

LNG Plant weed survey 754-MELEN224697

Reference: 754-MELEN224697

7 June 2023

LNG Plant weed survey

Report reference number: 754-MELEN224697_24

7 June 2023

PREPARED FOR

ExxonMobil PNG Antelope Limited

PREPARED BY

Tetra Tech Coffey
Level 5, 12 Creek Street
Brisbane
Qld 4000 Australia
p: +61 7 3239 9300

ABN 55 139 460 521

QUALITY INFORMATION

Revision history

Revision	Description	Date	Author	Reviewer	Approver
RevA	Draft	24/03/2020	Diatpain Warakai Travis Wood	Michael Sale	Kristen Hall
RevB	Final	07/04/2020	Diatpain Warakai Travis Wood	Kristen Hall	Kristen Hall
Rev0	Revised Final	07/06/2023	Melinda Hofman Ivan Steward	Kristen Hall	Kristen Hall

Distribution

Report Status	No. of copies	Format	Distributed to	Date
RevA	N/A	PDF and Word	EMPNG	24/03/2020
RevB	N/A	PDF and Word	EMPNG	07/04/2020
Rev0	N/A	PDF and Word	ExxonMobil PNG Antelope Limited	07/06/2023

CONTENTS

1. INTRODUCTION	1
1.1 Background	1
1.2 Study objectives	1
2. METHODS	1
3. RESULTS	3
3.1 Species diversity	3
3.2 New species records	4
3.3 Species abundance	4
3.4 Priority weed species	4
3.5 Priority weed species	6
4. DISCUSSION	6
5. LIMITATIONS	8
6. REFERENCES	8

TABLES

Table 3.1 Weed species occurrence in the LNG Plant site as recorded in 2008, 2016 and 2019	3
Table 3.2 Weed abundance and density by area in LNG Plant site and Laydown Area 2019	6

FIGURES

Figure 2.1 Weed survey locations	2
Figure 3.1 Proportion and relative abundance of Priority 1, 2 and 3 weeds observed at each site during the survey	7

PLATES

Plate 3.1 Weed survey at LNG Plant gate; drainage vegetation in view	5
Plate 3.2 Proposed laydown site	5
Plate 3.3 Weedy growth of Hyptis, <i>Passiflora foetida</i> and other weeds at the Waste Management area	5

APPENDICES

APPENDIX A: WEED LIST	9
------------------------------	----------

1. INTRODUCTION

Coffey Environments Australia Pty Ltd (now Tetra Tech Coffey Pty Ltd) was commissioned to conduct a targeted weed survey in 2019 at the liquefied natural gas (LNG) Plant site, in Caution Bay, 20 km from Port Moresby. The data from this study is being used to support the assessment of a potential expansion of the LNG Plant.

This report describes the targeted weed survey.

1.1 BACKGROUND

An environmental impact statement (EIS) and supporting environmental and social management plans (ESMPs) were prepared for the PNG LNG Project (Coffey Environments, 2010). The EIS assessed the potential environmental impacts of the project and proposed management measures associated with the construction and operation of the LNG Plant and feed gas pipeline from the Hides Gas Conditioning Plant to the LNG Plant. The LNG Plant and upstream facilities (including the pipeline and Hides Gas Conditioning Plant) currently operate under the conditions and criteria set out in the Environment Permit EP-L3(210) and in accordance with the approved ESMPs.

Information on the structure and condition of the vegetation communities and the plant species present at the LNG Plant site was reported after a baseline survey in 2008 that covered both the LNG Plant site and proposed temporary construction laydown area (also referred to as the laydown area). A subsequent weed baseline survey was conducted at the LNG Plant site in 2009. The grassland at the LNG Plant site was found to be natural grassland that had been infiltrated by many noxious weeds. Weed species present included Alyce clover (*Alysicarpus vaginalis*), wild red gram (*Atylosia scarabaeoides*), butterfly-pea (*Clitoria ternatea*), guinea grass (*Panicum maximum*), stinking passionfruit (*Passiflora foetida*), spiny-head sida (*Sida acuta*) and tridax daisy (*Tridax procumbens*). An invasive species register was developed for the PNG LNG Project's environmental monitoring program. Quarterly weed audits were completed following construction of the LNG Plant, between 2013 and 2016.

1.2 STUDY OBJECTIVES

The objective of this study was to:

- Determine the presence or absence of any weed species in accordance with the invasive species register that require management intervention.

