THREATENED AND PRIORITY FLORA SURVEY

OF DRILL HOLE LOCATIONS

WITHIN MINING TENEMENT M77/1097

BUNGALBIN EAST

Prepared for

Polaris Metals Pty Ltd

Prepared by

Mattiske Consulting Pty Ltd

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Mattiske Consulting Pty Ltd

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O Risk assessment for impact on conservation significant taxa in the Bungalbin East survey area of tenement M77/1097

ABBREVIATIONS

The following abbreviations are used throughout this document.

BOM	Commonwealth Bureau of Meteorology
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EPA	Environmental Protection Authority
Mattiske	Mattiske Consulting Pty Ltd
PEC	Priority Ecological Community
Polaris	Polaris Metals Pty Ltd
TEC	Threatened Ecological Community

1. SUMMARY

Mattiske Consulting Pty Ltd was commissioned in December 2012 by Polaris Metals Pty Ltd to undertake a search for the presence of threatened and priority flora on a range of existing tracks and old drill pads within tenement M77/1097. The survey area consisted of existing tracks (11.6 km total length) and drill pads (36 existing and four new pads proposed to be constructed on the existing tracks), together with a 5 m wide buffer area around each drill pad and on either side of the existing tracks. The survey area consisted of the existing tracks and drill pads plus the 5 m buffer zone. The area proposed for clearing is restricted to the existing tracks (nominal width 3.5 m) together with the drill pads, excluding the 5 m buffer zones, and amounts to a total area of 5.79 ha. The survey area, referred to in this report as the Bungalbin East survey area, was located on an ironstone hill towards the eastern end of the Helena and Aurora Range. The survey for threatened and priority flora took place over a three day period in February 2013. The Bungalbin East survey area is located within both the Helena and Aurora Range Conservation Park and the Helena and Aurora vegetation complexes (banded ironstone formation) (P1) priority ecological community.

The Bungalbin East survey area survey area consisted of a range of tracks and drill pads, originally cleared in the 1960's and 1970's by BHP, for exploration activities. A total of 40 proposed drill pad locations and 11.6 km of interconnecting tracks were searched for the presence of threatened and priority flora. The area which could potentially be cleared represents 0.58% of tenement M77/1097.

Two threatened and eight priority flora taxa were recorded within the Bungalbin East survey area. The threatened taxa recorded were *Leucopogon spectabilis* (T) and *Tetratheca aphylla* subsp. *aphylla* (T). The priority taxa recorded were *Acacia adinophylla* (P1), *Lepidosperma bungalbin* (P1), *Grevillea georgeana* (P3), *Hibbertia lepidocalyx* subsp. *tuberculata* (P3), *Mirbelia ferricola* (P3), *Neurachne annularis* (P3), *Stenanthemum newbeyi* (P3) and *Banksia arborea* (P4). An assessment of the impacts of the proposed drilling program to both threatened and priority flora was made at both the local and regional level. Impacts to both threatened taxa were determined to be low at both the local and regional levels. The results of the assessment at the local level demonstrate a high level of impact to *Acacia adinophylla* (P1), *Hibbertia lepidocalyx* subsp. *tuberculata* (P3), *Stenanthemum newbeyi* (P3) and *Banksia arborea* (P4); a medium level of impact to populations of *Grevillea georgeana* (P3), *Mirbelia ferricola* (P3), and *Neurachne annularis* (P3); and a low level of impact to populations of *Lepidosperma bungalbin* (P1). Local level impacts to priority flora were considered to be relatively high for two reasons. Firstly, the area surveyed was small. This has necessarily resulted in relatively high impacts being reported, due to the relatively restricted area searched within tenement M7/1097. Secondly, the level of impacts have assumed clearing of all vegetation within the 5.79ha survey area within Bungalbin East. This, from a practical perspective, is unlikely. The reason for this is that many of the species were recorded growing on track windrows, where they would have a low likelihood of being disturbed.

The major issue identified from the survey results was that *Tetratheca aphylla* subsp. *aphylla* (T) was recorded growing at six of the 40 proposed drill pad locations. Additionally, when data from both the present and past surveys by Mattiske Consulting Pty Ltd in tenement M77/1097 were taken into account, *Tetratheca aphylla* subsp. *aphylla* (T) was recorded within 50 m of 39 of the 40 proposed drill pad locations. According to the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, the latter situation means that all 39 drill pads are classed as an environmentally sensitive area, which requires the approval of the Western Australian Minister for the Environment before any clearing can proceed. In the case of the seven drill pads where *Tetratheca aphylla* subsp. *aphylla* (T) is growing on the drill pad area, approval from the Federal Minister for Sustainability, Environment, Water, Population and Communities is also required.

The main limitation with the survey was the time of year at which the survey was conducted. The survey was conducted in February, which is not the most appropriate time of year to undertake flora surveys in the Coolgardie region. There is a possibility of not detecting flora of conservation significance, particularly those which are annual species, or species which have not previously been recorded in the area. Offsetting this concern is the significant experience of the botanists with threatened and priority species of the Helena and Aurora Range and the small (5.79 ha) area which may be cleared to accommodate exploration drilling activities. The Bungalbin East survey area represents 0.58% of tenement M77/1097. Consequently, the likelihood of any clearing activities having a major impact to such taxa could similarly be considered to be of a minimal level.

Given the sensitivity of the area, and the need to minimise impacts to conservation significant flora from any clearing activities, we would recommend that an appropriately qualified environmental officer from

Polaris Metals Pty Ltd, preferably with botanical knowledge of the area, be present during clearing activities to supervise personnel involved in vegetation clearing.

2. INTRODUCTION

Mattiske Consulting Pty Ltd (Mattiske) was commissioned in December 2012 by Polaris Metals Pty Ltd (Polaris) to undertake a search for threatened and priority flora on existing tracks and drill pads within tenement M77/1097. Tenement M77/1097 is situated towards the eastern end of the Helena and Aurora Range, and lies within Helena and Aurora Range Conservation Park.

Tenement M77/1097 is the location of the Bungalbin East prospect, an iron ore deposit, originally discovered by BHP in the 1960's. The area contains 36 drill pads constructed during the 1960's and 1970's by BHP for the purposes of exploration. These drill pads are interconnected by a series of tracks which were originally created to enable drilling rigs to access the drill pads. The majority of tracks are in good condition and are used by members of the public. An area located within the Bungalbin East survey area, located on a broad ridge, is used as a camping area by members of the public.

2.1 Location and Scope of Proposal

Tenement M77/1097 lies towards the eastern extent of the Helena and Aurora Range, within the Coolgardie Botanical District as defined by Beard (1990). According to the Interim Biogeographic Regionalisation for Australia, tenement M77/1097 lies within the Coolgardie 2 (C002 – Southern Cross) sub-region. Tenement M77/1097 is located approximately 105 km NNE of the town of Southern Cross in Western Australia, and approximately 30 km NW of the Carina iron ore mine, located in tenement M77/1244 (Figure 1).

The scope of work for the survey was to undertake a search for the presence of threatened and priority flora at existing drill pads and their associated interconnecting tracks, together with a 5 m buffer zone about the drill pads and tracks, within tenement M77/1097. Throughout this report the existing drill pads, their associated interconnecting tracks, and the 5 m buffer zone, are referred to as the Bungalbin East survey area.

2.2 Western Australia's Flora and Vegetation– A Legislative perspective

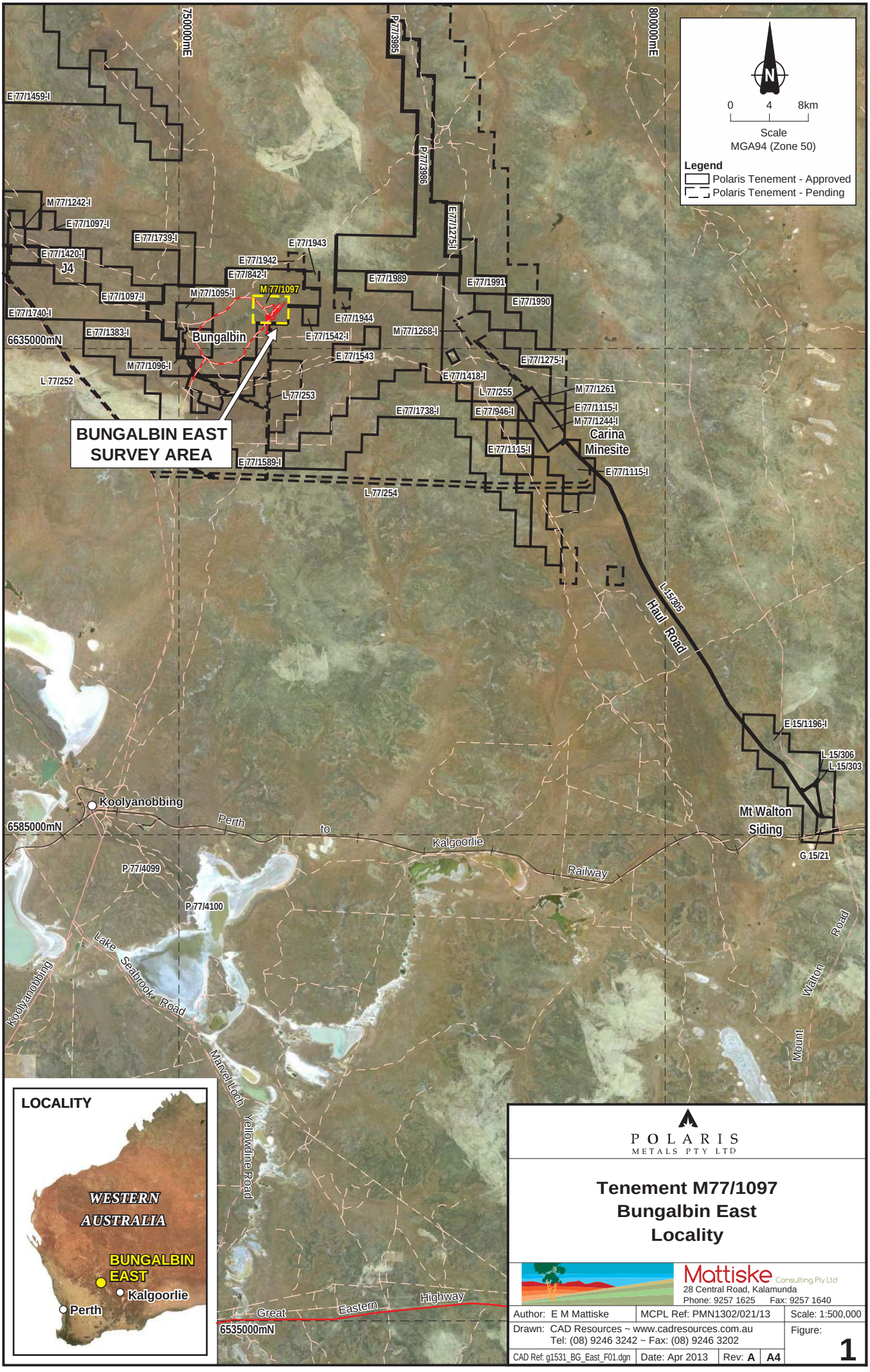
The legislative protection of flora and vegetation within Western Australia is principally governed by three Acts, namely:

- The *Wildlife Conservation Act 1950*;
- The *Environmental Protection Act 1986*; and
- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

These three acts provide for the protection of threatened flora, fauna (and fauna habitats) and ecological communities, while also addressing specific threats such as the clearing of native vegetation.

Where flora has been gazetted as threatened flora under the *Wildlife Conservation Act 1950*, it is an offence "to take" such flora without the written consent of the Minister. The *Wildlife Conservation Act 1950* states that "to take" flora includes to gather, pluck, cut, pull up, destroy, dig up, remove or injure the flora or to cause or permit the same to be done by any means. Under the *Environment Protection and Biodiversity Conservation Act 1999*, a person must not take an action that has or will have a significant impact on a listed threatened species without approval from the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities, unless those actions are not prohibited under the Act.

At the State level, ecological communities may be considered as threatened under the *Environmental Protection Act 1986* once they have been identified as such by the Western Australian Threatened Ecological Communities Scientific Advisory Committee. At the Commonwealth level, some Western Australian TECs are listed as threatened, under the *Environment Protection and Biodiversity Conservation Act 1999*. Under the *Environment Protection and Biodiversity Conservation Act 1999*, a person must not take an action that has or will have a significant impact on a listed threatened ecological community without approval from the Commonwealth Minister for the Sustainability, Environment, Water, Population and Communities, unless those actions are not prohibited under the Act.



POLARIS METALS PTY LTD

Tenement M77/1097
Bungalbin East
Locality

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:500,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: 1
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In addition to legislative protection, the Department of Environment and Conservation (DEC) categorises priority flora using five categories, P1 to P5, to denote the conservation priority status of such species, with P1 listed species being the most threatened, and P5 the least. A similar listing is applied to priority ecological communities. Both threatened and priority listings are regularly reviewed by the relevant agencies, and may have their status changed when more information on the species or community becomes available. Appendix A sets out definitions of both threatened and priority flora and ecological communities, as well as additional information on environmental protection legislation and how it is applied in Western Australia.

Under the *Environmental Protection Act 1986*, the clearing of native vegetation requires a permit to do so, from the DEC or the Department of Mines and Petroleum (DMP), unless that clearing is exempted under specific provisions listed in Schedule 6 of the Act, or are prescribed in the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. The *Environmental Protection Act 1986*, defines "native vegetation" as indigenous aquatic or terrestrial vegetation, and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded from this definition but does not include vegetation in a plantation.

Under the *Environmental Protection Act 1986*, Section 51A, "clearing" means the killing or destruction of, the removal of, the severing or ringbarking of trunks or stems of, or the doing of any other substantial damage to, some or all of the native vegetation in an area, and includes the draining or flooding of land, the burning of vegetation, the grazing of stock, or any other act or activity, that causes any of the aforementioned consequences or results. Appendix A sets out additional information relevant to the clearance of native vegetation as described under the *Environmental Protection Act 1986*.

Flora or vegetation may be locally or regionally significant in addition to statutory listings by the State or Federal Government. While not legislatively protected, these factors are taken into consideration during the assessment of mining proposals, clearing proposals and other proposed development; Guidance Statement 51 specifically states:

> "A broad consideration of the ecological processes that influence sites and their ecological functions is required; statutory lists of Declared Rare and Priority Flora are only a small subset of biodiversity. Proponents should ensure that flora and vegetation surveys provide sufficient information to address both biodiversity conservation and ecological function values within the context of the type of proposal being considered and the relevant EPA objectives for protection of the environment" (EPA 2004).

Appendix A describes what factors may lead to a species or community to be considered locally or regionally significant.

2.3 Declared (Plant) Pest Organisms

The *Biosecurity and Agriculture Management Act 2007* , Section 22, makes provision for a plant taxa to be listed as a declared pest organism in respect of parts of, or the entire State. According to the *Biosecurity and Agriculture Management Act 2007*, a declared pest is defined as a prohibited organism (Section 12), or an organism for which a declaration under section 22 (2) of the Act is in force.

Under section 26 (1) of the *Biosecurity and Agriculture Management Act 2007*, a person who finds a declared plant pest must report, in accordance with subsection (2), the presence or suspected presence of the declared pest to the Director General or an inspector of the Department of Agriculture and Food Western Australia.

Under the *Biosecurity and Agriculture Management Regulations 2013*, declared plant pests are placed in one of three control categories, C1 (exclusion), C2 (eradication) or C3 (management), which determines the measures of control which apply to the declared pest (Appendix A6). According to section 30 (3) of the *Biosecurity and Agriculture Management Act 2007*, the owner or occupier of land, or a person who is conducting an activity on the land, must take the prescribed control measures to control the declared pest if it is present on the land.

The current listing of declared pest organisms and their control category is available on the Western Australian Organism List (WAOL), at the Biosecurity and Agriculture Management website of the Department of Agriculture and Food Western Australia (2013).

3. OBJECTIVES

The aim of this survey was to search for threatened and priority flora at 40 drill pad locations, together with their interconnecting tracks within tenement M77/1097. The locations of all drill pads and tracks which comprised the survey area were supplied by Polaris. Specifically the objectives included:

- Undertake a desktop search to evaluate the botanical values of the local and broader area associated with tenement M77/1097 to identify any matters of botanical or conservation significance;
- Search for threatened and priority flora species at 40 drill pad locations within tenement M77/1097, located on the upper slopes and ridges within the tenement, and which would be the locality for proposed exploration drill holes, and record the population and locations of any threatened and priority flora present;
- Search for threatened and priority flora species along a series of existing tracks which interconnect the drill pad locations within tenement M77/1097 , and record the population and locations of any threatened and priority flora present;
- Review the conservation status of the vascular plant species recorded by reference to current literature and current listings by the DEC, the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) under the *Environment Protection and Biodiversity Conservation Act 1999,* and plant collections held at the Western Australian State Herbarium;
- Provide an evaluation of the impacts of the proposed drilling program to any threatened and priority flora located within the survey area, at both the local and regional level;
- Provide recommendations on the local and regional significance of any threatened or priority flora recorded or ecological communities present; and
- Prepare a report summarising the findings.

4. METHODS

The Bungalbin East survey area consisted of a 40 drill pad locations together with their interconnecting tracks, located on the lower slopes, upper slopes and ridges of a banded ironstone hill located within mine tenement M77/1097 (Figure 2).

