Habitat Features – (note coarse/fine woody debris, rocks/boulders, mistletoe, termite mounds, hollows, leaf litter, burrows, shrubs, food trees, loose bark, soil cracks, caves/crevices)

Density Scores: 0 = 0%; 1 = <25%; 2 = 26-50%; 3 = 51-75%; 4 = 75-99%; 5 = 100%.

Rocks – embedded	0	Boulders	0	Shrub layer	1	Ground cover	2
Rocks – loose	0	Fallen bark	1	Leaf litter	2	Bare ground	1

Abundance Scores: 0 = absent; 1 = 1-5; 2 = 6-20; 3 = 21-50; 4 = 51-75; 5 = 76-100; 6 = >100

Crevices/ledges	0	Large logs (>30cm diameter)	0	Trees / logs bearing loose bark	2
Underhangs /overhangs / caves	0	Logs with hollows	0	Termite mounds	0
Small logs (<30cm diameter.)	2	Hollow bearing trees	0	Mistletoe	0

Other	
Soil cracks	Nil
Water	Nil
Other (eg. food trees):	Nil

Disturbances
Unknown historical disturbance (>15 years old)

Incidental Fauna Observations (HE= heard, SE= seen, EV= evidence, FO= flying over)	
Grey Butcherbird (1) HE off-site	

Additional Notes

Site No.	Q3	**Recorder:**	Craig Eddie, Angela Bendall	**Date**	11/07/2013
Purpose	**Angry Jungle 7 Roadside Vegetation Assessment**			**Time**	**1215**

Locality:
(inc. distance/direction to nearest town) Road adjoining Angry Jungle

Zone: 55J 728591 **E** 7065380 **N** GDA94 **Datum**

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E			
T1	11	10 – 12	S
T2	9	7 – 9	S
T3		-	
S1	2.5	2 – 4	S
S2		-	
S3		-	
G	0.2	0.05 – 0.6	M-S

Structural formation: Woodland

Ecologically dominant layer: T2

Plant species

Record relative (numerical) dominance for each stratum;
d – dominant; ***c*** – codominant; **s -** subdominant, ***a*** – associated.

Str.	Rel. dom.	Scientific Name
T1	D	*Acacia harpophylla*
T2	D	*Acacia harpophylla*
S1	D	*Geijera parviflora*
S1	A	*Acacia harpophylla*
G	D	*Paspalidium caespitosum*
G	A	*Cenchrus ciliaris* (Non-native)

Geology, landform, soils

Geology code and rock types: fine grained sediments

Landform: Plain

Soils: Brown clay

DERM Mapped RE Code: Non-remnant

Observed RE Code: Non-remnant (11.9.5) **Landzone:** 9

Vegetation Short Description

Acacia harpophylla woodland; midlayer dominated by *Geijera parviflora*; grassy ground layer dominated by *Paspalidium caespitosum*

Connectivity/Patch Characteristics

Linear roadside strip (c. 22m wide) surrounded by cleared paddocks

Weeds: R = rare (<10 plants observed); U = uncommon (11 – 50 plants observed); C = common = (>50 plants observed)
data available upon request

% Weed Cover: <10

EVNT Flora Present: Nil

EVNT Flora Likely: *Homopholis belsonii*

Field Wpt Code:

Photo Nos. BBK4 19844 - 19849 (site) 19850 - 19861 (from road)

Additional Flora:	
Enteropogon sp.	
Abutilon oxycarpum	
Solanum parvifolium	
Enchylaena tomentosa	
Atalaya hemiglauca	
Alectryon diversifolius	
Brunoniella australis	
Einadia nutans	
Cyperus gracilis	
Capparis lasiantha	
Rhagodia spinescens	

Fauna Habitat Features – (note coarse/fine woody debris, rocks/boulders, mistletoe, termite mounds, hollows, leaf litter, burrows, shrubs, food trees, loose bark, soil cracks, caves/crevices)

Density Scores: 0 = 0%; 1 = <25%; 2 = 26-50%; 3 = 51-75%; 4 = 75-99%; 5 = 100%.

Rocks – embedded	0	Boulders	0	Shrub layer	2	Ground cover	2
Rocks – loose	0	Fallen bark	1	Leaf litter	2	Bare ground	1

Abundance Scores: 0 = absent; 1 = 1-5; 2 = 6-20; 3 = 21-50; 4 = 51-75; 5 = 76-100; 6 = >100

Crevices/ledges	0	Large logs (>30cm diameter)	0	Trees / logs bearing loose bark	2
Underhangs /overhangs / caves	0	Logs with hollows	0	Termite mounds	0
Small logs (<30cm diameter.)	2	Hollow bearing trees	0	Mistletoe	1

Other	
Soil cracks	Nil
Water	Nil
Other (eg. food trees):	Nil

Disturbances
Unknown historical disturbance (>15 years old)

Incidental Fauna Observations (HE= heard, SE= seen, EV= evidence, FO= flying over)	
Yellow Thornbill (1) HE on-site	
Mistletoebird (1) HE on-site	
Caper White (1) SE FO	
Striped Honeyeater (1) HE off-site	
Grey-crowned babbler (1) HE off-site	
Grey fantail (1) HE on-site	

Additional Notes

Appendix C: Site photographs


Above. Brigalow (*A. harpophylla*) low open forest (advanced regrowth) at survey site Q1 looking north (left) and south (right).