2. METHODS

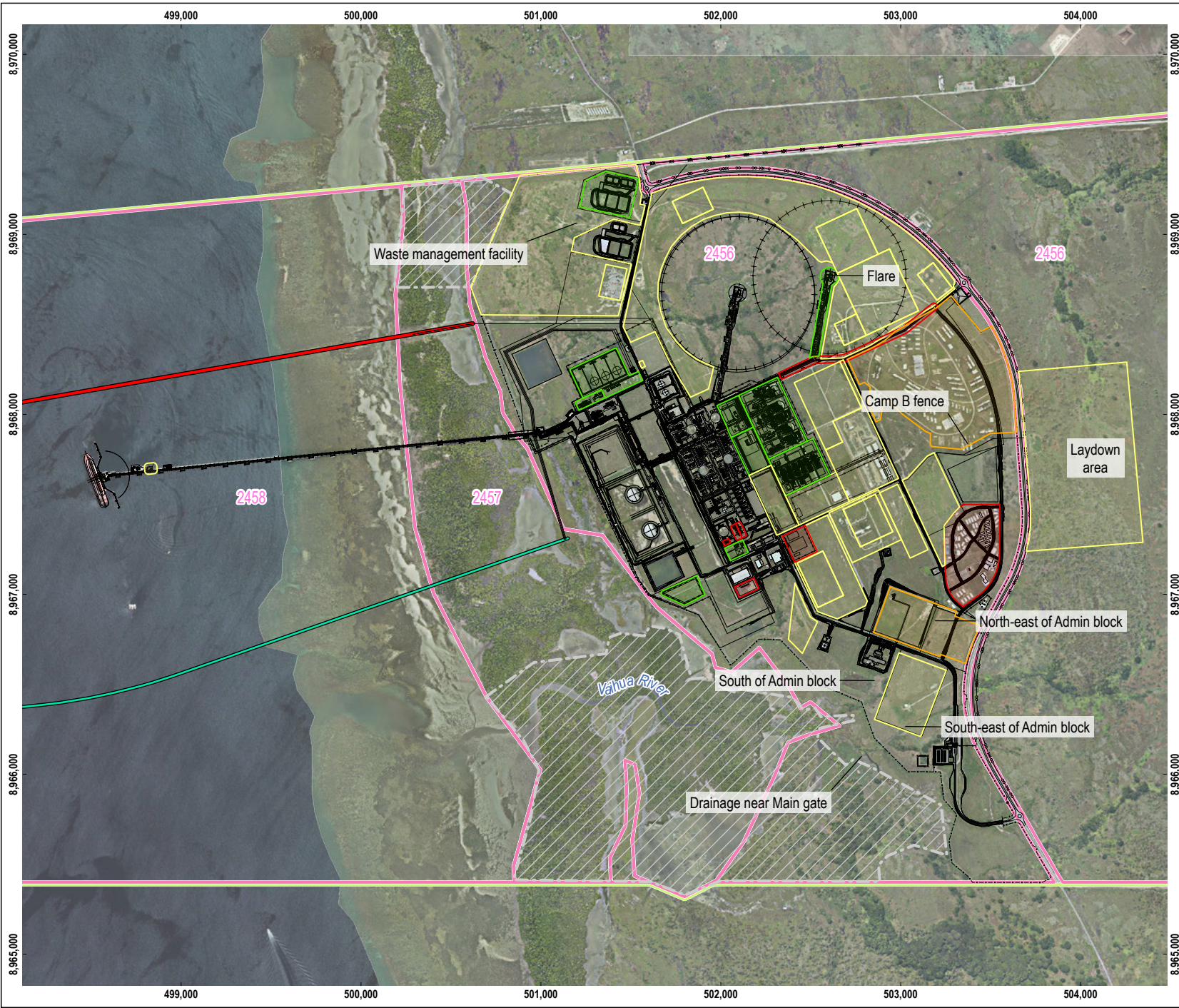
The targeted weed survey was completed between 11 and 12 July 2019. The survey study area included sites within the LNG Plant site security fence (with the exception of safety restricted areas) and sites adjacent to the LNG Plant, including proposed temporary construction laydown locations as shown in Figure 2.1.

General field tasks included:

- A visual survey of the sites within the LNG Plant that were safe and accessible, and the proposed temporary construction laydown area adjacent to the LNG Plant site.
- The systematic recording of site data into field sheets (templates) including GPS coordinates.

Tasks specific to the weed survey are summarised below.

The field survey focused on identifying and recording the location of weed species.



- LEGEND**
- PNG LNG pipeline
 - Proposed Papua LNG pipelines route
 - Existing and proposed plant layout
 - Proposed new facility
 - Proposed expanded/upgraded facility
 - Temporary construction area
 - Temporary camp
 - PPFL2 boundary
 - APPFL boundary
 - Cultural heritage restricted area

SOURCE
 Weeds survey locations from Ecomate.
 Infrastructure, cultural heritage and lease boundary from EMPNGA.
 Imagery from EMPNGA and Google Earth.