4.1 Desktop Survey

A desktop assessment, based on a 25 km search radius about the central point of tenement M77/1097 (759490 mE, 6638508 mN, MGA94 zone 50) was undertaken using the DEC and DSEWPaC databases to identify the possible occurrence of threatened and priority flora and threatened and priority ecological communities within Tenement M77/1097. In addition, historical documentation and vegetation mapping of the region, principally that of Beard (1972a, 1972b) and Gibson *et al.* (1997), which provide extensive resource material on the vegetation of the survey area, was reviewed.

4.2 Field Survey

The search for threatened and priority flora within the Bungalbin East survey area was undertaken by a team of four botanists from Mattiske between the 7th and 9th February 2013. The survey was conducted to the standards set out in Guidance Statement 51 (EPA 2004). All botanists held valid collection licences to collect flora for scientific purposes, issued under the *Wildlife Conservation Act 1950*. In addition, one botanist held a valid permit to take declared rare flora, issued under the *Wildlife Conservation Act 1950.* Mattiske held valid Regulation 4 Permits to take flora for scientific purposes within CALM lands. The permit (No. 003682 - No. CE003855 – validity 25/01/13 to 30/04/13) was valid for the Mount Manning – Helena Aurora Range Conservation Park. The licensee was present during the surveys. Aerial photographic maps of the survey area were prepared and supplied by CAD Resources of Carine, Western Australia.

4.3 Survey Areas

The Bungalbin East survey area consisted of a 40 drill pad locations and a series of tracks which interconnect the drill pads (Figure 2). Of the 40 drill pad locations surveyed, 36 were pre-existing drill cleared pad areas and four represent either a section of a pre-existing track or a cleared area proposed to be utilised for a drill pad. The coordinates delineating the boundaries of each of the 40 drill pad locations, which were provided by Polaris, are set out in Appendix B. The drill pads have been numbered numerically to enable their referencing to be consistent through this report. At the time of compiling this report no specific drill pad designations were available from Polaris. Whilst the threatened and priority survey methodology is similar for both the drill pads and tracks, they are discussed separately in the following sections.

4.3.1 Drill Pad Areas

Each drill pad in the Bungalbin East survey area was searched thoroughly to ensure all flora growing within the defined drill pad footprint was checked. The search area included a 5 m buffer beyond the boundary of each drill pad. In addition a search for threatened flora located within 50m of the drill pad boundary was undertaken. The following data was recorded when any threatened, priority or significant flora was located: GPS location, height (cm), number of plants and corresponding area of population, reproductive state, and plant condition. Any flora which could not be identified in the field was collected for subsequent identification, was treated as being potentially significant, and its location and population recorded.

4.3.2 Tracks

The search for threatened and priority flora along the existing tracks within the Bungalbin East survey area included the track, earth windrow and 5 m of area on each side of the track. The following data was recorded when any threatened, priority or significant flora was located: GPS location, height (cm), number of plants and corresponding area of population, reproductive state, and plant condition. Any flora which could not be identified in the field was collected for subsequent identification, was treated as being potentially significant, and its location and population recorded.

Calculations of direct impacts to threatened and priority flora are based on individuals recorded growing within either the drill pad area or on an existing track. Calculations of potential impacts to threatened and priority flora are based on individuals recorded growing within either the drill pad area or on an existing track, together with individuals recorded growing within the 5 m buffer zone about the drill pads and tracks.

All plant specimens collected during the field survey were dried and processed in accordance with the requirements of the Western Australian Herbarium. The plant species were identified through comparisons with pressed specimens housed at the Western Australian Herbarium. Where appropriate, plant taxonomists with specialist skills were consulted. Nomenclature of the species recorded generally follows that of Paczkowska & Chapman (2000).

4.4 Data Sources

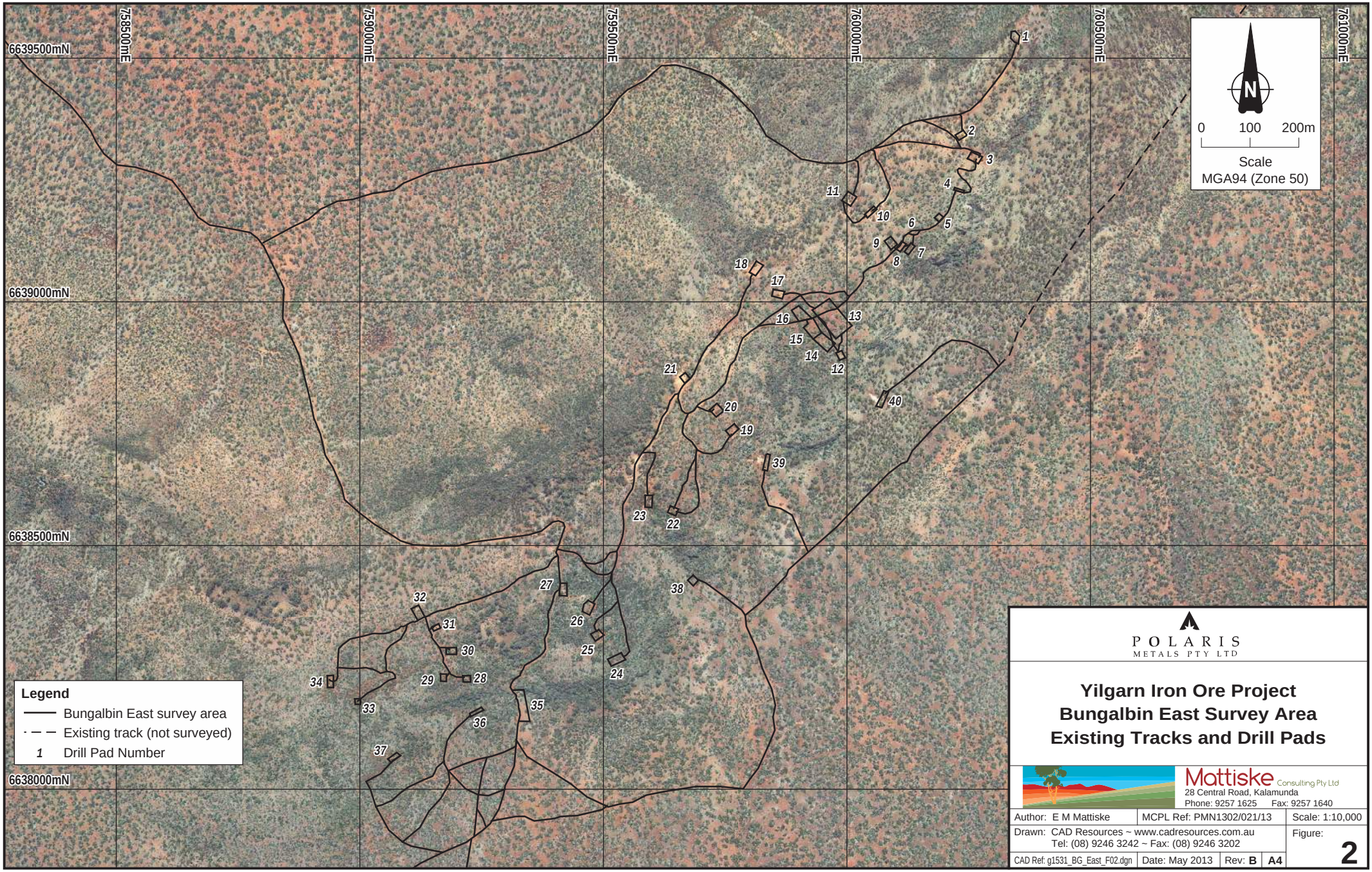
Data was acquired from several sources to compile regional population figures for threatened and priority flora. These sources were:

- Current and past surveys undertaken by Mattiske in the region
- Records from the DEC
- Records form the Western Australian Herbarium
- Data acquired from Cliff's Natural Resources Inc. (formerly Portman Iron Ore Ltd)

Data from the DEC and the Western Australian Herbarium was acquired by CAD Resources of Carine, Western Australia, on behalf of Mattiske. Data was acquired from Cliff's Natural Resources Inc. under a data sharing agreement with Polaris. The data acquired from Cliff's Natural Resources Inc. comprised data from the following tenements: M77/1097, E77/1383-I, E77/842-I, P77/3885-I, P77/3884-I,

P77/3886-I, M77/1242-I and M77/1095-I. All regional data used in this report was maintained by CAD Resources.

The regional data spans a geographical area defined from 704400 mE / 6699600 mN (north-west corner) to 823000 mE / 6546600 mN (south-east corner) – all coordinates are MGA94, zone 50. The area of coverage is 118.6 km by 153 km, representing an area of 18,146 km^2.



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Yilgarn Iron Ore Project
Bungalbin East Survey Area
Existing Tracks and Drill Pads

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:10,000
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CAD Ref: g1531_BG_East_F02.dgn	Date: May 2013 Rev: B A4	

5. DESKTOP SURVEY RESULTS

The Bungalbin East survey area is located 105 km NNE of the town of Southern Cross in the Shire of Yilgarn, and lies within the Coolgardie Botanical District (Beard 1990). More recently, the vegetation of Western Australia has been assigned to bioregions and subregions under the Interim Biogeographical Regionalisation for Australia (IBRA), with the survey area falling within the Southern Cross Subregion of the Coolgardie Bioregion.

5.1 Climate

Beard (1990) described the climate of the Coolgardie Botanical District as arid non-seasonal to semi-arid Mediterranean, characterised by an arid climate with cool winters and hot, dry summers. Annual precipitation in the Coolgardie Botanical District ranges from 200 mm to 300 mm. Winter rains consists mainly of small falls associated with the passage of cold fronts. Summer rains occur from thunderstorms or tropical cyclones that have degenerated into rain bearing depressions (Newbey 1985). Southern Cross Airfield is the closest active Bureau of Meteorology (BOM) weather station to the survey area. Rainfall and temperature data from Southern Cross Airfield is illustrated in Figure 3.

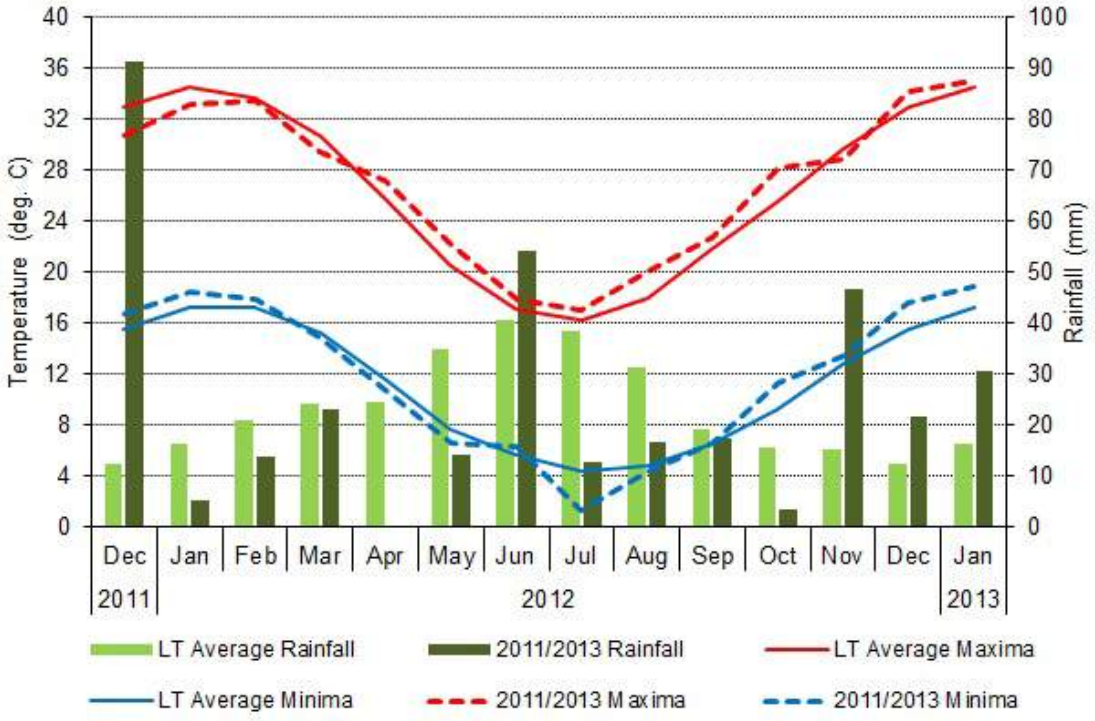


Figure 3: Rainfall and temperature data for Southern Cross Airfield (BOM 2013)
Long term average rainfall and temperature data, together with monthly rainfall and average maximum and minimum temperature data for the period December 2011 to January 2013 are shown.

5.2 Geology, Soils and Topography

The soils and topography of the Coolgardie Botanical District are broadly described by Beard (1981, 1990) as an area of low hills and broad valleys leading to salt lakes. There are occasional hills and elongate ridges that are dissected by numerous flood channels which terminate in extensive salt flats containing playa lakes. The most typical soils are neutral red earths which occupy the plains. Calcareous loams and brown calcareous earths are found in more hilly areas and saline soils in and around playa lakes.

The Bungalbin East survey area is situated within the Jackson area, as defined by Chin and Smith (1983). Chin and Smith (1983) mapped the geology of the Jackson area at a scale of 1: 250,000. A summary of the geological units associated with tenement M77/1097 is set out in Table 1. The Jackson area is situated near the centre of the Yilgarn Block, a stable Archaean craton consisting of belts of banded gneiss and layered sedimentary, volcanic and intrusive rocks, all of which a intruded by voluminous granitoids (Chin and Smith 1983). In all greenstone belts in the Jackson area, the banded iron formations (BIF) that have resisted erosion protrude as hills and prominent ranges composed of bands of iron rich rocks interspersed with basalt jaspilite, chert and other minerals at millimetre to centimetre scale (Chin and Smith 1983).

The banded iron formation in the Mt Jackson-Bungalbin area occurs at two stratigraphic levels separated by basalt. These two units, and thin banded iron formation within the basalt, characteristically contain banded dark grey to black iron-rich bands alternating with red jaspilite bands at centimetre scale. The red jaspilite is commonly boundinaged and disrupted due to mobilization of the iron rich bands (Chin and Smith 1983). The hills rise to 100 m above the surrounding plains and have stony slopes with bedrock exposures common on steep slopes and crests. Soils on the upper slopes are mainly skeletal, becoming shallow on lower slopes (Newbey 1985).

The Helena and Aurora Range, including Bungalbin Hill, represents the highest and largest example of hill (banded ironstone formation) in the Eastern Goldfields (Newbey & Hnatiuk 1985). This is a substantial range in the context of south west WA. The range is approximately 20 km long, with its highest peaks (e.g. Bungalbin Hill) being 600-700 m AMSL.

Table 1: Geology of the Bungalbin East survey area.
(Geology codes and descriptions from Chin & Smith 1983)

Tenement	Geology Code	Description
M77/1097	Aiw	Archaean: banded iron formation, quartz-grunerite-magnetite rock
	Agv	Archaean: Variably textured, medium and coarse grained, seriate granite and adamellite; locally porphyritic
	Qa	Cainozoic Quaternary: Alluvium – silt sand and gravel in stream channels
	Qc	Cainozoic Quaternary: colluviums – silt, sand and gravel on slopes adjoining rock and laterite outcrop

5.3 IBRA Regions

The Interim Biogeographic Regionalisation for Australia (IBRA) delineated 85 bioregions across Australia, based on a range of biotic and abiotic factors, including climate, vegetation, fauna, geology and landform (Thackway and Cresswell 1995; Environment Australia 2000). IBRA Version 7 refined the 85 bioregions and 403 subregions described in IBRA6.1), by expanding the number of bioregions to 89 and sub-regions to 419. The subregions represent more localised and homogenous geomorphologic units in each bioregion. IBRA7 includes four new oceanic bioregions, and seven new sub-regions in the oceanic bioregions and six new subregions in South Australia (DSEWPC 2013c). The Bungalbin East survey area lies within the COO2 – Southern Cross subregion of the Coolgardie bio-region. The COO2 subregion occupies an area of 7,041,232 ha (Cowan *et al.* 2001).

Cowan *et al*. (2001) described the Southern Cross (COO2) sub-region as physically comprising gently undulating uplands dissected by broad valleys with bands of low greenstone hills. The valleys have Quaternary duplex and gradational soils, and include chains of saline playa lakes. Floristically, the sub-region supports diverse *Eucalyptus* woodlands (*Eucalyptus salmonophloia, Eucalyptus salubris, Eucalyptus transcontinentalis, Eucalyptus longicornis*) rich in endemic eucalypts, occurring around these salt lakes, on the low greenstone hills, valley alluvial soils and broad plains of calcareous earths. The salt lake surfaces support dwarf shrublands of samphire. The granite basement outcrops at mid-levels in the landscape and supports swards of *Borya constricta*, with stands of *Acacia acuminata* and *Eucalyptus loxophleba*. Upper levels in the landscape are the eroded remnants of a lateritic duricrust yielding yellow sandplains, gravelly sandplains and laterite breakaways. Mallees (*Eucalyptus leptopoda*, *Eucalyptus platycorys* and *Eucalyptus scyphocalyx*) and scrub-heaths (*Allocasuarina corniculata, Callitris*

preissii, Melaleuca uncinata and *Acacia beauverdiana*) occur on these uplands. The scrubs are rich in endemic *Acacia* species and Myrtaceae.