Above. Brigalow (*A. harpophylla*) low open forest (advanced regrowth) at survey site Q1 looking west (left) and east (right).


Above. Brigalow (*A. harpophylla*) low open forest (advanced regrowth) at survey site Q1 viewed from the adjoining roadside looking southwest (left) and west (right).

Site photographs cont.


Above. Brigalow (*A. harpophylla*) woodland (advanced regrowth) at survey site Q2 looking north (left) and east (right).


Above. Brigalow (*A. harpophylla*) woodland (advanced regrowth) at survey site Q2 looking west (left) and south (right).


Above. Brigalow (*A. harpophylla*) woodland (advanced regrowth) at survey site Q2 viewed from the adjoining roadside looking southwest (left) and west (right).

Site photographs cont.


Above. Brigalow (*A. harpophylla*) woodland (advanced regrowth) at survey site Q3 looking north (left) and east (right).


Above. Brigalow (*A. harpophylla*) woodland (advanced regrowth) at survey site Q2 looking west (left) and south (right).


Above. Brigalow (*A. harpophylla*) woodland (advanced regrowth) at survey site Q3 viewed from the adjoining roadside looking southwest (left) and west (right).

Site photographs cont.

Above. Two views of the proposed disturbance area at the northeastern end of the assessment area showing existing entrance gate (left) and cleared portion dominated by Buffel Grass (*Cenchrus ciliaris*) shadeline beside survey site Q1 (right).

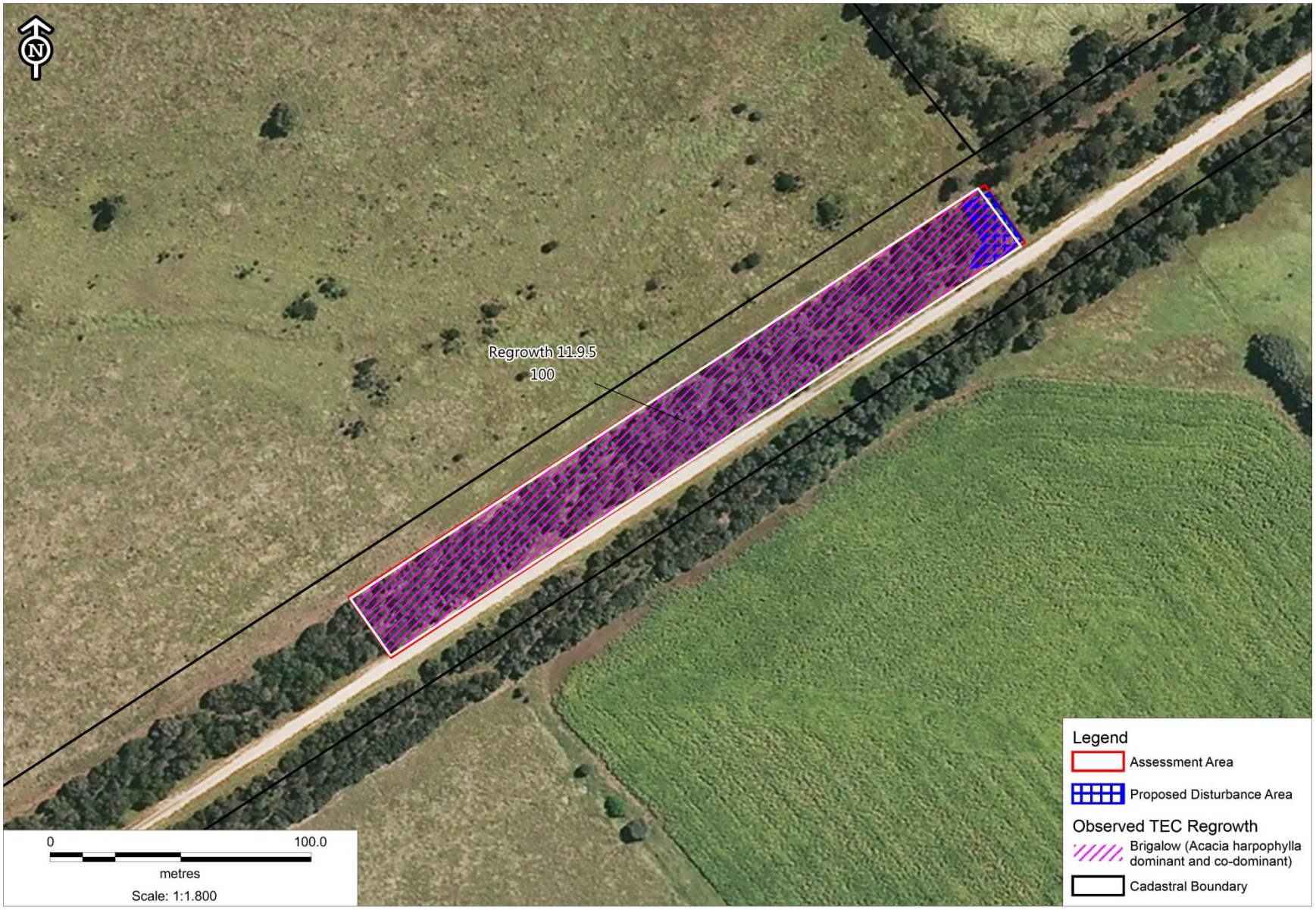
Appendix D: List of flora recorded at the Site.