 0 500 m
SCALE 1:30,000
 PAGE SIZE: A4
 PROJECTION: WGS 1984 UTM Zone 55S

[EXXONMOBIL PNG ANTELOPE LIMITED](#)
[PAPUA LNG PROJECT – DOWNSTREAM](#)

FIGURE 2.1
Weeds survey locations



Weed surveys were conducted along 100-metre transects within the LNG Plant site (Plate 1), and the proposed temporary construction laydown area (Plate 2). The weed survey was conducted by Ecomate Pty Ltd. All observed weeds were identified to species level and an assessment was made of their site abundance, diversity and range. These observations were compared with the previous weed audit of the LNG Plant site (Biotropica Australia, 2016). Actual site species abundance was recorded as follows:

- Common (C) - a species is widespread, consisting of patches of more than 20 individuals.
- Occasional (O) - species with patchy occurrence consisting of less than 20 individuals at a site.
- Rare (R) - a single occurrence or few, consisting of five individuals or less.
- Absent (A) - a species that was formerly present but no longer occurs either at a site or within a Weed Management Zone.

Existing and/or new weed species were given a priority rating (Priority 1, 2, or 3) consistent with the PNG LNG Weeds Risk Assessment process that was used in past weed audits (Biotropica Australia, 2016). The priority rating is determined by invasiveness, potential impacts, feasibility of control, distribution and other miscellaneous characteristics. Priority 1 weeds are highly invasive, have a high potential impact, are widely distributed, and are difficult to control. Priority 2 weeds are of medium invasiveness, potential impact, distribution, and manageability. Priority 3 weeds are less invasive, have a low potential impact, small distribution, and are easily managed.

3. RESULTS

3.1 SPECIES DIVERSITY

The 2019 weed survey identified 38 weed species as present within the LNG Plant site. That count increased to 41 weed species when including the proposed temporary construction laydown area. This is consistent with the previous weed survey carried out in 2016 which identified 37 weed species within the LNG Plant site (Table 3.1). The proposed temporary construction laydown area was not surveyed in 2016. There were more weed species identified as common (widespread patches of >20 individuals) in 2019 (eight) than in 2016 (five); as well as more occasional weeds (patchy occurrence of 6 to 20 individuals) in 2019 (18) compared to 2016 (11). The 2008 baseline survey identified 74 weed species (36 common, 29 occasional and 9 rare) within the LNG Plant site and the surrounding area, including in the temporary construction laydown area. Direct comparisons to the 2019 survey are limited because the 2008 survey covered a much broader area than the 2019 survey.

Table 3.1 Weed species occurrence in the LNG Plant site as recorded in 2008, 2016 and 2019

Weed occurrence	Weed Survey LNG Plant + Laydown Area and surrounds 2008	Weed Survey LNG Plant 2016	Weed Survey LNG Plant 2019	Weed Survey LNG Plant Site + Laydown Area 2019
Common species (>20 individuals)	36	5	8	13
Occasional species (<20 individuals)	29	11	18	17
Rare species (≤5 individuals)	9	21	12	11
Total species recorded	74	37	38	41

3.2 NEW SPECIES RECORDS

Fourteen weed species recorded within the PNG LNG Plant site in the 2019 survey were not recorded as present in the 2016 survey (Appendix B). Most of these species were Priority 3 (seven) and Priority 2 (five) weeds. Two species were Priority 1 weeds. Notable was the Priority 3 sensitive weed (*Mimosa pudica*), which was not recorded as present in the 2016 survey but was found to be common in the 2019 survey. Also notable were several weed species which were not recorded as present in the 2016 survey but recorded in the 2019 survey as of occasional occurrence. These were khaki weed (*Alternanthera pungens*), Rhodes grass (*Chloris gayana*), jute (*Corchorus aestuans*), gambia pea (*Crotalaria goreensis*), nut grass (*Cyperus rotundus*), crow-foot grass (*Eleusine indica*), water primrose (*Ludwigia hyssopifolia*), Phyllanthus, and woolly senna (*Senna hirsuta*).

Two weed species identified as rarely occurring in 2016 surveys were found to be common in the 2019 survey. Five weed species identified as rarely occurring in the 2016 surveys were found to be occasional in the 2019 survey, while four rare species identified in 2016 surveys remained as rare species in the 2019 survey. Ten weed species observed as rarely occurring species in the 2016 surveys were not identified as present in the 2019 surveys.