5.4 Vegetation Surveys of the Eastern Goldfields

The present survey areas and the surrounding region have been the subject of a number of vegetation surveys since the late 19th century. The earliest reported surveys, by Spencer Le Marchant Moore (1899) and Diels (1906) were incorporated into texts which provided the earliest descriptions of plant life in Western Australia. Whilst written in a relatively narrative style, and considering the scale of the work, access problems and conditions present at the time of the surveys, they are consistent with current day observations, when taken at a broad scale. A considerable period of time elapsed prior to the publication of John Beard's historical surveys which were published in the 1960's and 1970's, together with detailed descriptions of the vegetation covering the state of Western Australia. A series of monographs by Dell *et al*. (Western Australian Museum Records Supplements) were subsequently published, in which more detailed survey work on the flora of the eastern Goldfields were described. The most recent survey efforts in the broader region have been reported by Neil Gibson and co-workers (Gibson *et al*. 1997, Gibson and Lyons 1998a, 1998b, 2001a, 2001b, Gibson 2004a, 2004b), whose studies focused on the vegetation of the banded ironstone ranges of the region.

5.4.1 Flora of the Interior of Western Australia

The first extensive flora description of the survey area was given in *'Flora of the Interior of Western Australia'* by Spencer Le Marchant Moore in 1899 (Diels 1906). In his expedition, Spencer travelled from the town of Southern Cross north-east to the town of Siberia, through the central goldfields and the sand plains of the survey area. Spencer (1899) described the division between the eucalypt woodlands of the Southern Cross region and the shrub sandplains as sudden, with the introduction of the yellow or white sands overlying granite, and the presence of much lower and thicker shrubs.

Although many of the species recorded by Spencer (1899) have been revised, he reported several major families as being commonly present across this area, namely, Myrtaceae (mainly from the Chamelaucieae group), Asteraceae (predominantly annual herbs) and Fabaceae (mainly from the Mimosoideae and Caesalpinioideae group). Spencer (1899) also reported the high diversity of plant species in this region, despite the lack of water and high summer temperatures, with special note to the remarkable post rain, but brief response of many annual herbs. A final feature described as being unique to this area was the presence of *Xanthorrhoea*, which Spencer (1899) noted was almost completely absent east of Southern Cross.

5.4.2 Plant Life of Western Australia

In 1906, Diels produced a text describing the major trends in vegetation across Western Australia. While this work focused primarily on the changes at a broad scale, it brought into context some of the ideas presented by Spencer (1899) and others. Diels (1906) described the Eremaean province as fairly uniform with changes to vegetation being largely influenced by soils. The Bungalbin East survey area lies within the southern Eremaean, as described by Diels (1906), being defined as below latitude 30°S. Diels (1906) described the major vegetation of the southern Eremaean as light woodlands of *Eucalyptus* over *Melaleuca, Acacia, Eremophila, Dodonaea* and *Casuarina* species alternating with sandy shrub heaths. In addition to this, Diels (1906) made special note of several families that were not present (or present in low numbers), as compared to other parts of Western Australia. These included Zamiaceae, Proteaceae, Epacridaceae, Orchidaceae and Restionaceae (Diels 1906). Diels (1906) attributed the vegetation of the southern Eremaean to the winter rain that reached its most northern and eastern extent within this area.

Within the southern Eremaean, Diels (1906) identified the sand heaths to be distinctly different to the light woodlands. In these areas, vegetation is *less* dominated by *Eucalyptus* species; with *Callitris* and *Grevillea* species being more prominent (Diels 1906). Diels (1906) described the sand plains as open and low, with an understorey dominated by Myrtaceae species (mainly *Calytrix* and *Melaleuca*), Lamiaceae species (mostly *Lachnostachys*, *Newcastelia* and *Dicrastylis*), Goodeniaceae species and Rutaceae species such as *Philotheca* and *Phebalium*. Diels (1906) also made special note of the significant presence of *Triodia rigidissima*, the occasional occurrence of *Codonocarpus cotinifolius*, and also of *Lepidobolus*, as its family, Restionaceae, is poorly represented in the wider Eremaean region.

5.4.3 Historical Vegetation Mapping by John Beard

The Bungalbin East survey area lies within the Coolgardie Botanical District, as defined by Beard (1990). Beard (1972b) mapped the vegetation of the Coolgardie Botanical District at a scale of 1:250,000. The dominant plant families within the Coolgardie Botanical District include Myrtaceae (myrtles such as Eucalypts and Melaleucas), Asteraceae (daisies), Chenopodiaceae (salt bushes) and Poaceae (grasses). The Coolgardie Botanical District is characterized by Eucalypt woodlands and covers 5% of the State of Western Australia (Beard 1990).

The Bungalbin East survey area is situated within the Bungalbin vegetation system (Beard 1972b, 1981). Beard (1969) defined a vegetation system as a particular series of plant communities recurring in a catenary sequence or mosaic pattern, linked to topographic, pedological, and/or geological features. A vegetation system is a sub-division of a botanical district. The Bungalbin System comprises the ironstone hills and outcrops of the survey area. The soils associated with the Bungalbin System are skeletal, except on the footslopes of the hills (Beard 1972). Beard (1972) recorded the vegetation as comprising small trees such as *Brachychiton gregorii* and *Banksia arborea* (P4) – on rocky outcrops; medium shrubs, including *Acacia quadrimarginea*, *Acacia aneura*, *Acacia tetragonophylla*, *Allocasuarina acutivalvis* and *Santalum spicatum*; and small shrubs, including *Eremophila oldfieldii*, *Philotheca brucei*, *Grevillea paradoxa*, *Eremophila clarkei*, *Ptilotus obovatus* and *Aluta appressa*.

5.4.4 Biological Survey of the Eastern Goldfields

The biological survey of the Eastern Goldfields covers the Jackson-Kalgoorlie study area, which lies between latitudes 30° and 31° south and longitudes 118° 30' and 120° 45' east (Dell 1985). Newbey (1985) developed 10 landform units in which to describe the landscape of the Eastern Goldfields. During the survey, a total of 166 sites were sampled to assess the vegetation and flora of the region (Newbey and Hnatiuk 1985). The sites were broadly classified on vegetation structure and plant species composition of the upper stratum into 52 types, including two vegetation complexes: Granite Complex and Breakaway Complex (Newbey and Hnatiuk 1985).

Three landform units identified by Newbey (1985) occur within the Bungalbin East survey area. These are the Hills (banded ironstone), Sandplain and Broad Valley. A summary of these landforms and their associated vegetation is presented below (Newbey 1985, Newbey & Hnatiuk 1985).

Hill (Banded Ironstone Formation) (HI)

The Hills rise up to 100 m above the surrounding plains. The slopes of the hills are stony with bedrock exposures common on steep slopes and crests. The Hills are covered with red sands - skeletal on the crest, upper and middle slopes, and shallow on the colluvial lower slope (Newbey 1985).

The vegetation on the hills of the Helena and Aurora range support *Banksia arborea* (P4) tall shrublands on the steep slopes, *Eucalyptus ebbanoensis* mallee and *Eucalyptus oleosa* on the upper and lower slopes, and *Acacia aneura* low woodland on the middle and lower slopes (Newbey and Hnatiuk 1985).

Growing in conjunction with *Banksia arborea* (P4) were other tall shrubs, including *Acacia quadrimarginea, Calycopeplus ephedroides (Calycopeplus paucifolius), Melaleuca leiocarpa* and *Grevillea obliquistigma*; low shrubs including *Ptilotus obovatus* var. *obovatus*; annuals such as *Blennospora drummondii, *Erodium cicutarium, Helipterum laeve, Helipterum strictum* and *Waitzia acuminata*; and the perennial grass *Stipa trichophylla (Austrostipa trichophylla)* (Newbey and Hnatiuk 1985).

Tall shrubs occurring with *Eucalyptus ebbanoensis* were *Calycopeplus ephedroides (Calycopeplus paucifolius), Banksia arborea* (P4), *Eremophila oppositifolia* and *Melaleuca leiocarpa*; low shrubs of *Allocasuarina campestris* subsp. *camprestris*; the annuals *Blennospora drummondii, Gilruthia osbornii, Helipterum fitzgibbonii, Helipterum roseum, Millotia myosuroides* and *Waitzia acuminata;* and the perennial grasses *Austrostipa elegantissima* and *Austrostipa eremophila* (Newbey and Hnatiuk 1985).

Occurring in *Acacia aneura* low woodland were tall shrubs of *Acacia tetragonophylla, Eremophila alternifolia* and *Dodonaea lobulata*; low shrubs of *Prostanthera campbellii* and *Prostanthera grylloana;* and the annuals, *Bellida graminea, Helipterum roseum, Helipterum strictum* and *Podolepis canescens* (Newbey and Hnatiuk 1985).

Eucalyptus oleosa mallee sometimes included mallee of *Eucalyptus loxophleba.* Usually present were tall shrubs of *Acacia acuminata, Acacia quadrimarginea, Allocasuarina acutivalvis, Dodonaea inaequifolia* and *Grevillea obliquistigma:* low shrubs of *Scaevola spinescens, Hibbertia pungens* and *Ptilotus obovatus* var. *obovatus* and the annuals *Erodium crinitum, Gilruthia osbornii, Helipterum roseum, Trachymene ornata, Velleia rosea* and *Waitzia acuminata* (Newbey and Hnatiuk 1985).

Sandplain (S)

The almost flat upland plain and the upper and middle valley slopes. The dividing line between Sandplain and Broad Valley is the change from erosional to colluvial valley slopes. Sandplain slopes rarely exceed 2° and the internal relief is rarely more than 15 m. Soils of the Sandplain have developed over a great period of time on a granite bedrock and have been laterized to some extent. They are highly leached, siliceous and slightly acidic. The soils consist of deep sands, gravelly sands and red sands (Newbey 1985).

The vegetation of the Sandplain consists of a mallee of *Eucalyptus foecunda*, *Eucalyptus leptopoda*, *Eucalyptus oldfieldii*, and a tall shrubland of *Acacia* aff. *aneura, Banksia elderiana and Callitris preissii* on deep sands. The shallow sands support low woodlands of *Eucalyptus corrugata* and *Acacia* aff. *aneura*, whilst the gravelly sands support a *Eucalyptus leptopoda* mallee and a tall shrubland of *Acacia* aff. *aneura, Allocasuarina acutivalvis and Allocasuarina campestris* (Newbey and Hnatiuk 1985).

Common tall shrubs growing on the sandplains include a mixture of *Allocasuarina* spp., *Grevillea* spp., *Hakea* spp. and *Phebalium* spp.; low shrubs of mixed Myrtaceous shrubs including *Baeckea* spp., *Thryptomene* spp. and *Melaleuca* spp., *Petrophile* spp. and perennial grasses of *Amphipogon strictus, Danthonia caespitosa* and *Triodia scariosa* and the sedges *Lepidosperma* spp. and *Lepidobolus preissianus.*

Broad Valley (V)

The Broad Valley landform is the choked remnant of a former drainage system which was active under a higher rainfall regime than presently occurs. The valley floors are flat to gentle-concave, with slopes of less than 2°, and 20-50 m below the surrounding Sandplain. The soils have an intricate history of *in situ* weathering, colluvial, alluvial and aeolian action. The soils consist of alluvium, red cracking clays and deep calcareous earths. An important soil aspect is the calcareous B horizon. Valley carbonates have been largely leached from the surrounding Sandplain (Newbey 1985).

The vegetation of the deep calcareous earths of the Broad Valley consists of *Eucalyptus salmonophloia* woodland, and a low woodland composed of *Eucalyptus clelandii*, *Eucalyptus corrugata*, *Eucalyptus longicornis*, *Eucalyptus salubris*, *Eucalyptus sheathiana* and *Eucalyptus transcontinentalis* (Newbey and Hnatiuk 1985).

Eucalyptus salmonophloia woodland occasionally contains other trees such as *Eucalyptus transcontinentalis* or mallees of *Eucalyptus gracilis* var. *gracilis*. Also present were tall shrubs of *Atriplex nummularia* subsp. *spathulata, Eremophila scoparia* and *Santalum acuminatum.* Low shrubs included *Atriplex vesicaria* subsp. *variabilis, Cassia nemophila* var. *nemophila, Sclerolaena diacantha;* the annuals *Cephalipterum drummondii, Menkea australis, Ptilotus exaltatus* var. *exaltatus*, *Zygophyllum ovatum* and the perennial grasses *Austrostipa eremophila* and *Austrostipa trichophylla* (Newbey and Hnatiuk 1985).

The mixed *Eucalyptus* spp. low woodland included tall shrubs of *Eremophila scoparia,* low shrubs including *Atriplex nummularia* subsp. *spathulata, Atriplex vesicaria* subsp. *variabilis, Cassia nemophila* var. *nemophila, Sclerolaena diacantha, Sclerolaena drummondii*, annuals including *Helipterum* spp. And the perennial grass *Austrostipa trichophylla* (Newbey and Hnatiuk 1985).

Figure 4 illustrates the mapping of vegetation units defined by Dell and How (1985) in the vicinity of the Bungalbin East survey area.

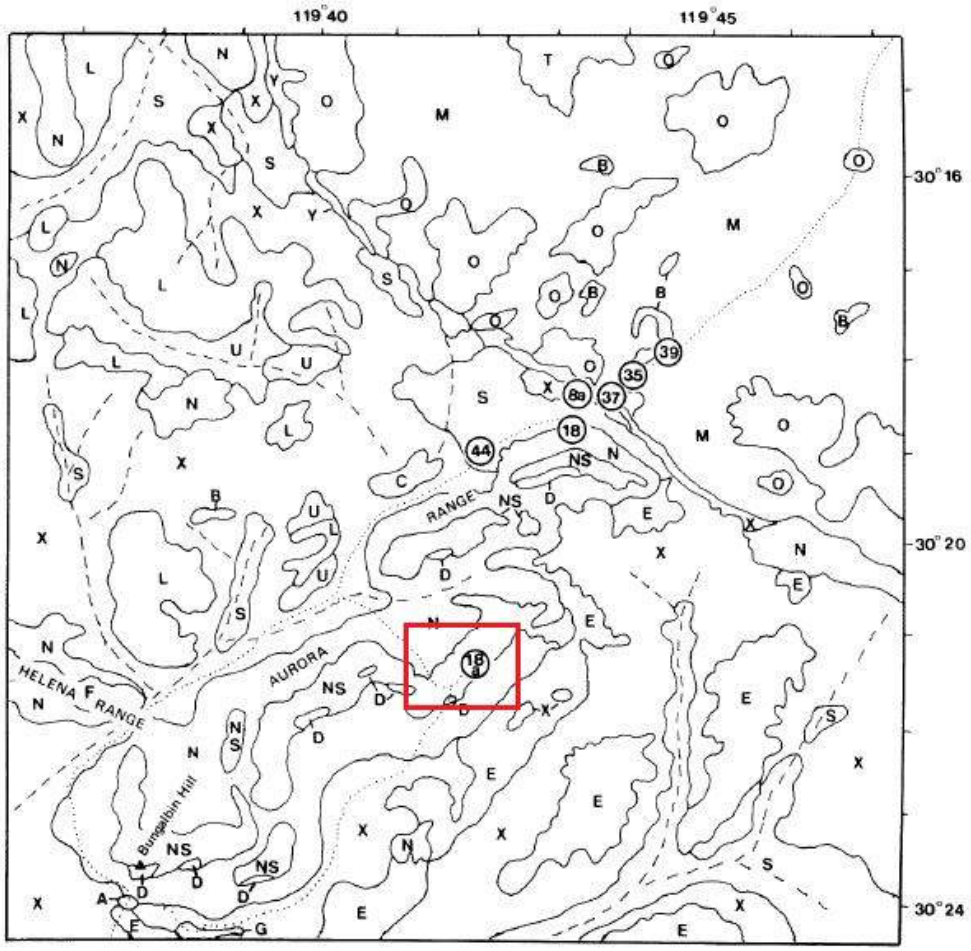


Figure 4: Distribution of vegetation types defined by Dell and How (1985) in the vicinity of the Helena and Aurora Ranges
The locality of the Bungalbin East survey area is indicated by the red circle. Vegetation types in the vicinity of the Bungalbin East survey area are: D – *Banksia arborea* (P4) tall shrubland, E – *Eucalyptus oleosa* mallee, N – *Eucalyptus ebbanoensis* mallee on pediment, NS - *Eucalyptus ebbanoensis* mallee on erosional slopes, X – *Eucalyptus* mixed low woodland.

5.4.5 Surveys of the Helena and Aurora Range (Gibson *et al.*)

The banded iron ranges of the Eastern Goldfields have been the subject of flora and vegetation surveys in the 1990's and 2000's. The survey work had been undertaken by the DEC, by Neil Gibson and others. These surveys focused on the following ranges:

- Helena and Aurora Range (Gibson *et al*. 1997)
- Bremer Range (Gibson and Lyons 1998a)
- Parker Range (Gibson and Lyons 1998b)
- Highclere Hills (Gibson and Lyons (2001a)
- Hunt, Yendilberin and Watt Hills (Gibson and Lyons (2001b)
- Mt Manning Range (Gibson 2004a)
- Middle and South Ironcap, Digger Rock and Hatter Hill (Gibson 2004b)

The Bungalbin East survey area lies towards the eastern extent of the Helena and Aurora Range. The most detailed floristic survey of the Helena and Aurora Range to date is that of Gibson *et al*. (1997). In that survey, the authors established 55 quadrats and recorded a total of 324 taxa on the Helena and Aurora Range, its slopes and the outwash plain. The results of the survey demonstrated a strong correlation between plant community type, topographic position and slope.