FAMILY	SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	Q1	Q2	Q3
Acanthaceae	*Brunoniella australis*	Blue Trumpet	LC		P	P	P
Amaranthaceae	*Nyssanthes erecta*	Barbed-wire Weed	LC		P		
Apocynaceae	*Carissa ovata*	Currantbush	LC			P	
Apocynaceae	*Parsonsia eucalyptophylla*	Gargaloo	LC		P		
Apocynaceae	*Parsonsia lanceolata*	Rough Silkpod	LC		P		
Asteraceae	*Calotis* sp. infertile	A Burr-daisy	-		P		
Boraginaceae	*Ehretia membranifolia*	Peach Bush, Weeping Koda	LC			P	
Caesalpiniaceae	*Senna coronilloides*	Brigalow Senna	LC			P	
Capparaceae	*Capparis lasiantha*	Nipan, Split Jack	LC		P		P
Capparaceae	*Capparis mitchellii*	Wild Orange, Bumble Tree	LC			P	
Casuarinaceae	*Casuarina cristata*	Belah	LC		P		
Chenopodiaceae	*Einadia nutans*	Climbing Saltbush	LC		P	P	P
Chenopodiaceae	*Enchylaena tomentosa*	Ruby Saltbush	LC			P	P
Chenopodiaceae	*Rhagodia spinescens*	Spiny Saltbush	LC				P
Cyperaceae	*Cyperus gracilis*	Whisker Grass	LC			P	P
Euphorbiaceae	*Sarcostemma viminale*	Caustic Vine	LC		P		
Lamiaceae	*Spartothamnella juncea*	Native Broom, Bead Bush	LC		P		
Loranthaceae	*Amyema congener*	Variable Mistletoe	LC				P
Loranthaceae	*Lysiana exocarpi* subsp. *tenuis*	Harlequin Mistletoe	LC		P		
Malvaceae	*Abutilon oxycarpum*	Straggly Lantern-bush	LC		P	P	P

FAMILY	SCIENTIFIC NAME	COMMON NAME	NC ACT	EPBC ACT	Q1	Q2	Q3
Mimosaceae	*Acacia harpophylla*	Brigalow	LC		P	P	P
Myoporaceae	*Eremophila mitchellii*	False Sandalwood	LC		P	P	
Oleaceae	*Jasminum didymum*	Jasmine	LC		P	P	
Pittosporaceae	*Pittosporum angustifolium*	Weeping Pittosporum, Gumbi Gumbi	LC			P	
Poaceae	*Ancistrachne uncinulata*	Hooky Grass	LC		P		
Poaceae	*Cenchrus ciliaris**	Buffel grass	-		P	P	P
Poaceae	*Enteropogon* sp. (infertile)	A Twirly Grass	-		P	P	P
Poaceae	*Paspalidium caespitosum*	Brigalow Grass	LC		P	P	P
Rutaceae	*Geijera parviflora*	Wilga	LC		P	P	P
Sapindaceae	*Alectryon diversifolius*	Scrub Boonaree	LC		P	P	P
Sapindaceae	*Atalaya hemiglauca*	Whitewood	LC		P	P	P
Solanaceae	*Solanum parvifolium*	Potato Bush	LC		P	P	P
Solanaceae	*Solanum* sp. infertile *(coracinum/mitchellianum)*	Potato Bush	-		P	P	
Sterculiaceae	*Brachychiton rupestris*	Narrow-leaved Bottle Tree	LC/TAR		P	P	

Key: * = non-native (introduced) species; # = submitted to Queensland Herbarium.

Appendix E. Extent of Threatened Ecological Community (TEC) at the Site.



Appendix F: Type A restricted plants recorded at the Site.