Sixteen weed species recorded as present in the PNG LNG Plant site in the 2016 survey were not observed as present in the 2019 survey. Of these, 11 species were found to be rare in the 2016 surveys. These were *Boerhavia diffusa*, *Celosia argentea*, *Cenchrus ciliaris*, *Centrosema mole*, *Cyperus cyperoides*, *Ipomoea obscura*, *Sida cordifolia*, *Solanum nodiflorum*, *Stylosanthes hamata*, *Trianthema portulacastrum*, *Vigna luteola*. Five species were recorded as occasional weeds in the 2016 surveys; these were *Mesosphaerum pectinatum*, *Sida acuta*, *Urochloa mutica*, *Bothriochloa ewartiana* and *Themeda quadrivalvis*. However, of these species, one was found to be occasional (*Bothriochloa ewartiana*), and one common (*Themeda quadrivalvis*) in the proposed laydown area.

3.3 SPECIES ABUNDANCE

The 2019 survey indicated the Priority 3 weed *Passiflora foetida* and Priority 2 weed *Clitoria ternatea* as widespread weed species, being present in relatively high abundance with four to six individuals observed along transects in most sections surveyed in the LNG Plant site (Plate 3). Also widespread were *Macroptilium atropurpureum*, *Tridax procumbens*, *Stachytarpheta jamaicensis*, *Euphorbia heterophylla*, and *Mimosa pudica*, which were present in high abundance in sections surveyed in the LNG Plant site. Common in sections of the LNG Plant site were *Euphorbia hirta* and *Leucaena leucocephala*.

Weed growth density was found to be higher in areas of the outer periphery of main LNG Plant site activities. These were at the roadside of the proposed temporary construction laydown area, south of Administration block and around the Camp B fence (Table 3.2).

3.4 PRIORITY WEED SPECIES

Figure 3.1 shows the proportions of priority weed species (1, 2 and 3) found at each site within the LNG Plant site during the survey. The figure also shows the abundance of individual weed species recorded at each site. The figure shows that relatively high proportions (i.e., more than one quarter and more than one third of weed species at each site) of Priority 1 weeds were recorded at the sites to the north near the waste management facilities and northern perimeter fence. In general, the highest proportion of weeds in the study area were Priority 3 weeds.

Plate 1. Weed survey at LNG Plant gate; drainage vegetation in view.



Plate 2. Proposed laydown site.



Plate 3. Weedy growth of *Hyptis*, *Passiflora foetida* and other weeds at the Waste Management area.



Table 3.2 Weed abundance and density by area in LNG Plant site and Laydown Area 2019

Area	Number of Transects	Weed Abundance (individuals recorded)	Weed Density (individuals per transect)
Proposed Laydown area	4	223	56
LNG Plant site – South of Admin block	1	46	46
LNG Plant site – Camp B fence	1	44	44
LNG Plant site – Flare	3	118	39
LNG Plant site – Waste Management	7	251	36
LNG Plant site – North-east of Admin block	2	68	34
LNG Plant site – Drainage near Main gate	1	14	14
LNG Plant site – South-east of Admin block	1	13	13