A number of flora of conservation significance were recorded during the survey of Gibson *et al*. (1997), a number of which have been the subject of taxonomic and conservation status revision in the intervening years. When these revisions are taken into account, the taxa of conservation significance recorded during the survey were *Leucopogon spectabilis* (T), *Tetratheca aphylla* subsp. *aphylla* (T), *Acacia adinophylla* (P1), *Gnephosis intonsa* (P1), *Phlegmatospermum eremaeum* (P2), *Acacia cylindrica (*P3), *Grevillea georgeana* (P3), *Lepidosperma ferricola* (P3), *Neurachne annularis* (P3), *Stenanthemum newbeyi* (P3), *Banksia arborea* (P4), and *Grevillea erectiloba* (P4).

Six floristic community types were identified by Gibson *et al.* (1997). The distribution of these floristic communities correlated strongly with topographic position and slope. The community types identified were:

Community types 1 & 2: *Acacia quadrimarginea*, *Grevillea zygoloba*, *Allocasuarina acutivalvis*, *Melaleuca nematophylla*, *Banksia arborea* (P4) and *Calycopeplus paucifolius* woodlands and shrublands on skeletal yellow or red soils of the ridge tops and upper slopes of the Helena and Aurora Range;

Community type 2: Woodlands dominated by *Eucalyptus ebbanoensis* and/or *E. corrugata* or *E. capillosa* subsp. *capillosa* on the small breakaways with *Alyxia buxifolia* and/or *Stenanthemum newbeyi* in understorey. This community was entirely restricted to massive ironstone tops, the upper slopes and breakaways of the range;

Community type 3: Open side slopes of the Helena and Aurora Range dominated or co-dominated by *Eucalyptus ebbanoensis* and/or *E. corrugata*, with an understorey dominated by *Neurachne annularis* (P3). Occasionally this community may be dominated by *Acacia* spp. rather than the eucalypt species;

Community type 4: Lower slopes and flats below the Helena and Aurora Range variously dominated by *Acacia aneura*, *A. resinimarginea* or *A. acuminata*, or occasionally by *Eucalyptus ebbanoensis* and/or *E. hypochlamydea* subsp. *hypochlamydea*. Where eucalypts dominate, the understorey includes taxa such as *Grevillea zygoloba* and *Eremophila clarkei*. Most constant understorey species is *Neurachne annularis* (P3), *Austrostipa elegantissima*, *Olearia pimeleoides* and *Dianella revoluta*. There is almost a complete lack of chenopod species;

Community type 5: Eucalypt woodlands on the flats below the range with a diverse chenopod understorey. This group is divided into two sub-groups: Type 5a - woodlands close to the change in slope where *Eucalyptus ebbanoensis* and *E. corrugata* form an overstorey over chenopods and *Neurachne annularis* (P3); and Type 5b - woodland with *Eucalyptus salmonophloia*, *E. salubris, E. longicornis, E. sheathiana* and *E. transcontinentalis* on the extensive flats between the ranges where the slope species decline; and

Community type 6: consisted of three heterogeneous species poor quadrats. This community type appears to have been delineated due to the sensitivity of the analysis to species richness.

Subsequent to the survey of the Helena and Aurora Ranges in the 1990's, the area has been designated as a priority ecological community, and is described by the DEC as the Helena and Aurora Range vegetation complexes (banded ironstone formation), a priority 1 ecological community (DEC 2013f).

The Bungalbin East survey area intersects three of the community types described by Gibson et al. (1997). These are Community types 1, 2 and 3.

5.4.6 Banded Ironstone Formation Ranges of the Midwest and Goldfields

The banded ironstone formation ranges of the Midwest and Goldfields Report, compiled by the DEC (2007a), outlines the biodiversity values of banded ironstone formations (BIF) of the Yilgarn Craton and provides criteria for conservation decisions and recommendations for their management. The report was written to highlight the unique biodiversity values of the BIF ranges and their future sustainability. Only two of the ranges referred to in the report are within conservation reserves, one of which is the Helena and Aurora Range.

The Helena and Aurora Range Conservation Park (~147,395 ha) was established in 2005 to conserve the unique flora and vegetation that is associated with the Helena and Aurora Range. Tenement M77/1097, within which the Bungalbin East survey area is situated, lies wholly within Crown Reserve 48470, the Helena and Aurora Range Conservation Park (DEC 2008). The Bungalbin East prospect survey area is located on a banded iron hill which forms part of the Helena and Aurora Range.

The DEC considers the Helena and Aurora Range as intact and protectable and a high priority for conservation (DEC 2007a). Recommendations from the report advocate protection of the Helena and Aurora Range and no development that will have a negative impact on the long term viability of threatened species and communities (DEC 2007a).

5.5 Pre-European Vegetation

The pre-European vegetation dataset, prepared through the National Land and Water Resources Audit, describes vegetation in relation to natural resource boundaries commonly used for environmental reporting (Shepherd *et al.* 2002). The pre-European vegetation dataset builds on the vegetation map database developed by G.R. Beeston and A.J.M. Hopkins, based on 1: 250,000 scale mapping. A total of 819 vegetation types were recognised in Western Australia ranging from tall forests, through a wide variety of forests and woodlands, shrublands and grasslands, mostly with an overstorey of trees. The identification of the original pre-European and current extent of each of the vegetation types assist in providing baselines for managing issues such as land clearing.

The pre-European vegetation dataset identified eight vegetation types as occurring within the region surrounding the Bungalbin East survey area (DEC 2007b), namely:

- Mixed open woodland of *Eucalyptus lesouefii, Eucalyptus salmonophloia* and *Eucalyptus transcontinentalis* over *Eremophila scoparia, Eremophila alternifolia* and *Eremophila decipiens;*
- Mixed *Acacia* thicket of *Acacia neurophylla, Acacia sp. aff aciphylla* and *Acacia acuminata* over *Eremophila oppositifolia, Grevillea juncifolia* and *Daviesia grahamii* on sandplains;
- Mixed woodland of *Eucalyptus salmonophloia, Eucalyptus longicornis* and *Eucalyptus salubris* over mixed *Acacia* spp., *Angianthus tomentosus, Anguillaria dioica* and *Podolepis gnaphalioides;*
- Mixed woodland of *Eucalyptus salmonophloia, Eucalyptus loxophleba* and *Eucalyptus salubris* over *Acacia acuminata, Alyxia buxifolia* over mixed herbs;
- Open mallee shrubland of *Eucalyptus oleosa* over *Acacia* spp. over *Triodia scariosa* and *Triodia rigidissima;*
- Mixed open woodland of *Acacia resinimarginea, Callitris preissii* subsp. *verrucosa* and *Eucalyptus oleosa* var. *plenissima* woodland over mixed open heath;
- Mixed *Acacia* open shrubland of *Acacia microbotrya, Acacia acuminata* and *Acacia burkittii* over *Acacia andrewsii, Boronia ternata, Calytrix brachyphylla* and mixed herbs on shallow soils;
- Closed *Acacia* shrubland of *Acacia aneura, Acacia quadrimarginea* and *Acacia tetragonophylla* with emergent *Brachychiton gregorii* and *Banksia arborea* over mixed shrubs; and
- Mixed woodland of *Eucalyptus salmonophloia, Eucalyptus loxophleba* and *Eucalyptus salubris* over *Acacia acuminata, Alyxia buxifolia* and mixed herbs.

Although the extent of native vegetation remains largely intact within the inland areas of Western Australia, the structure and floristic composition have been altered since European settlement through grazing by introduced animals such as sheep, cattle goats and rabbits, mining activities and by altered fire regimes (Shepherd *et al*. 2002).

Tenement M77/1097, which contains the Bungalbin East survey area, intersects two vegetation associations (Shepherd *et al*. 2002; Figure 5). These vegetation associations are:

Vegetation association 141 - medium woodland; York gum, salmon gum & gimlet; and

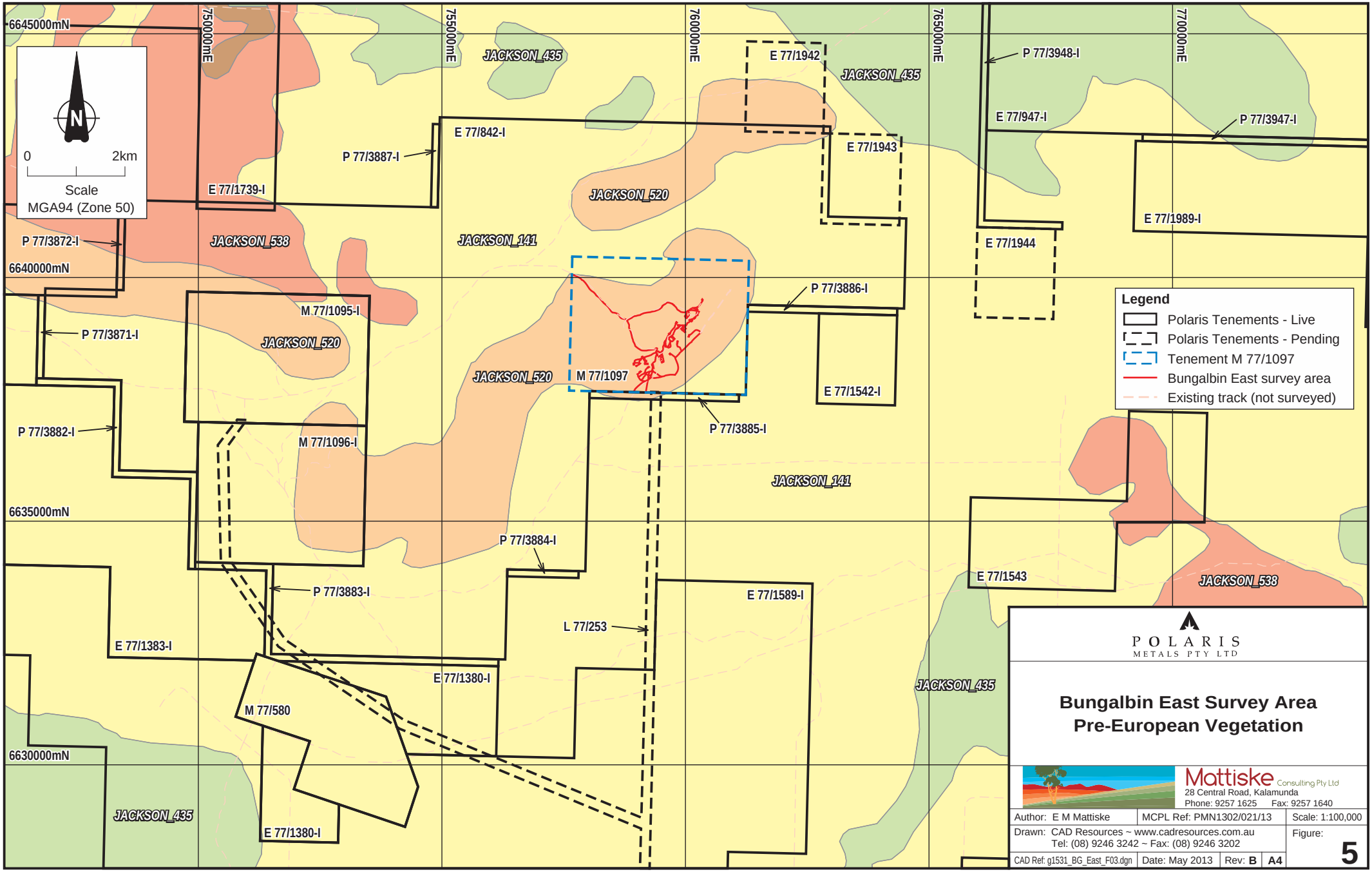
Vegetation association 520 - shrublands, *Acacia quadrimarginea* thickets.

The pre-European and current extent of the vegetation associations which intersect both tenement M77/1097 and the Bungalbin East survey area are illustrated in Figure 5. The areas of each of the vegetation sub-associations intersecting both tenement M77/1097 and the Bungalbin East survey area are set out in Table 2. The Bungalbin East survey area only intersects vegetation association 520, which is associated with the slopes and ridges of the hill which comprises the Helena and Aurora Range. It should be noted that the data (Government of Western Australia 2011) only reports on the status of reserves within the DEC managed estate.

Table 2: Extent of Beard vegetation sub-associations intersecting tenement M77/1097, and the Bungalbin East survey area

Data source: Government of Western Australia 2011.

	Statewide			Survey Area	
Vegetation Sub-Association	**Pre-European Extent (ha)**	**Current Extent (ha)**	**Percent Remaining**	**Area of Intersection (ha)**	**Proportion of Current Extent (%)**
Tenement M77/1097					
141.3	644,279.88	643,912.31	99.94	204.45	0.03
520.0	23,184.91	22,979.42	93.11	793.53	3.45
Bungalbin East survey area					
141.3	644,279.88	643,912.31	99.94	0	0
520.0	23,184.91	22,979.42	93.11	5.79	0.03



POLARIS METALS PTY LTD

Bungalbin East Survey Area
Pre-European Vegetation

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:100,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: 5
CAD Ref: g1531_BG_East_F03.dgn	Date: May 2013	Rev: B A4

5.6 Surveys by Mattiske Consulting Pty Ltd

Mattiske has undertaken a number of surveys in the vicinity of the Bungalbin East survey area between 2007 and 2012. The majority of these surveys have been targeted at flora associated with potential drill hole locations or potential exploration camp locations. A record of these surveys is set out in Table 3.

Table 3: Mattiske surveys in the vicinity of the Bungalbin East survey area

Survey Type [Report Reference]	Survey Dates	Number of Days	Number of Person Days
Flora and vegetation of proposed drill hole sites in tenement E77/1097: Musca (25 drill holes) and J4 Extension (13 drill holes). [Mattiske 2007a]	28/08/2007 - 29/08/2007	2	4
Flora and vegetation of proposed drill hole sites in tenement E77/842: Bungalbin Eastern (61 drill holes). [Mattiske 2007b]	20/11/2007 – 22/11/2007	3	6
Flora and vegetation of proposed Bungalbin Camp Site. [Mattiske 2007c]	19/11/2007, 20/11/2007 & 22/11/2007	3	6
Flora and vegetation of proposed drill hole sites in tenement E77/842: Bungalbin Central Prospect (24 drill holes). [Mattiske 2008a]	6/03/2008	1	5
Flora and vegetation of proposed infill drill hole sites in tenement E77/842: Bungalbin Eastern (81 drill holes). [Mattiske 2008b]	5/02/2008 – 6/02/2008	2	8
Flora and vegetation of proposed infill drill hole sites in tenement E77/1097: J4 Prospect (111 drill holes). [Mattiske 2008c]	5/03/2008 & 6/03/2008	2	8
Flora and vegetation of proposed infill drill hole sites in tenement E77/1097: Musca Prospect (251 drill holes). [Mattiske 2008d]	7/02/2008	1	2
Flora and vegetation of proposed infill drill hole sites in tenement E77/842: J5 Prospect (48 drill holes). [Mattiske 2008e]	6/02/2008 & 7/02/2008	2	8
Helena & Aurora Ranges: Declared Rare Flora and Priority Flora Population Study. [Mattiske 2010]	7/09/2010 – 9/09/2010 and 16/11/201 – 18/11/2010	6	30
Threatened and priority flora survey in tenement M77/1096: proposed Bungalbin Central Exploration Camp. [Mattiske 2011]	18/10/2011	1	2
Threatened and priority flora survey: proposed drill hole locations in Tenement M77/1242 and E77/1097 – J4 Prospect. [Mattiske 2012]	22/05/2012 – 24/05/2012	3	6
Total survey effort		**26**	**85**

During the surveys undertaken by Mattiske between 2007 and 2012 a range of threatened and priority flora were recorded. These are set out in Table 4.

Table 4: Threatened and priority flora recorded by Mattiske between 2007 and 2012 in the vicinity of the Bungalbin East survey area

SCC = State Conservation Code (DEC); FCC = Federal Conservation Code (DSEWPC 2013a).

Species	SCC	FCC	Prospect (s)
Leucopogon spectabilis	T	E	Bungalbin East
Tetratheca aphylla subsp. *aphylla*	T	V	Bungalbin Central, Bungalbin East
Acacia adinophylla	P1	-	Bungalbin East, J5
Acacia sp. Bungalbin Hill (J.J. Alford 1119)	P1	-	Bungalbin East
Lepidosperma bungalbin	P1	-	Bungalbin East
Austrostipa blackii	P3	-	Bungalbin East
Grevillea georgeana	P3	-	Bungalbin East
Hibbertia lepidocalyx subsp. tuberculata	P3	-	Bungalbin East
Mirbelia ferricola	P3	-	Bungalbin East
Neurachne annularis	P3	-	Bungalbin Central, Bungalbin East,
Spartothamnella sp. Helena & Aurora Range (P.G. Armstrong 155-109)	P3	-	Bungalbin East
Stenanthemum newbeyi	P3	-	Bungalbin Central, Bungalbin East, J5
Banksia arborea	P4	-	Bungalbin Central, Bungalbin East, J4, J5
Eucalyptus formanii	P4	-	Bungalbin East
Grevillea erectiloba	P4	-	Bungalbin Central, Bungalbin East

Mattiske has defined a number of vegetation communities in the region to the east of the Bungalbin East survey area (Mattiske 2009) associated with ironstone hills. The vegetation associated with the ridge tops and upper slopes of ironstone hills as defined by Mattiske (2009) and which had the potential to be encountered during the survey of Bungalbin East prospect area. The vegetation communities include:

S2: Scrub of *Allocasuarina campestris, Casuarina pauper, Banksia arborea* (P4), *Melaleuca hamata, Melaleuca nematophylla, Acacia sibina, Calycopeplus paucifolius* and *Brachychiton gregorii* over *Baeckea elderiana* and *Philotheca brucei* subsp. *brucei* and *Eremophila decipiens* subsp. *decipiens*, with emergent *Eucalyptus ewartiana, Eucalyptus horistes* and *Eucalyptus oleosa* subsp. *oleosa* on red-brown clay upper slopes and ridges.

S5: Scrub of *Allocasuarina campestris* over *Acacia tetragonophylla* and *Alyxia buxifolia* over *Melaleuca leiocarpa*, *Philotheca brucei* subsp. *brucei*, *Eremophila decipiens* subsp. *decipiens* and *Exocarpos aphyllus* over *Scaevola spinescens*, *Prostanthera grylloana* and *Phebalium megaphyllum* on red-brown clay with quartz pebbles on lower slopes.

S6: Scrub of *Acacia burkittii, Grevillea zygoloba*, *Hakea francisiana* and *Baeckea elderiana* over low scrub of *Prostanthera grylloana* and *Philotheca brucei* subsp. *brucei* and with emergent mixed eucalypts on low to mid slopes.

5.7 Nature Reserves / Conservation Parks (DEC managed lands)

Tenement M77/1097, within which the Bulgalbin East survey area is situated, lies wholly within Crown Reserve 48470, the Helena and Aurora Range Conservation Park (Figure 6). The Helena and Aurora Range Conservation Park (~147,395 ha) was established in 2006 to conserve the unique flora and vegetation that is associated with the Helena and Aurora Range. The Bungalbin East prospect survey area is located on a banded iron hill which forms part of the Helena and Aurora Range.

5.8 Threatened Ecological Communities

No threatened ecological communities (TECs), pursuant to Schedule 1 of the *Wildlife Conservation Act 1950* and as listed by the DEC (2013b), are currently listed in the Coolgardie Botanical District. No TECs, pursuant to the *Environment Protection and Biodiversity Conservation Act 1999*, and as listed by the DSEWPaC (2013b), are currently listed in the Coolgardie Botanical District.

5.9 Priority Ecological Communities

There are 58 priority ecological communities (PECs) defined and listed in the Goldfields Region (DEC 2013f). The Bungalbin East survey area lies within the Helena and Aurora Range vegetation complexes (banded ironstone formation), a priority 1 ecological community. The DEC has identified the main threat to this PEC as mining (DEC 2013f). The relative location of tenement M77/1097 and the Bungalbin East survey area in relation to the Helena and Aurora Range vegetation complexes (banded ironstone formation) is illustrated in Figure 6.

Advice provided by the DEC (V. English pers. comm.) in relation to the Helena and Aurora vegetation complexes (P1) is as follows: the Helena and Aurora Range vegetation complexes (banded ironstone formation) is made up of vegetation associations:

Helena Aurora 1: *Acacia quadrimarginea*, *Grevillea zygoloba*, *Allocasuarina acutivalvis*, *Melaleuca nematophylla*, *Banksia arborea* (P4) and *Calycopeplus paucifolius* woodlands and shrublands on skeletal yellow or red soils of the ridge tops and upper slopes of the Helena and Aurora Range (Gibson *et al*. 1997);

Helena Aurora 2: Woodlands dominated by *Eucalyptus ebbanoensis* and/or *E. corrugata* or *E. capillosa* subsp. *capillosa* on the small breakaways with *Alyxia buxifolia* and/or *Stenanthemum newbeyi* in understorey (Gibson *et al*. 1997);

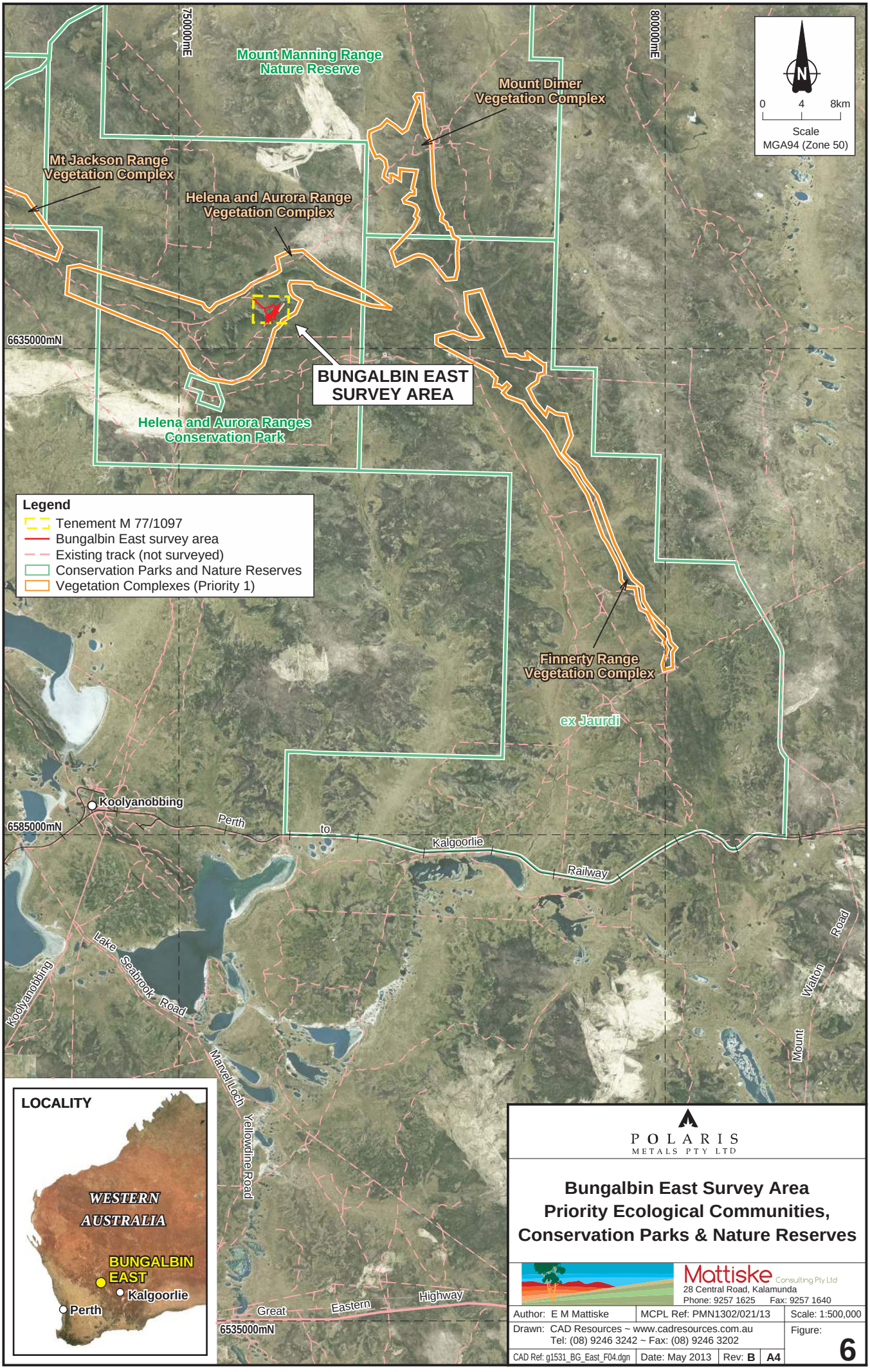
Helena Aurora 3: Open side slopes of the Helena and Aurora Range dominated or co-dominated by *Eucalyptus ebbanoensis* and/or *E. corrugata*, with an understorey dominated by *Neurachne annularis* (P3). Occasionally this community may be dominated by *Acacia* spp. rather than the eucalypt species. (Gibson *et al*, 1997);

Helena Aurora 4: Lower slopes and flats below the Helena and Aurora Range variously dominated by *Acacia aneura*, *A. resinimarginea* or *A. acuminata*, or occasionally by *Eucalyptus ebbanoensis* and/or *E. hypochlamydea* subsp. *hypochlamydea*. Where eucalypts dominate, the understorey includes taxa such as *Grevillea zygoloba* and *Eremophila clarkei*. Most constant understorey species is *Neurachne annularis* (P3), *Austrostipa elegantissima*, *Olearia pimeleoides* and *Dianella revoluta*. Almost complete lack of chenopod species (Gibson *et al*. 1997);

Helena Aurora 5a: Woodlands close to the change in slope where Eucalyptus ebbanoensis and E. corrugata form an overstorey over chenopods and *Neurachne annularis* (P3) (Gibson *et al*. 1997); and

Helena Aurora 5b: Eucalypt woodland with *Eucalyptus salmonophloia*, *E. salubris, E. longicornis, E. sheathiana* and *E. transcontinentalis* dominating ad different sites (Gibson *et al*. 1997).

The Bungalbin East survey area intersects three of the vegetation associations described as comprising the Helena and Aurora Range vegetation complexes (banded ironstone formation) (P1). These are the Helena Aurora 1, 2 and 3 vegetation associations. It should be noted that the vegetation associations currently used to define the Helena and Aurora Range vegetation complexes (banded ironstone formation) (P1) do not necessarily represent the complete suite of vegetation associations which may potentially be present. The current list of vegetation associations is based on the work of Gibson *et al*. (1997). That survey did not attempt to map the vegetation of the Helena and Aurora Range. More detailed and wide ranging surveys, combined with intensive vegetation mapping has the potential to reveal other vegetation associations, which are presently not defined.



POLARIS METALS PTY LTD

Bungalbin East Survey Area
Priority Ecological Communities, Conservation Parks & Nature Reserves

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:500,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: 6
CAD Ref: g1531_BG_East_F04.dgn	Date: May 2013	Rev: B A4

5.10 Threatened and Priority Flora

The desktop survey for threatened and priority flora which may potentially occur within the Bungalbin East survey area was undertaken using the resources of NatureMap (DEC 2007b), the Western Australian Herbarium (DEC 2013g), Atlas of Living Australia (2013) and the DSEWPaC (2013a, 2013b, 2013d). A 25 km search radius about the central point of the Bungalbin East prospect survey area (759490 mE, 6638508 mN, MGA94 zone 50) was used to determine the presence of known threatened and priority taxa in the vicinity of the Bungalbin East survey area. In addition to data which was accessed through NatureMap (DEC 2007b), data from previous surveys of the Bungalbin East area between 2007 and 2012, undertaken by Mattiske (2007a, 2007b, 2007c, 2008a, 2008b, 2008c, 2008d, 2008e, 2010, 2011, 2012), were incorporated into the desktop survey results to provide a more comprehensive list of threatened and priority taxa which may be encountered in the survey area.

In the vicinity of the Bungalbin East survey area there are two known threatened flora taxa and 36 known priority flora taxa. The 36 priority taxa are composed of eight priority 1, two priority 2, 21 priority 3 and five priority 4 taxa (DEC 2013g).

Two threatened flora taxa pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act 1950*, and as listed by the DEC (2013b) have been recorded within the 25 km buffer about the proposed Bungalbin East prospect survey area. These taxa are listed in Table 5. The DSEWPaC (2013a) lists *Tetratheca aphylla* (the Bungalbin Tetratheca) as a vulnerable species. All subspecies of *Tetratheca aphylla* are considered vulnerable. *Leucopogon spectabilis* is listed as a critically endangered species according to the DSEWPaC (2013a).

An assessment of the likelihood of recording either of the listed threatened taxa within the Bungalbin East survey area, based on factors including known soil type, topography and distribution, is set out in Appendix C. Based on this assessment, with both taxa having previously been recorded by Mattiske in previous surveys of the Bungalbin East prospect area, both threatened taxa have a high potential to occur within the Bungalbin East survey area because: (1) the soils and landforms which are their preferred habitat are known to occur within the survey area; (2) both species are known to occur on the Helena and Aurora Range; and (3) both species have been previously recorded by Mattiske in the vicinity of the Bungalbin East survey area.

Table 5: Threatened flora recorded in the vicinity of the Bungalbin East survey area
SCC = State Conservation Code (DEC); FCC = Federal Conservation Code (DSEWPC 2013a). Refer to Appendix A for definitions of threatened flora categories.

Species	Family	SCC	FCC
Leucopogon spectabilis	Ericaceae	T	E
Tetratheca aphylla subsp. *aphylla*	Elaeocarpaceae	T	V

Thirty six priority flora species have been recorded within the 25 km search buffer about the proposed Bungalbin East survey area. These are listed in Table 6. An assessment of the likelihood of recording any of the listed priority taxa within the Bungalbin East survey area, based on factors including known soil type, topography and distribution, is set out in Appendix C.

Based on this assessment, six taxa have a high likelihood of being recorded within the Bungalbin East survey area. These taxa are: *Acacia adinophylla* (P1), *Hibbertia lepidocalyx* subsp. *tuberculata* (P3), *Neurachne annularis* (P3), *Stenanthemum newbeyi* (P3), *Banksia arborea* (P4) and *Grevillea erectiloba* (P4). In addition a further seven taxa have a medium likelihood of being recorded within the Bungalbin East survey area. These taxa are: *Acacia* sp. Bungalbin Hill (J.J. Alford 1119) (P1), *Lepidosperma bungalbin* (P1), *Grevillea georgeana* (P3), *Lepidosperma ferricola* (P3), *Mirbelia ferricola* (P3), *Spartothamnella* sp. Helena & Aurora Range (P.G. Armstrong 155-109) (P3) and *Styphelia* sp. Bullfinch (M. Hislop 3574) (P3).

Table 6: Priority flora with the potential to occur in the Bungalbin East survey area
SCC = State Conservation Code (DEC). Refer to Appendix A for definitions of conservation codes.

Species	Family	SCC
Acacia adinophylla	Fabaceae	P1
Acacia sp. Bungalbin Hill (J.J. Alford 1119)	Fabaceae	P1
Baeckea sp. Helena and Aurora Range (G.J. Keighery 4424)	Myrtaceae	P1
Chamelaucium sp. Koolyanobbing (V. Clarke 644)	Myrtaceae	P1
Gnephosis intonsa	Asteraceae	P1
Lepidosperma bungalbin	Cyperaceae	P1
Persoonia leucopogon	Proteaceae	P1
Philotheca deserti subsp. *brevifolia*	Rutaceae	P1
Goodenia jaurdiensis	Goodeniaceae	P2
Phlegmatospermum eremaeum	Brassicaceae	P2
Acacia cylindrica	Fabaceae	P3
Acacia formidabilis	Fabaceae	P3
Astartea sp. Bungalbin Hill (K.R. Newbey 8989)	Myrtaceae	P3
Austrostipa blackii	Poaceae	P3
Baeckea sp. Bungalbin Hill (B.J. Lepschi & L.A. Craven 4586)	Myrtaceae	P3
Banksia lullfitzii	Proteaceae	P3
Bossiaea sp. Jackson Range (G. Cockerton & S. McNee LCS 13614)	Fabaceae	P3
Calytrix creswellii	Myrtaceae	P3
Dillwynia acerosa	Fabaceae	P3
Grevillea georgeana	Proteaceae	P3
Hibbertia lepidocalyx subsp. *tuberculata*	Dilleniaceae	P3
Homalocalyx grandiflorus	Myrtaceae	P3
Lepidosperma ferricola	Cyperaceae	P3
Mirbelia ferricola	Fabaceae	P3
Neurachne annularis	Poaceae	P3
Melichrus sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)	Ericaceae	P3
Spartothamnella sp. Helena & Aurora Range (P.G. Armstrong 155-109)	Lamiaceae	P3
Stenanthemum newbeyi	Rhamnaceae	P3
Stylidium choreanthum	Stylidiaceae	P3
Styphelia sp. Bullfinch (M. Hislop 3574)	Ericaceae	P3
Verticordia mitodes	Myrtaceae	P3
Banksia arborea	Proteaceae	P4
Eremophila caerulea subsp. *merrallii*	Scrophulariaceae	P4
Eucalyptus formanii	Myrtaceae	P4
Grevillea erectiloba	Proteaceae	P4
Sowerbaea multicaulis	Asparagaceae	P4

6. FIELD SURVEY RESULTS

The Bungalbin East survey area consisted of a 5.79 ha area, comprising 40 drill pad locations and 11.6 km of tracks, principally located on the upper slope and ridge areas towards the eastern end of the Helena and Aurora Range. The Bungalbin East survey area is located within tenement M77/1097. The survey for threatened and priority flora consisted of the existing tracks and drill pad areas, together with a 5 m buffer zone. The majority of the tracks were in good condition and relatively free of vegetation cover.

6.1 Survey Limitations and Constraints

An assessment of the survey against a range of factors which may have had an impact on the outcomes of the present survey was made (Table 7). Based on this assessment, the present survey has not been subject to constraints which would affect the thoroughness of the survey, and the conclusions which have been formed.

6.2 Potential Impacts to Vegetation Associations in Survey Area

An assessment of the impacts to vegetation associations within tenement M77/1097 resulting from the clearing of existing tracks and drill pad areas, is based on the following criteria (refer to Figures 2 and 5):

- 40 drill pads: total area to be cleared = 1.72 ha.
- 11.6 km of tracks: total area to be cleared, based on a nominal 3.5 m track width = 4.07 ha

All track and drill pad areas surveyed were previously cleared in the 1960's and 1970's. The majority were in good condition. The impacts to the vegetation associations within tenement M77/1097 are detailed in Table 8. The Bungalbin East survey area represents 0.58% of the area of tenement M77/1097.