3.5 PRIORITY WEED SPECIES

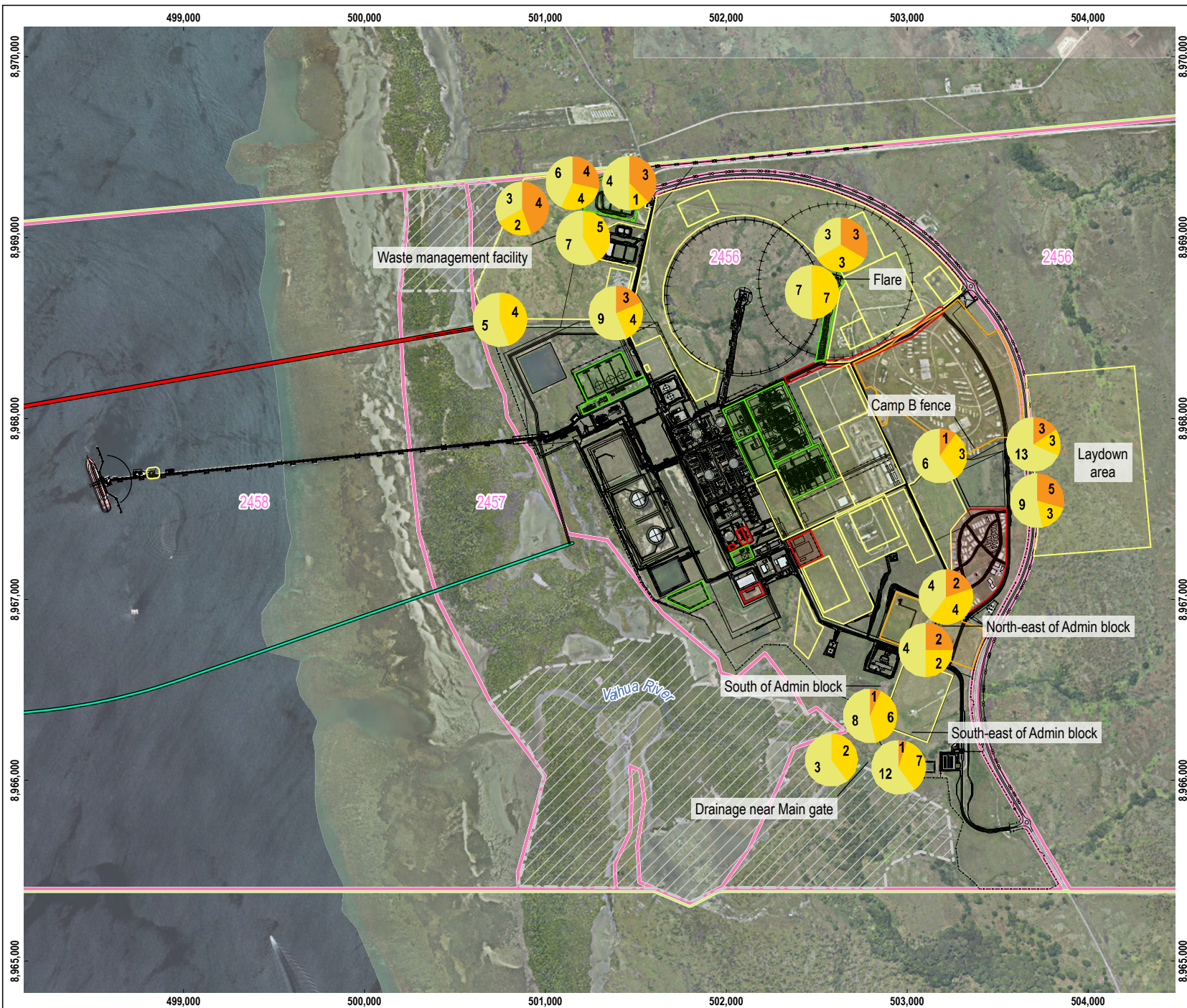
Figure 3.1 shows the proportions of priority weed species (1, 2 and 3) found at each site within the LNG Plant site during the survey. The figure also shows the abundance of individual weed species recorded at each site. The figure shows that relatively high proportions (i.e., more than one quarter and more than one third of weed species at each site) of Priority 1 weeds were recorded at the sites to the north near the waste management facilities and northern perimeter fence. In general, the highest proportion of weeds in the study area were Priority 3 weeds. The highest number of weeds were recorded at the waste management area to the north (39 individual records) and at the western edge of the proposed laydown site (36 individuals). This reflects the proximity of these sites being next to public roads. It is also noted that the area immediately north of the LNG Plant security fence and waste management area has been developed by a third-party for commercial/ industrial purposes.

4. DISCUSSION

Weed species records were based on weed surveys in focused survey sites within the study area. Weeds within the LNG Plant site were generally restricted to small, scattered pockets.

The survey results showed that in areas around the main buildings where lawns and grounds are actively maintained, there were less weed infestations. This suggests effective weed management in these areas. At the outer periphery of the LNG Plant site there was denser weed growth in areas away from natural remnant stands of vegetation. These are unused areas that were previously cleared of natural vegetation and are close to the public access road.

Within the LNG Plant site, the abundance of weeds in 2019 was largely the same as in 2016 (38 in 2019 compared to 37 in 2016, with an increase in common and occasional weed species. In 2019, there was a decrease in rarely occurring weed species compared to 2016, with 10 of 21 rarely occurring species not identified as present in the 2019 survey. Two weed species identified as rarely occurring in 2016 surveys were found to be common in the 2019 survey. Five weed species identified as rarely occurring in the 2016 surveys were found to be occasional in the 2019 survey, while four rare species identified in 2016 surveys remained as rare species in the 2019 survey.



LEGEND

- PNG LNG pipeline
- Proposed Papua LNG pipelines route
- Existing and proposed plant layout
- Proposed new facility
- Proposed expanded/upgraded facility
- Temporary construction area
- Temporary camp
- PPFL2 boundary
- APPFL boundary
- Cultural heritage restricted area

Priority weed (with number of species)

Priority 3

Priority 1

Priority 2

SOURCE

Weeds survey locations from Ecomate.
Infrastructure, cultural heritage and lease boundary from EMPNGA.
Imagery from EMPNGA and Google Earth.

0 500 m

SCALE 1:30,000

PAGE SIZE: A4

PROJECTION: WGS 1984 UTM Zone 55S

EXXONMOBIL PNG ANTELOPE LIMITED

PAPUA LNG PROJECT – DOWNSTREAM

FIGURE 3.1

Proportion and relative abundance of Priority 1, 2 and 3 weeds at each site during the survey



Ten weed species observed as rarely occurring in the 2016 surveys were not identified as present in the 2019 surveys. This could suggest effective management of the less invasive weeds. However, there were 15 weed species that were not recorded in 2016, but found to be present in the 2019 surveys, most of which were Priority 3 weeds. Given that the numbers of weed species recorded were similar between 2019 (38) and 2016 (37), this indicates that the overall diversity of weeds at the site has changed little over three years, but the species composition has changed significantly.