6.3 Priority Ecological Community and Conservation Park

The Bungalbin East survey area and tenement M77/1097 lie wholly within Crown Reserve 48470, the Helena and Aurora Range Conservation Park (Figure 6). The Bungalbin East survey area lies wholly within the Helena and Aurora Range vegetation complexes (banded ironstone formation) (P1) PEC. Tenement M77/1097 partially intersects the Helena and Aurora Range vegetation complexes (banded ironstone formation) (P1) PEC – the south-eastern portion of tenement M77/1097 is external to the PEC (Figure 6). A summary of the areas of intersection of both tenement M77/1097 and the Bungalbin East survey area with both the Helena and Aurora Conservation Park and the Helena and Aurora Range vegetation complexes (banded ironstone formation) (P1) PEC are set out in Table 9.

Table 7: Potential flora and vegetation survey limitations of the Bungalbin East Survey Area

Potential Survey Limitation	Impact on Survey
Sources of information and availability of contextual information (i.e. pre-existing background versus new material).	**Not a constraint:** The study has been undertaken in Helena and Aurora Range Conservation Park which has been well studied and documented with ample literature available (Beard 1972a; 1972b, Gibson *et al.* 1997; 2007, Cowan 2001, etc.)
Scope (i.e. what life forms, etc., were sampled).	**Not a constraint:** Due to sufficient rainfall, all life forms were sampled adequately during the time of the survey. All site characteristics were adequately sampled during the time of the survey.
Proportion of flora collected and identified (based on sampling, timing and intensity).	**Not a constraint**: Threatened and Priority species not readily recognised in the field were collected regularly to ensure correct identification.
Completeness and further work which might be needed (i.e. was the relevant survey area fully surveyed).	**Not a constraint:** The information collected during the survey was sufficient to assess the vegetation that was present during the time of the survey. A necessary tracks and drill pads were surveyed.
Mapping reliability.	**Not a constraint:** Aerial photography of a suitable scale was used to traverse the survey area. Handheld GPS units with tracks and locations loaded onto them were used to ensure the correct tracks and drill pads were surveyed.
Timing, weather, season, cycle.	**Potential constraint:** It is preferable that flora and vegetation surveys are conducted during spring in the Coolgardie district (EPA 2004). The threatened and priority flora known to occur within the immediate survey area were perennial species. Rainfall was above average in the tow months which preceded the field survey (Figure 2).
Disturbances (fire flood, accidental human intervention, etc.).	**Not a constraint**: Minimal disturbances occur within the survey area. Tracks due to historical exploration activities occur throughout the survey area. Feral animals (i.e. goats) have been known to graze in the area.
Intensity (in retrospect, was the intensity adequate).	**Not a constraint**: Tracks and drill pads were surveyed by pairs of botanists. A 5 m corridor either side of the tracks was also surveyed.
Resources (i.e. were there adequate resources to complete the survey to the required standard).	**Not a constraint:** The available resources supplied by Polaris Metals Pty Ltd and CAD Resources were adequate to complete the survey.
Access problems (i.e. ability to access survey area).	**Not a constraint:** Existing tracks enabled adequate access to survey the vegetation within the survey area. No new tracks were created.
Experience levels (e.g. degree of expertise in plant identification to taxon level).	**Not a constraint:** All survey personnel have the appropriate training in sampling and identifying the flora of the region. Experienced botanists were consulted where plants could not be identified in the field. Where specimens could only be identified to genus level, or in worst-case scenarios, to the family level, this was due to the presence of only vegetative material in the field.

Table 8: Risk assessment for impact on vegetation sub-associations in the Bungalbin East survey area of tenement M77/1097

Total area to be cleared is 5.79 ha. This area is based on the clearing of 4.07 ha of existing tracks (11.62 km of tracks, 3.5 m track width) and 40 existing drill pads (1.72 ha).

Source of data on pre-European extent of vegetation associations is from Government of Western Australia (2011).

Vegetation Association	Description	Pre-European Extent in WA (ha)	Remaining Uncleared in WA (%)	Total in Crown reserves or managed by DEC (%)	Extent to be Disturbed by Program	Confirmed / Likely Impact
Existing drill pads and access tracks						
141.3	Medium woodland; York gum, salmon gum & gimlet	644,279.88	99.94	15.60	0	Nil
520.0	Shrublands, *Acacia quadrimarginea* thickets	23,184.91	93.11	46.34	5.79 ha	Low • < 0.05% total extent in WA • < 1% total extent within tenement M77/1097

Table 9: Risk assessment for impact on Helena and Aurora Conservation Park (CR 48470) and the Helena and Aurora vegetation complexes (banded ironstone formation) (P1) PEC

Source of data on pre-European extent of vegetation associations is from Government of Western Australia (2011).

Area of Helena and Aurora Conservation Park (ha)	Area of Helena and Aurora Vegetation Complexes (banded ironstone formation) (P1) (ha)	Area intersecting Helena and Aurora Conservation Park (ha)	Area intersecting Helena and Aurora Vegetation Complexes (banded ironstone formation) (P1) (ha)	Proportion intersecting Helena and Aurora Conservation Park (CR 48470) (%)	Proportion intersecting Helena and Aurora Vegetation Complexes (banded ironstone formation) (P1) (%)
Tenement M77/1097 (997.98 ha)					
147,395	15,310	997.98	970.18	0.68	6.34
Bungalbin East survey area (5.79 ha)					
147,395	15,310	5.79	5.79	<0.01	0.04

6.4 Threatened Flora

Two threatened flora species, pursuant to Schedule 1 of the *Wildlife Conservation Act 1950* and as listed by the DEC (2013b), and pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* and as listed by the DSEWPaC (2013a), were recorded within the Bungalbin East survey area. These taxa were *Leucopogon spectabilis* (T) and *Tetratheca aphylla* subsp. *aphylla* (T). The populations of each taxon recorded within drill pad areas, and the 5 m and 50 m buffer about the drill pads is set out in Table 10.

Table 10: Populations of threatened flora taxa recorded within the Bungalbin East survey area in February 2013

Species	Family	Number of plants within drill pad areas[1]	Number of plants in 5 m buffer zone[2]	Number of plants within 50 m of drill pad[3]	Total number of plants
Leucopogon spectabilis (T)	Ericaceae	0	31	62	62
Tetratheca aphylla subsp. *aphylla* (T)	Elaeocarpaceae	51	100	1,762	1,913

1 - drill pad area as defined in Appendix B. 2 – 5 m buffer surrounding drill pad area. 3 – plants recorded within 50 m of drill pad perimeter external to 5 m buffer boundary.

The distributions of *Leucopogon spectabilis* (T) and *Tetratheca aphylla* subsp. *aphylla* (T) recorded within the Bungalbin East survey area are illustrated in Appendix D. The locations and populations of *Leucopogon spectabilis* (T) and *Tetratheca aphylla* subsp. *aphylla* (T) recorded within the Bungalbin East survey area are set out in Appendices E and F respectively. The results with respect to each species are described below.

6.4.1 *Leucopogon spectabilis* (T)

A total of 62 individual plants of *Leucopogon spectabilis* (T) were recorded within the Bungalbin East survey area. All plants recorded were associated with drill pad 35 and were recorded growing on a rock face which abuts the northern end of the drill pad. No *Leucopogon spectabilis* (T) was recorded growing within 50 m of any drill pad, with the exception of drill pad 35.

No *Leucopogon spectabilis* (T) would be directly impacted by drilling operations associated with drill pad 35. Some *Leucopogon spectabilis* (T) are growing on the rock face within 3 m of ground level and have a low potential to be accidentally impacted as a result of drilling activities at drill pad 35.

6.4.2 *Tetratheca aphylla* subsp. *aphylla* (T)

A total of 1,913 individual plants of *Tetratheca aphylla* subsp. *aphylla* (T) were recorded within the Bungalbin East survey area during the present survey. *Tetratheca aphylla* subsp. *aphylla* (T) was recorded principally on rocky outcropping associated with the ridge within the Bungalbin East survey area. Based on the present survey data, a total of 51 individual *Tetratheca aphylla* subsp. *aphylla* (T) were recorded growing within the perimeters of drill pads 22, 24, 25, 26, 29 and 32. A total of 100 *Tetratheca aphylla* subsp. *aphylla* (T) were recorded growing within the 5 m buffer about the perimeter of drill pads 3, 9, 11, 13, 19, 22, 23, 24, 25, 26, 29, 32 and 35. The remaining 1,762 *Tetratheca aphylla* subsp. *aphylla* recorded during the present survey were recorded within 50 m of the 40 drill pad locations, beyond the 5 m buffer zone.

When data from previous surveys undertaken by Mattiske within tenement M77/1097 (MCPL 2007b, 2008b, 2010) was incorporated with the data from the present survey, a total of 2,713 *Tetratheca aphylla* subsp. *aphylla* (T) have been recorded within tenement M77/1097. When this was analysed with data collected from the present survey, *Tetratheca aphylla* subsp. *aphylla* (T) has been recorded growing within 50 m of all drill pads with the exception of drill pad 40.

Tetratheca aphylla subsp. *aphylla* (T) was not recorded growing directly on the tracks surveyed within the Bungalbin East survey area during the present survey. *Tetratheca aphylla* subsp. *aphylla* (T) was recorded growing within the 5 m buffer zone on either side of the surveyed tracks (Appendix D2).

6.5 Priority Flora

A total of eight priority flora taxa were recorded during the survey of the Bungalbin East survey area. The taxa recorded were: *Acacia adinophylla* (P1), *Lepidosperma bungalbin* (P1), *Grevillea georgeana* (P3), *Hibbertia lepidocalyx* subsp. *tuberculata* (P3), *Mirbelia ferricola* (P3), *Neurachne annularis* (P3), *Stenanthemum newbeyi* (P3) and *Banksia arborea* (P4). The total population of each taxon recorded within the Bungalbin East survey area is set out in Table 11.

Table 11: Populations of priority flora taxa recorded within the Bungalbin East survey area in February 2013

Species	Family	Total Population
Acacia adinophylla (P1)	Fabaceae	421
Lepidosperma bungalbin (P1)	Cyperaceae	355
Grevillea georgeana (P3)	Proteaceae	98
Hibbertia lepidocalyx subsp. *tuberculata* (P3)	Dilleniaceae	932
Mirbelia ferricola (P3)	Fabaceae	24
Neurachne annularis (P3)	Poaceae	4,086
Stenanthemum newbeyi (P3)	Rhamnaceae	2,008
Banksia arborea (P4)	Proteaceae	357

The distributions of all priority taxa recorded within the Bungalbin East survey area are illustrated in Appendix D. The locations and populations of *Acacia adinophylla* (P1), *Lepidosperma bungalbin* (P1), *Grevillea georgeana* (P3), *Hibbertia lepidocalyx* subsp. *tuberculata* (P3), *Mirbelia ferricola* (P3), *Neurachne annularis* (P3), *Stenanthemum newbeyi* (P3) and *Banksia arborea* (P4) recorded within the Bungalbin East survey area are set out in Appendices G to N respectively. The results with respect to each species are described below, in sections 6.5.1 through 6.5.8.

6.5.1 *Acacia adinophylla* (P1)

A total of 421 individual plants of *Acacia adinophylla* (P1) were recorded within the Bungalbin East survey area. The locations of these plants are illustrated in Appendix D3. The locations and populations of *Acacia adinophylla* (P1) recorded within the Bungalbin East survey area are set out in Appendix G. *Acacia adinophylla* (P1) was recorded on flats, lower, mid and upper slopes on gravelly clay loam soils. This taxon was frequently recoded growing on disturbed ground on the existing tracks and drill pad areas.

Acacia adinophylla (P1) was recorded growing at drill pads 10, 11, 13, 15, 17, 21, 30, 34 and 38. A total of 133 *Acacia adinophylla* (P1) would be taken by clearing all plants currently growing on the existing drill pads and the existing tracks within the Bungalbin East survey area. Of these, 42 are associated with the existing drill pads and 91 are growing on the existing tracks. An additional 14 *Acacia adinophylla* (P1), which are currently growing within the 5 m buffer zone about the existing drill pads and an additional 223 plants currently growing within the 5 m buffer about the existing tracks have the potential to be affected by exploration drilling activities within the Bungalbin East survey area.

6.5.2 *Lepidosperma bungalbin* (P1)

A total of 355 individual plants of *Lepidosperma bungalbin* (P1) were recorded within the Bungalbin East survey area. The locations of these plants are illustrated in Appendix D4. The locations and populations of *Lepidosperma bungalbin* (P1) recorded within the Bungalbin East survey area are set out in Appendix H. *Lepidosperma bungalbin* (P1) was recorded on the upper slopes and ridge areas on clay loam soils.

Lepidosperma bungalbin (P1) was recorded growing at drill pads 20, 29, 30, 33 and 34. A total of 86 *Lepidosperma bungalbin* (P1) would be taken by clearing all plants currently growing on the existing drill pads and the existing tracks within the Bungalbin East survey area. Of these, 48 are associated with the existing drill pads and 38 are growing on the existing tracks. An additional 8 *Lepidosperma bungalbin*

(P1), which are currently growing within the 5 m buffer zone about the existing drill pads and an additional 223 plants currently growing within the 5 m buffer about the existing tracks have the potential to be affected by exploration drilling activities within the Bungalbin East survey area.

6.5.3 *Grevillea georgeana* (P3)

A total of 98 individual plants of *Grevillea georgeana* (P3) were recorded within the Bungalbin East survey area. The locations of these plants are illustrated in Appendix D5. The locations and populations of *Grevillea georgeana* (P3) recorded within the Bungalbin East survey area are set out in Appendix I. *Grevillea georgeana* (P3) was recorded on the upper slopes and ridge areas on clay loam soils.

Grevillea georgeana (P3) was recorded growing at drill pads 13, 14, 15, 16, 30, 31 and 34. A total of 39 *Grevillea georgeana* (P3) would be taken by clearing all plants currently growing on the existing drill pads and the existing tracks within the Bungalbin East survey area. Of these, 35 are associated with the existing drill pads and 4 are growing on the existing tracks. An additional 13 *Grevillea georgeana* (P3), which are currently growing within the 5 m buffer zone about the existing drill pads and an additional 41 plants currently growing within the 5 m buffer about the existing tracks have the potential to be affected by exploration drilling activities within the Bungalbin East survey area.

6.5.4 *Hibbertia lepidocalyx* subsp. *tuberculata* (P3)

A total of 932 individual plants of *Hibbertia lepidocalyx* subsp. *tuberculata* (P3) were recorded within the Bungalbin East survey area. The locations of these plants are illustrated in Appendix D6. The locations and populations of *Hibbertia lepidocalyx* subsp. *tuberculata* (P3) recorded within the Bungalbin East survey area are set out in Appendix J. *Hibbertia lepidocalyx* subsp. *tuberculata* (P3) was recorded on the upper slopes and ridge areas on clay loam soils.

Hibbertia lepidocalyx subsp. *tuberculata* (P3) was recorded growing at drill pads 14, 22, 32, 33 and 34. A total of 267 *Hibbertia lepidocalyx* subsp. *tuberculata* (P3) would be taken by clearing all plants currently growing on the existing drill pads and the existing tracks within the Bungalbin East survey area. Of these, 144 are associated with the existing drill pads and 123 are growing on the existing tracks. An additional 21 *Hibbertia lepidocalyx* subsp. *tuberculata* (P3), which are currently growing within the 5 m buffer zone about the existing drill pads and an additional 588 plants currently growing within the 5 m buffer about the existing tracks have the potential to be affected by exploration drilling activities within the Bungalbin East survey area.

6.5.5 *Mirbelia ferricola* (P3)

A total of 24 individual plants of *Mirbelia ferricola* (P3) were recorded within the Bungalbin East survey area. The locations of these plants are illustrated in Appendix D7. The locations and populations of *Mirbelia ferricola* (P3) recorded within the Bungalbin East survey area are set out in Appendix K. *Mirbelia ferricola* (P3) was recorded on the upper slopes and ridge areas on clay loam soils.

Mirbelia ferricola (P3) was recorded growing at drill pads 14, 15, 30 and 39. A total of six *Mirbelia ferricola* (P3) would be taken by clearing all plants currently growing on the existing drill pads and the existing tracks within the Bungalbin East survey area. Of these, six are associated with the existing drill pads and no plants were recorded growing on the existing tracks. An additional two *Mirbelia ferricola* (P3), which are currently growing within the 5 m buffer zone about the existing drill pads and an additional 16 plants currently growing within the 5 m buffer about the existing tracks have the potential to be affected by exploration drilling activities within the Bungalbin East survey area.

6.5.6 *Neurachne annularis* (P3)

A total of 4,086 individual plants of *Neurachne annularis* (P3) were recorded within the Bungalbin East survey area. The locations of these plants are illustrated in Appendix D8. The locations and populations of *Neurachne annularis* (P3) recorded within the Bungalbin East survey area are set out in Appendix L. *Neurachne annularis* (P3) was recorded on the flats, slopes and ridge areas on clay loam soils. This taxon was frequently recoded growing on disturbed ground on the existing tracks and drill pad areas, and potentially grows well on disturbed ground.

Neurachne annularis (P3) was recorded growing at drill pads 5, 6, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38 and 39. A total of 2,917 *Neurachne annularis* (P3) would be taken by clearing all plants currently growing on the existing drill pads and the existing tracks within the Bungalbin East survey area. Of these, 1,814 are associated with the existing drill pads and 1,103 plants were growing on the existing tracks. An additional 291 *Neurachne annularis* (P3), which are currently growing within the 5 m buffer zone about the existing drill pads and an additional 878 plants currently growing within the 5 m buffer about the existing tracks have the potential to be affected by exploration drilling activities within the Bungalbin East survey area.