Priority 1 weeds were distributed across most of the study area, being present at all but four sites. The highest abundances of Priority 1 weeds were found at the western margin of the proposed temporary construction laydown area and near the waste management facilities. This could be due to these areas' proximity to the public road where weeds can be freely transported.

The weeds located in the temporary construction laydown area are mainly Priority 3 weeds and are expected to be relatively manageable by standard weed control measures.

5. LIMITATIONS

The following limitations of the study should be noted:

- Some weed species not recorded in the weed list may be present in the LNG Plant site but were not found to be present in the weed survey focus areas.

6. REFERENCES

Biotropica Australia 2016. *PNG LNG Project - Weeds Audit 10*. Malanda, QLD: Prepared by Biotropica Australia Pty Ltd for ExxonMobil PNG Ltd.

Coffey Environments 2010. *LNG Facilities Onshore Pre-construction Summary Report*. Coffey Environments report prepared for ExxonMobil Esso Highlands Limited.

Coffey Natural Systems 2008. *Assessment and Impact Analysis of the Terrestrial Biodiversity at the LNG Facilities Site, Central Province, Papua New Guinea*. Brisbane: Report prepared by Coffey Natural Systems for Esso Highlands Limited.

Esso Highlands Limited 2010. *PNG LNG Environmental and Social Management Plans. Appendix 8: Weed, Plant Pathogen and Pest Management Plan*.

APPENDIX A: WEED LIST

Plant Family	Scientific Name	Common Name	Priority (2008)	LNG Plant + Surrounds* 2008	Priority (2016)	LNG Plant 2016	Priority (2019)	LNG Plant 2019	LNG Plant + Proposed Laydown 2019	LNG Plant 2016-2019 Trend
AGAVACEAE	<i>Agave americana</i>		P3	R						
AIZOACEAE	<i>Trianthema portulacastrum</i>	Giant pig weed	P3	O	P3	R		A	A	↓
AMARANTHACEAE	<i>Achyranthes aspera</i>	Chaff flower	P3	R						
AMARANTHACEAE	<i>Alternanthera ficoidea</i>		P3	O						
AMARANTHACEAE	<i>Alternanthera pungens*</i>	Khaki weed	P3	R	P3		P2	O	O	
AMARANTHACEAE	<i>Celosia argentea</i>	Plumed cockscomb	P2	C	P3	R		A	A	↓
AMARANTHACEAE	<i>Iresine sp.</i>	Juba's bush		O						
ASTERACEAE	<i>Eclipta prostrata</i>	White eclipta		O	P3		P3	R	R	
ASTERACEAE	<i>Eleutheranthera ruderalis</i>			O						
ASTERACEAE	<i>Emilia sonchifolia</i>	Purple sowthistle	P3	R						
ASTERACEAE	<i>Mikania micrantha</i>	Bitter vine	P1	C	P1	R	P1	O	O	↑
ASTERACEAE	<i>Praxelis clematidea</i>		P2	O						
ASTERACEAE	<i>Sonchus oleraceus</i>		P3	R						
ASTERACEAE	<i>Sphaeranthus sp.</i>		P2	O						
ASTERACEAE	<i>Synedrella nodiflora</i>		P3	R						
ASTERACEAE	<i>Tridax procumbens</i>	Tridax daisy	P2	C	P3	C	P3	C	C	-
ASTERACEAE	<i>Vernonia cinerea</i>		P3	O						
BORAGINACEAE	<i>Heliotropium indicum</i>		P2	C						
CAESALPINIACEAE	<i>Senna hirsuta</i>	Woolly senna			P2		P1	O	O	
CAESALPINIACEAE	<i>Senna obtusifolia</i>	Sickle pod			P1	A	P1	R	R	↑
CAPPARACEAE	<i>Cleome viscosa</i>		P2	R						

Plant Family	Scientific Name	Common Name	Priority (2008)	LNG Plant + Surrounds* 2008	Priority (2016)	LNG Plant 2016	Priority (2019)	LNG Plant 2019	LNG Plant + Proposed Laydown 2019	LNG Plant 2016-2019 Trend
CARYOPHYLLALES	<i>Boerhavia diffusa</i>	Tar vine	P2	C	P3	R		A	A	↓
COMMELINACEAE	<i>Commelina diffusa</i>		P2	R						
CONVOLVULACEAE	<i>Ipomoea aquatica</i>	Kang kong	P2	R	P3		P3	R	R	
CONVOLVULACEAE	<i>Ipomoea obscura</i>	Obscure morning glory	P2	O	P3	R		A	A	↓
CONVOLVULACEAE	<i>Merremia quinquefolia</i>	Merremia			P2	R	P2	R	R	–
CUCURBITACEAE	<i>Cucumis melo</i>	Wild melon	P2	C						
CUCURBITACEAE	<i>Momordica charantia</i>	Balsam pear	P2	O	P2	C	P2	O	O	↓
CYPERACEAE	<i>Cyperus cyperoides</i>	Sedge	P2	C	P3	R		A	A	↓
CYPERACEAE	<i>Cyperus distans</i>	Sedge	P2	C						
CYPERACEAE	<i>Cyperus rotundus</i>	Nut grass	P2	C	P3		P3	O	O	
EUPHOBIAEAE	<i>Acalypha lanceolata</i>									
EUPHOBIAEAE	<i>Euphorbia heterophylla</i>	Milkweed	P1	C	P3	C	P3	C	C	–
EUPHOBIAEAE	<i>Euphorbia hirta</i> *	Asthma plant	P3	C	P3	O	P3	C	C	↑
FABACEAE	<i>Abrus precatorius</i>		P1	C						
FABACEAE	<i>Aeschynomene indica</i>	Budda pea	P2	O						
FABACEAE	<i>Alysicarpus vaginalis</i>	Alyce clover								
FABACEAE	<i>Atylosia scarabaeoides</i>									
FABACEAE	<i>Centrosema molle</i>	Centro			P1	R		A	A	↓
FABACEAE	<i>Clitoria ternatea</i>	Butterfly pea	P2	C	P2	R	P2	C	C	↑
FABACEAE	<i>Crotalaria goreensis</i>	Gambia pea			P2		P2	O	O	
FABACEAE	<i>Crotalaria lanceolata</i>	Rattlepod	P3	O	P3	A		A	A	–
FABACEAE	<i>Crotalaria micans</i>		P3	O						
FABACEAE	<i>Crotalaria mitchellii</i>	Yellow rattlepod		O						
FABACEAE	<i>Crotalaria retusa</i>	Rattleweed	P2	O	P3		P3	A	O	
FABACEAE	<i>Flemingia pauciflora</i>		P3	O						

Plant Family	Scientific Name	Common Name	Priority (2008)	LNG Plant + Surrounds* 2008	Priority (2016)	LNG Plant 2016	Priority (2019)	LNG Plant 2019	LNG Plant + Proposed Laydown 2019	LNG Plant 2016-2019 Trend
FABACEAE	<i>Galactica tenuifolia</i>		P3	C						
FABACEAE	<i>Indigofera linifolia</i>		P2	O						
FABACEAE	<i>Leucaena leucocephala</i>	Leucaena	P1	C	P1	O	P1	O	C	–
FABACEAE	<i>Macroptilium atropurpureum</i>	Siratiro	P1	C	P2	O	P2	C	C	↑
FABACEAE	<i>Macroptilium lathyroides*</i>	Phasey bean	P3	O	P3	R	P2	R	R	–
FABACEAE	<i>Neptunia amplexicaulis</i>			C						
FABACEAE	<i>Pueraria phaseoloides</i>									
FABACEAE	<i>Rhynchosia minima</i>		P3	C						
FABACEAE	<i>Samanea saman</i>	Rain tree	P2	C	P2	O	P2	R	R	↓
FABACEAE	<i>Sesbania cannabina</i>	Sesbania pea	P2	C						
FABACEAE	<i>Stylosanthes hamata</i>	Caribbean stylo	P2	O	P3	R		A	A	↓
FABACEAE	<i>Uraria lagopodioides</i>		P3	O						
FABACEAE	<i>Vachellia farnesiana</i>	Mimosa bush	P2	O	P1	O	P1	R	R	↓
FABACEAE	<i>Vigna luteola</i>	Hairy pod cow pea	P3	O	P3	R		A	A	↓
LAURACEAE	<i>Cassytha filiformis</i>	Spaghetti plant	P3	R						
LAMIACEAE	<i>Hyptis capitata</i>	Knobweed			P2		P2	R	R	
LAMIACEAE	<i>Hyptis suaveolens</i>		P2	C			P2	R	R	
LAMIACEAE	<i>Mesosphaerum pectinatum</i>	Horehound			P2	O		A	A	↓
LAMIACEAE	<i>Ocimum tenuifolium</i>		P3	O						
LILIACEAE	<i>Crinum asiaticum</i>		P3	O						
MALVACEAE	<i>Abelmoschus ficulneus</i>		P3	O						
MALVACEAE	<i>Abutilon grandifolium</i>	Hairy Indian mallow	P3	O	P3	R	P3	O	C	↑