6.5.7 *Stenanthemum newbeyi* (P3)

A total of 2,008 individual plants of *Stenanthemum newbeyi* (P3) were recorded within the Bungalbin East survey area. The locations of these plants are illustrated in Appendix D9. The locations and populations of *Stenanthemum newbeyi* (P3) recorded within the Bungalbin East survey area are set out in Appendix M. *Stenanthemum newbeyi* (P3) was recorded on the flats, slopes and ridge areas on clay loam soils.

Stenanthemum newbeyi (P3) was recorded growing at drill pads 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 37 and 39. A total of 921 *Stenanthemum newbeyi* (P3) would be taken by clearing all plants currently growing on the existing drill pads and the existing tracks within the Bungalbin East survey area. Of these, 612 are associated with the existing drill pads and 309 plants were growing on the existing tracks. An additional 178 *Stenanthemum newbeyi* (P3), which are currently growing within the 5 m buffer zone about the existing drill pads and an additional 816 plants currently growing within the 5 m buffer about the existing tracks have the potential to be affected by exploration drilling activities within the Bungalbin East survey area. The remaining 93 plants were recorded at opportunistic locations beyond the direct survey area.

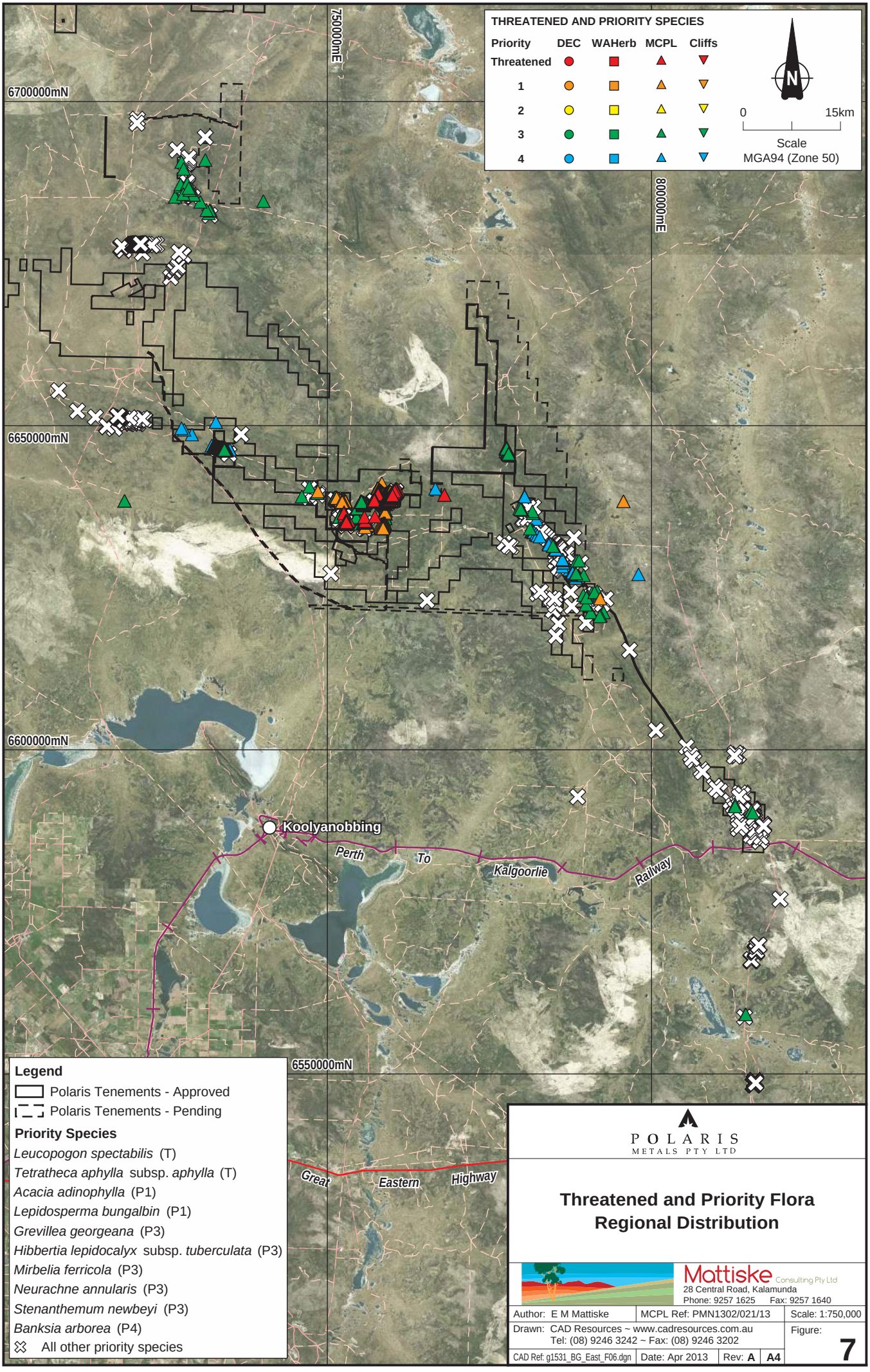
6.5.8 *Banksia arborea* (P4)

A total of 357 individual plants of *Banksia arborea* (P4) were recorded within the Bungalbin East survey area. The locations of these plants are illustrated in Appendix D10. The locations and populations of *Banksia arborea* (P4) recorded within the Bungalbin East survey area are set out in Appendix N. *Banksia arborea* (P4) was recorded on upper slope and ridge areas, mainly on skeletal soils associated with ironstone outcropping.

Banksia arborea (P4) was recorded growing at drill pads 1, 5, 7, 8, 9, 13, 14, 15, 19, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37 and 39. A total of 197 *Banksia arborea* (P4) would be taken by clearing all plants currently growing on the existing drill pads and the existing tracks within the Bungalbin East survey area. Of these, 139 are associated with the existing drill pads and 58 plants were growing on the existing tracks. An additional 56 *Banksia arborea* (P4), which are currently growing within the 5 m buffer zone about the existing drill pads and an additional 104 plants currently growing within the 5 m buffer about the existing tracks have the potential to be affected by exploration drilling activities within the Bungalbin East survey area.

6.6 Impacts to Threatened and Priority Flora

The impacts to threatened and priority flora growing within the Bungalbin East survey area resulting from clearing of existing drill pads and tracks are set out in Appendix O. Appendix O also sets out the potential impacts, which are based on a 5 m buffer zone about the tracks and drill pads, to threatened and priority flora growing on existing drill pads and tracks. Local impact figures were based on the total population of each species recorded within tenement M77/1097, which contains the Bungalbin East survey area, from both the present and past surveys undertaken by Mattiske within tenement M77/1097 (Mattiske 2007b, 2008b, 2010). Regional population data has been compiled from several sources as specified in the methods section. The regional data spans a geographical area defined from 704400 mE / 6699600 mN (north-west corner) to 823000 mE / 6546600 mN (south-east corner) – all coordinates are MGA94, zone 50. The area of coverage is 118.6 km by 153 km, representing an area of 18,146 km^2. The distribution of threatened and priority flora, at the regional scale, is shown in Figure 7.



POLARIS METALS PTY LTD

Threatened and Priority Flora Regional Distribution

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:750,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: 7
CAD Ref: g1531_BG_East_F06.dgn	Date: Apr 2013	Rev: A A4

7. DISCUSSION

A survey for threatened and priority flora at 40 drill pad locations and 11.62 km of tracks, located on the slopes and ridge areas of a banded ironstone hill within tenement M77/1097, was undertaken in February 2013. All drill pads and tracks surveyed had previously been cleared in the 1960's and 1970's as part of a previous exploration program undertaken by BHP. The present survey included both the drill pad and track areas, together with a buffer zone of up to 5 m on each side of the tracks, and about the boundary of the drill pad areas. Additionally, in the case of the drill pads, the search for threatened flora was extended to 50 m from the boundary of each drill pad.

The Bungalbin East survey area lies wholly within vegetation association 520 – shrublands containing *Acacia quadrimarginea* thickets. An assessment of the impacts of the proposed drilling activities within the Bungalbin East survey area on this vegetation association (Table 8) demonstrated that there would be a low level of impact to this vegetation association. Given that greater than 99% of this vegetation association remains intact within both the State and the Coolgardie IBRA region, the impact from proposed drilling activities within the Bungalbin East survey area would be minimal (< 0.05% of the current extent).

The Bungalbin East survey area lies within both the Helena and Aurora Range Conservation Park, a Crown Reserve, and the Helena and Aurora Range vegetation complexes (banded ironstone formation) (P1) PEC. An assessment of the impacts of the proposed drilling activities to both the Conservation Park and the PEC (Table 9) demonstrated that there would be a low level of impact to both (< 1% and < 0.01% respectively). Whilst the PEC is not afforded legislative protection, any exploration activities should be undertaken in a manner which will have minimal impacts to the area.

Two threatened flora taxa were recorded during the survey of the Bungalbin East survey area. The taxa recorded were *Leucopogon spectabilis* (T) and *Tetratheca aphylla* subsp. *aphylla* (T). Both taxa are presently only known to occur on the Helena and Aurora Range, and as such are potentially under threat from disturbances, both natural (e.g. fire) and anthropogenic. The present survey determined that no *Leucopogon spectabilis* (T) would be directly affected by the proposed drilling activities, but that there was a low potential for some of the population of plants to be indirectly affected at drill pad 35, where a population of this taxon is growing on a steep rock face adjacent to drill pad 35.

Tetratheca aphylla subsp. *aphylla* (T) was recorded growing on six of the 40 drill pads (drill pads 22, 24, 25, 26, 29 and 32). *Tetratheca aphylla* subsp. *aphylla* (T) is listed as a threatened species at the State level (DEC 2013b) and as a vulnerable species at the Federal level (DSEWPaC 2013a). Consequently, the approval of both the Western Australian Minister for the Environment and the Federal Minister for Sustainability, Environment, Water, Population and Communities is required prior to any clearing of this taxon at these drill pads. When the 5 m buffer about the drill pads was taken into account, *Tetratheca aphylla* subsp. *aphylla* was recorded growing on or immediately adjacent to 13 of the 40 drill pads (drill pads 3, 9, 11, 13, 19, 22, 23, 24, 25, 26, 29, 32 and 35). Of these drill pads, *Tetratheca aphylla* subsp. *aphylla* (T) growing within the 5 m buffer adjacent to drill pad 35 was recorded growing on a steep rock face adjacent to the drill pad, and consequently would not be impacted by drilling activities at this drill pad. When data recorded by Mattiske from previous surveys within tenement M77/1097 (Mattiske 2007b, 2008b, 2010) was taken into account, it was determined that *Tetratheca aphylla* subsp. *aphylla* (T) was located within 50 m of 39 of the 40 drill pad locations. The only drill pad which is clear of threatened flora within 50 m of its perimeter is drill pad 40. Regulation 6 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, states that an environmentally sensitive area includes the area covered by vegetation within 50 m of rare flora, to the extent to which the vegetation is continuous with the vegetation in which the rare flora is located. Consequently, all drill pad areas, excluding drill pad 40 constitute environmentally sensitive areas, as defined under Regulation 6 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Such areas require the approval of the State Minister for the Environment prior to any clearing activities being undertaken.

Notwithstanding the issue of Ministerial approval being required prior to any clearing of threatened flora, the assessment of the impacts any clearing would have on the populations of the threatened taxa is presented in Appendix O. The results of this assessment are that there would be no direct impact to *Leucopogon spectabilis* (T) and a low level direct impact to *Tetratheca aphylla* subsp. *aphylla* (T) at the local and regional levels. Direct impact in this context assumes all flora located within the drill pad areas would be cleared. Potential impacts (plants growing within the 5 m buffer zone about the drill pads and tracks) to both *Leucopogon spectabilis* (T) and *Tetratheca aphylla* subsp. *aphylla* (T) were also calculated to be low at both the local and regional level (Appendix O).

A total of eight priority flora taxa were recorded during the survey of the Bungalbin East survey area. The taxa recorded were: *Acacia adinophylla* (P1), *Lepidosperma bungalbin* (P1), *Grevillea georgeana* (P3), *Hibbertia lepidocalyx* subsp. *tuberculata* (P3), *Mirbelia ferricola* (P3), *Neurachne annularis* (P3), *Stenanthemum newbeyi* (P3) and *Banksia arborea* (P4). The assessment of the impacts of any proposed drilling activities within the Bungalbin East survey area to each of the taxa is set out in Appendix O. The results of the assessment at the local level demonstrate a high level of direct impact to *Acacia adinophylla* (P1), *Hibbertia lepidocalyx* subsp. *tuberculata* (P3), *Stenanthemum newbeyi* (P3) and *Banksia arborea* (P4); a medium level of impact to populations of *Grevillea georgeana* (P3), *Mirbelia ferricola* (P3), and *Neurachne annularis* (P3); and a low level of impact to populations of *Lepidosperma bungalbin* (P1). Direct impacts, at the regional level, were determined to be medium for *Acacia adinophylla* (P1), *Hibbertia lepidocalyx* subsp. *tuberculata* (P3) and *Stenanthemum newbeyi* (P3); and low for *Lepidosperma bungalbin* (P1), *Grevillea georgeana* (P3), *Mirbelia ferricola* (P3), *Neurachne annularis* (P3) and *Banksia arborea* (P4).

The local impacts to priority flora, which have been determined based on plant populations recorded within tenement M77/1097 are, based on the assessed data, medium to high for the majority of species recorded. This is a consequence of the size of the area surveyed, which was restricted to the existing tracks, drill pads and 5 m buffer zone, together with historical data recorded by Mattiske (2007b, 2008b, 2010) within tenement M77/1097. The Bungalbin East survey area is a minor proportion of both tenement M77/1097 (0.58%) and the Helena and Aurora Range. It is reasonable to postulate, given that only a minor portion of Tenement M77/1097 has been searched for the presence of threatened and priority flora, that a more extensive and wide-ranging search would uncover more individuals of all species recorded during the present survey, resulting in a concomitantly reduced impact figure. An initial assessment by Mattiske in 2010 demonstrated that *Tetratheca aphylla* subsp. *aphylla* (T) and the priority taxa recorded in the present survey were located along the length of the Helena and Aurora Range. A survey for threatened and priority taxa more broadly within tenement M77/1097 would result in lower local impact figures to each priority taxon.

Potential local impacts to some of the priority flora are also relatively high (Appendix O) because the figures are based on the assumption that all flora located at the drill pads, existing tracks and their associated 5 m buffer zone would be cleared. This is unlikely to be the case. The majority of priority taxa, especially *Acacia adinophylla* (P1), are associated with the tracks, which constitute the major portion of the surveyed area. These taxa were growing on the earth windrow or within 5 m of the edge of the tracks. Plants growing in these positions have low likelihood of being impacted by drilling activities within the Bungalbin East survey area as vehicle access along the existing tracks is good. This is because the majority of tracks are in a good condition and would not require clearing. Based on the observations of the field botanists, the majority of clearing required is associated to overgrowth of vegetation into tracks areas from the edges by non-conservation listed species.

The present survey was undertaken in February, at the height of the summer period. This is not considered to be the most appropriate time to undertake botanical surveys in the Coolgardie region. There is the potential to miss annual species which may have been present within the survey area. Annual species such as *Gnephosis intonsa* (P1) and *Austrostipa blackii* (P3), identified in the desktop assessment, would be unlikely to have been detected in the present survey. The former species has previously been reported from the Helena and Aurora Range by Gibson *et al*. (1997). A further concern regarding the timing of the survey is the potential for new or novel taxa to be recorded in the region. As indicated in recent surveys by the Mattiske team and by DEC (D. Coffey pers. comm.) the discovery of new or novel taxa in the wider Helena and Aurora Range area is not uncommon. The timing of the present survey would make recording of such taxa, particularly if they were annual species, unlikely, and accurate identification without fertile material improbable. Offsetting this concern is the significant experience of the botanists with threatened and priority species of the Helena and Aurora Range and the small (5.79 ha) area which may be cleared to accommodate exploration drilling activities.

8. CONCLUSIONS

The primary issue associated with any clearing required for drilling activities within the Bungalbin East survey area is related to the presence of threatened flora either at existing drill pad locations or within 50 m of drill pads. In the case of the latter situation, according to the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, the latter drill pads are deemed to be an environmentally sensitive area. Both Western Australian and Federal Ministerial approval would be required prior to any clearing activities.

Whilst the priority taxa recorded have the potential to be impacted by clearing of vegetation associated with drilling activities within the Bungalbin East survey area, the impacts determined from the survey are likely to be higher than those that would practically occur. This is due to many species growing on track windrows, and which would be much less likely to be affected, as clearing would be unnecessary because the majority of track are in good condition.

Given the sensitivity of the area, and the need to minimise impacts to conservation significant flora from any clearing activities, we would recommend that an appropriately qualified environmental officer from Polaris, preferably with botanical knowledge of the area, be present during clearing activities to supervise personnel involved in vegetation clearing, and where required supervise pruning of overhanging vegetation on tracks to further minimise impacts to the local vegetation.

9. PERSONNEL

The following Mattiske Consulting Pty Ltd personnel were involved in this project:

Name	Position	Project Involvement	Flora Collection Permit
Dr E.M. Mattiske	Managing Director & Principal Ecologist	Planning, Management & Reporting	N/A
Mrs B. Koch	Senior Botanist	Plant identification	N/A
Mr D. Angus[1]	Senior Botanist	Planning, fieldwork, plant identification, data interpretation and report preparation	SL009838 and 25-1213
Mr A. Barrett	Botanist	Fieldwork	SL010111
Mr J. Freeman	Botanist	Fieldwork	SL010035
Ms C. Reynolds	Botanist	Fieldwork	SL009860
Mr M. Gannaway	Botanist	Report Preparation	N/A
Mr B. Ellery	Botanist	Plant identification	N/A

1. Regulation 4 Authority licensee.

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Wildlife Conservation Act 1950

APPENDIX A: LEGISLATIVE PROTECTION FOR WESTERN AUSTRALIA'S ENVIRONMENT

A.1. Overview of Western Australia's flora

Western Australia has a unique and diverse flora, and is recognised as one of the world's 34 biodiversity hotspots (Myers *et al*. 2000). In this context, Western Australia possesses a high degree of species richness and endemism. This is particularly pronounced in the south-west region of the state. There are currently over 10,000 plant species known to occur within Western Australia (DEC 2013a), and scientific knowledge of many of these species is limited.