Plant Family	Scientific Name	Common Name	Priority (2008)	LNG Plant + Surrounds* 2008	Priority (2016)	LNG Plant 2016	Priority (2019)	LNG Plant 2019	LNG Plant + Proposed Laydown 2019	LNG Plant 2016-2019 Trend
MALVACEAE	<i>Corchorus aestuans</i>	Jute	P2	R	P3	A	P3	O	O	↑
MALVACEAE	<i>Sida acuta</i>	Sida	P3	O	P3	O		A	A	↓
MALVACEAE	<i>Sida cordifolia</i>	Sida			P3	R		A	A	↓
MIMOSACEAE	<i>Mimosa diplotricha</i> var. <i>diplotricha</i>	Giant sensitive plant	P2	O	P1	R	P1	O	O	↑
MIMOSACEAE	<i>Mimosa pudica</i>	Sensitive weed			P3		P3	C	C	
ONAGRACEAE	<i>Ludwigia hyssopifolia</i> *	Water primrose			P3	A	P3	O	O	↑
ONAGRACEAE	<i>Ludwigia octovalis</i>		P2	C						
PASSIFLORACEAE	<i>Passiflora foetida</i>	Stinking passionfruit	P1	C	P3	C	P3	C	C	–
PHYLLANTHACEAE	<i>Phyllanthus</i> sp.				P3		P3	O	O	
POACEAE	<i>Andropogon gayanus</i>	Gamba grass	P1	C	P1	R	P1	R	R	–
POACEAE	<i>Arundo donax</i>	Giant cane	P1	O						
POACEAE	<i>Bothriochloa ewartiana</i>	Forest bluegrass	P1	C	P3	O	P3	A	O	↓
POACEAE	<i>Cenchrus ciliaris</i>	Buffel grass	P1	C	P2	R		A	A	↓
POACEAE	<i>Chloris gayana</i>	Rhodes grass			P3		P3	O	C	
POACEAE	<i>Chloris inflata</i>	Purple-top rhodes grass	P2	C	P3	O	P2	O	O	–
POACEAE	<i>Dactyloctenium aegyptium</i>	Button grass	P3	R	P3	R	P3	O	O	↑
POACEAE	<i>Echinochloa colona</i>	Awnless barnyard grass	P2	C	P3	R	P3	O	O	↑
POACEAE	<i>Eleusine indica</i>	Crows-foot grass			P3		P3	O	O	
POACEAE	<i>Hyparrhenia rufa</i>	Thatch grass	P1	C	P1		P2	R	O	
POACEAE	<i>Imperata cylindrica</i>	Kunai	P1	C						
POACEAE	<i>Megathyrsus maximus</i> var. <i>maximus</i>	Guinea grass	P1	C	P1	C	P1	O	C	↓

Plant Family	Scientific Name	Common Name	Priority (2008)	LNG Plant + Surrounds* 2008	Priority (2016)	LNG Plant 2016	Priority (2019)	LNG Plant 2019	LNG Plant + Proposed Laydown 2019	LNG Plant 2016-2019 Trend
POACEAE	<i>Melinis repens</i> *	Red natal grass	P2	C	P3	R	P2	R	R	–
POACEAE	<i>Themeda quadrivalvis</i>	Grader grass			P1	O	P1	A	C	↓
POACEAE	<i>Urochloa mutica</i>	Para grass	P1	C	P1	O		A	A	↓
POACEAE	<i>Urochloa reptans</i>		P2	C						
POLYGONACEAE	<i>Persicaria attenuata</i>		P2	C						
SOLANACEAE	<i>Physalis minima</i>	Bladder cherry	P3	R						
SOLANACEAE	<i>Solanum nodiflorum</i>	Ground cherry			P3	R		A	A	↓
TILIACEAE	<i>Grewia</i> sp.		P3	O						
VERBENACEAE	<i>Phyla nodiflora</i>		P2	O						
VERBENACEAE	<i>Stachytarpheta jamaicensis</i> *	Light-blue snakeweed	P2	C	P3	R	P2	C	C	↑
VITACEAE	<i>Cayratia</i> sp.									
ZYGOPHYLLACEAE	<i>Tribulus cistoides</i>	Caltrops	P2	O						

R - rare (a single occurrence or few, consisting of five individuals or less)

O - occasional (a species with patchy occurrence consisting of less than 20 individuals at a site)

C - common (a species is widespread, consisting of patches of more than 20 individuals)

A - absent (a species that was formerly present but no longer occurs either at a site or within a Weed Management Zone)

Blank - previously unrecorded species

↑ - increase in abundance between 2016 and 2019

↓ - decrease in abundance between 2016 and 2019

-- no change in abundance between 2016 and 2019

Priority 1 weeds are shown in red

*2008 survey LNG Plant site + Surrounds includes Laydown area.