The unique flora of Western Australia is potentially under threat due to historical clearing practices associated with agricultural, mining and human habitation activities. As a consequence of these historical clearing practices a number of flora species have become threatened or have the potential to become threatened as their habitat is impacted by human activity. In addition, some areas of the State have been affected by past clearing practices such that entire ecological communities are under threat.

At the Commonwealth level, under the EPBC Act, a nomination process exists to list a threatened species or ecological community. Additions or deletions to the lists of threatened species and communities are made by the Minister for Sustainability, Environment, Water, Populations and Communities, on advice from the Federal Threatened Species Scientific Committee. The EPBC Act lists of threatened flora and ecological communities are published on the DSEWPaC website (DSEWPaC 2013a, 2013b).

Ecological communities that are deemed to be threatened are also afforded protection under the *Environment Protection Act 1986*. Listings of threatened species and communities are reviewed annually by the Western Australian Threatened Species Scientific Committee (TSSC), which is a body appointed by the Minister for the Environment and supported by the DEC.

The TSSC reviews threatened and specially protected flora (and fauna) listings on an annual basis. Recommendation for additions or deletions to the listings of specially protected flora (and fauna) is made to the Minister for the Environment by the TSSC, via the Director General of the DEC and the WA Conservation Commission. Under Schedule 1 of the WC Act, the Minister for the Environment may declare that a class or description of flora to be threatened flora throughout the State, by notice published in the *Government Gazette* (DEC 2013e).

The following sections describe these threatened and priority flora and ecological communities, and outline the legislative protection afforded to them.

A.2. Threatened and priority flora

Flora within Western Australia that is considered to be under threat may be classed as either threatened or priority flora. At the Commonwealth level, under the EPBC Act, threatened species can be listed as extinct, extinct in the wild, critically endangered, endangered, vulnerable, or conservation dependent, by the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities. Under the EPBC Act, a person must not take an action that has, or will have, a significant impact on a listed threatened species without approval from the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities, unless those actions are not prohibited under the Act. Table I sets out definitions of threatened flora under federal legislation. The current EPBC Act list of threatened flora may be found on the DSEWPaC (2013a) website.

At the State level, the WC Act provides for taxa of native flora (and fauna) to be specially protected because they are subject to identifiable threats. Protection of these taxa has been identified as being warranted because they may become extinct, are threatened, or are otherwise in need of special protection. Where flora has been gazetted as threatened flora under the WC Act, it is an offence "to take" such flora without the written consent of the Minister. The WC Act states that "to take" flora includes to gather, pluck, cut, pull up, destroy, dig up, remove or injure the flora or to cause or permit the same to be done by any means.

Priority flora constitute species which are considered to be under threat, but for which there is insufficient information available concerning their distribution and/or populations to make a proper

evaluation of their conservation status. Such species are considered to potentially be under threat, but do not have legislative protection afforded under the WC Act.

The DEC categorises priority flora according to their conservation priority, using five categories, P1 to P5, to denote the status of such species, with P1 listed species being the most threatened and P5 the least. Priority flora species are regularly reviewed, and may have their status changed when more information on the species becomes available. Table II sets out State definitions of both threatened and priority flora.

Table I: Federal definition of threatened flora species

Note: Adapted from the EPBC Act.

CODE	CATEGORY
Ex	**Extinct** Taxa which at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
ExW	**Extinct in the Wild** Taxa which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
CE	**Critically Endangered** Taxa which at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
E	**Endangered** Taxa which is not critically endangered and it is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria.
V	**Vulnerable** Taxa which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
CD	**Conservation Dependent** Taxa which at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

Table II: State definition of threatened and priority flora species

Note: Adapted from DEC (2013a).

CODE	CATEGORY
T	**Threatened Flora (Declared Rare Flora – Extant)** Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such (Schedule 1 under the WC Act). Threatened flora (Schedule 1) are further ranked by DEC according to their level of threat using IUCN Red List criteria: • **CR:** Critically Endangered – considered to be facing an extremely high risk of extinction in the wild; • **EN:** Endangered – considered to be facing a very high risk of extinction in the wild; or • **VU:** Vulnerable – considered to be facing a high risk of extinction in the wild.
P1	**Priority One – Poorly Known Species** Taxa that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.
P2	**Priority Two – Poorly Known Species** Taxa that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
P3	**Priority Three – Poorly Known Species** Taxa that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Taxa may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
P4	**Priority Four – Rare Threatened and other species in need of monitoring** (i) **Rare** - Taxa that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands. (ii) **Near Threatened** - Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. (iii) Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.
P5	**Priority Five – Conservation Dependent Species** Taxa that are not threatened but are subject to a specific conservation program, the cessation of which would result in the taxon becoming threatened within five years.

A.3. Threatened and priority ecological communities

An ecological community is defined as a naturally occurring biological assemblage that occurs in a particular type of habitat composed of specific abiotic and biotic factors. Under the EPBC Act, a person must not take an action that has or will have a significant impact on a listed threatened ecological community without approval from the Commonwealth Minister for the Sustainability, Environment, Water, Population and Communities, unless those actions are not prohibited under the Act. A description of each of these categories of TECs is presented in Table III. The current EPBC Act list of threatened ecological communities can be located on the DSEWPaC (2013d) website.

At the State level, ecological communities may be considered as threatened once they have been identified as such by the Western Australian Threatened Ecological Communities Scientific Advisory Committee. A threatened ecological community is defined, under the EPBC Act, as an ecological community listed, designated or declared under a written law or a law of the Commonwealth as threatened, endangered or vulnerable. There are four State categories of threatened ecological communities, or TECs; a description of each of these categories of TECs is presented in Table IV. Some, but not all, Western Australian TECs are also listed as threatened under the EPBC Act.

Ecological communities identified as threatened, but not listed as threatened ecological communities, can be classified as priority ecological communities (PECs). These communities are under threat, but there is insufficient information available concerning their distribution to make a proper evaluation of their conservation status.

The DEC categorises PECs according to their conservation priority, using five categories, P1 to P5, to denote the conservation priority status of such ecological communities; these categories are defined in Table V. A list of current PECs can be viewed at the DEC (2013f) website.

Table III: Federal definition of threatened ecological communities

Note: Adapted from DSEWPaC (2013b).

CATEGORY	DEFINITION
Critically endangered	If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future.
Endangered	If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future.
Vulnerable	If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium-term future.

Table IV: State definition of threatened ecological communities

Note: Adapted from DEC (2013d).

CODE	CATEGORY
PTD	**Presumed Totally Destroyed** An ecological community will be listed as Presumed Totally Destroyed if there are no recent records of the community being extant and either of the following applies: (i) records within the last 50 years have not been confirmed despite thorough searches or known likely habitats or; (ii) all occurrences recorded within the last 50 years have since been destroyed.
CE	**Critically Endangered** An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future, meeting any one of the following criteria: (iv) The estimated geographic range and distribution has been reduced by at least 90% and is either continuing to decline with total destruction imminent, or is unlikely to be substantially rehabilitated in the immediate future due to modification; (v) The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area; (vi) The ecological community is highly modified with potential of being rehabilitated in the immediate future.
E	**Endangered** An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. The ecological community must meet any one of the following criteria: (i) The estimated geographic range and distribution has been reduced by at least 70% and is either continuing to decline with total destruction imminent in the short term future, or is unlikely to be substantially rehabilitated in the short term future due to modification; (ii) The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area; (iii) The ecological community is highly modified with potential of being rehabilitated in the short term future.
V	**Vulnerable** An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing high risk of total destruction in the medium to long term future. The ecological community must meet any one of the following criteria: (i) The ecological community exists largely as modified occurrences that are likely to be able to be substantially restored or rehabilitated; (ii) The ecological community may already be modified and would be vulnerable to threatening process, and restricted in range or distribution; (iii) The ecological community may be widespread but has potential to move to a higher threat category due to existing or impending threatening processes.

Table V: State definition of priority ecological communities

Note: Adapted from DEC (2013d).

CODE	CATEGORY
P1	**Poorly-known ecological communities** Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) and for which current threats exist.
P2	**Poorly-known ecological communities** Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, State forest, un-allocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation.
P3	**Poorly known ecological communities** (i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or: (ii) Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or; (iii) Communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing and inappropriate fire regimes.
P4	Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.
P5	**Conservation Dependent ecological communities** Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

A.4. Clearing of native vegetation

Under the *Environment Protection Act 1986*, the clearing of native vegetation requires a permit to do so, from the DEC or the Department of Mines and Petroleum, unless that clearing is exempted under specific provisions listed in Schedule 6 of the Act, or are prescribed in the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.

Under the *Environment Protection Act 1986*, "native vegetation" means indigenous aquatic or terrestrial vegetation, and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded from this definition but does not include vegetation in a plantation.

Under Section 51A of the *Environment Protection Act 1986*, "clearing" means the killing or destruction of, the removal of, the severing or ringbarking of trunks or stems of, or the doing of any other substantial damage to, some or all of the native vegetation in an area, and includes the draining or flooding of land, the burning of vegetation, the grazing of stock, or any other act or activity, that causes any of the aforementioned consequences or results.

Under the *Environment Protection Act 1986*, ten principles are set out, under which native vegetation should not be cleared. These principles state that native vegetation should not be cleared, if:

a. it comprises a high level of biological diversity;

b. it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia;

c. it includes, or is necessary for the continued existence of, threatened flora;

d. it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community;

e. it is significant as a remnant of native vegetation in an area that has been extensively cleared;

f. it is growing in, or in association with, an environment associated with a watercourse or wetland;

g. the clearing of the vegetation is likely to cause appreciable land degradation;

h. the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area;

i. the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water; or

j. the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

The *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, under Regulation 5, sets out prescribed clearing actions that do not require a clearing permit, as defined in Section 51C of *Environment Protection Act 1986*.

Under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, under Regulation 6 –"environmentally sensitive areas" are defined as "the area covered by vegetation within 50 m of threatened flora, to the extent to which the vegetation is continuous with the vegetation in which the threatened flora is located".

Under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* - Regulation 6 (environmentally sensitive areas), the area covered by a threatened ecological community, is similarly considered an environmentally sensitive area and therefore non-permitted, unless Ministerial approval is granted.

A.5. Local and regional significance

Flora or vegetation may be locally or regionally significant in addition to statutory listings by the State or Federal Government. Whilst not legislatively protected, these factors are taken into consideration during the assessment of mining proposals, clearing proposals and other proposed development; Guidance Statement 51 specifically states:

> *"A broad consideration of the ecological processes that influence sites and their ecological functions is required; statutory lists of Declared Rare and Priority Flora are only a small subset of biodiversity. Proponents should ensure that flora and vegetation surveys provide sufficient information to address both biodiversity conservation and ecological function values within the context of the type of proposal being considered and the relevant EPA objectives for protection of the environment"* (EPA 2004).

In regards to flora; species, subspecies, varieties, hybrids and ecotypes may be significant other than as threatened flora or priority flora, for a variety of reasons, including:

- a keystone role in a particular habitat for threatened species, or supporting large populations representing a significant proportion of the local regional population of a species;
- relic status;
- anomalous features that indicate a potential new discovery;
- being representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range);
- the presence of restricted subspecies, varieties, or naturally occurring hybrids;
- local endemism/a restricted distribution; and
- being poorly reserved (EPA 2004).

Vegetation may be significant because the extent is below a threshold level and a range of other reasons, including:

- scarcity;
- unusual species;
- novel combinations of species;
- a role as a refuge;
- a role as a key habitat for threatened species or large populations representing a significant proportion of the local to regional total population of a species;
- being representative of the range of a unit (particularly, a good local and/or regional example of a unit in "prime" habitat, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range); and
- a restricted distribution (EPA 2004).

Vegetation communities are locally significant if they contain priority flora species or contain a range extension of a particular taxon outside of the normal distribution. They may also be locally significant if they are very restricted to one or two locations or occur as small isolated communities. In addition, vegetation communities that exhibit unusually high structural and species diversity are also locally significant. Vegetation communities are regionally significant where they are limited to specific landform types, are uncommon or restricted plant community types within the regional context, or support populations of threatened flora. Determining the significance of flora and vegetation may be applied at various scales, for example, a vegetation community may be nationally significant and governed by statutory protection as well as being locally and regionally significant.

A.6. CATEGORIES AND CONTROL OF DECLARED (PLANT) PESTS IN WESTERN AUSTRALIA (Department of Agriculture and Food 2013) (*Biosecurity and Agriculture Management Regulations 2013*)

Control Category	Control Measures
C1 (Exclusion) '(a) Category 1 (C1) — Exclusion: if in the opinion of the Minister introduction of the declared pest into an area or part of an area for which it is declared should be prevented' Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.	In relation to a category 1 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.
C2 (Eradication) '(b) Category 2 (C2) — Eradication: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is feasible' Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.	In relation to a category 2 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.
C3 (Management) '(c) Category 3 (C3) — Management: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is not feasible but that it is necessary to — (i) alleviate the harmful impact of the declared pest in the area; or (ii) reduce the number or distribution of the declared pest in the area; or (iii) prevent or contain the spread of the declared pest in the area.' Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.	In relation to a category 3 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to — (a) alleviate the harmful impact of the declared pest in the area for which it is declared; or (b) reduce the number or distribution of the declared pest in the area for which it is declared; or (c) prevent or contain the spread of the declared pest in the area for which it is declared.

APPENDIX B: COORDINATES DELINEATING THE BOUNDARY OF DRILL PADS WITHIN TENEMENT M77/1097.

Drill Pad	Waypoint	Location (MGA94 Zone 50)	
		Easting (mE)	Northing (mN)
1	1	760337	6639554
	2	760345	6639556
	3	760354	6639546
	4	760352	6639530
	5	760344	6639533
	6	760336	6639541
2	1	760239	6639352
	2	760247	6639342
	3	760230	6639332
	4	760222	6639342
3	1	760256	6639308
	2	760278	6639298
	3	760270	6639283
	4	760248	6639294
4	1	760221	6639234
	2	760241	6639228
	3	760240	6639224
	4	760219	6639230
5	1	760189	6639181
	2	760198	6639174
	3	760189	6639164
	4	760180	6639173
6	1	760151	6639147
	2	760134	6639146
	3	760126	6639141
	4	760137	6639137
	5	760145	6639139
	6	760150	6639147
7	1	760131	6639121
	2	760140	6639114
	3	760126	6639097
	4	760118	6639103

APPENDIX B: COORDINATES DELINEATING THE BOUNDARY OF DRILL PADS WITHIN TENEMENT M77/1097.

Drill Pad	Waypoint	Location (MGA94 Zone 50)	
		Easting (mE)	Northing (mN)
8	1	760122	6639119
	2	760109	6639103
	3	760101	6639109
	4	760112	6639124
9	1	760090	6639134
	2	760103	6639118
	3	760090	6639107
	4	760077	6639125
10	1	760055	6639196
	2	760061	6639190
	3	760043	6639173
	4	760036	6639179
11	1	760002	6639226
	2	760020	6639215
	3	760008	6639197
	4	759989	6639208
12	1	759989	6638900
	2	759997	6638885
	3	759985	6638881
	4	759977	6638895
13	1	759929	6638983
	2	759964	6639007
	3	760010	6638951
	4	759977	6638924
14	1	759948	6638937
	2	759976	6638915
	3	759960	6638898
	4	759931	6638924
15	1	759948	6638936
	2	759930	6638924
	3	759911	6638947
	4	759920	6638955
	5	759917	6638963
	6	759930	6638967

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Drill Pad	Waypoint	Location (MGA94 Zone 50)	
		Easting (mE)	Northing (mN)
16	1	759886	6638983
	2	759901	6638992
	3	759928	6638967
	4	759901	6638960
17	1	759849	6639026
	2	759872	6639021
	3	759867	6639006
	4	759846	6639012
18	1	759814	6639083
	2	759828	6639075
	3	759812	6639054
	4	759800	6639061
19	1	759769	6638750
	2	759778	6638739
	3	759761	6638724
	4	759751	6638736
20	1	759718	6638778
	2	759733	6638792
	3	759747	6638776
	4	759732	6638764
21	1	759678	6638843
	2	759668	6638855
	3	759657	6638846
	4	759667	6638833
22	1	759638	6638581
	2	759654	6638575
	3	759648	6638561
	4	759632	6638568
23	1	759586	6638603
	2	759601	6638603
	3	759600	6638578
	4	759586	6638579

APPENDIX B: COORDINATES DELINEATING THE BOUNDARY OF DRILL PADS WITHIN TENEMENT M77/1097.

Drill Pad	Waypoint	Location (MGA94 Zone 50)	
		Easting (mE)	Northing (mN)
24	1	759536	6638280
	2	759546	6638266
	3	759516	6638253
	4	759509	6638267
25	1	759490	6638327
	2	759501	6638316
	3	759484	6638304
	4	759474	6638318
26	1	759469	6638387
	2	759482	6638380
	3	759472	6638357
	4	759457	6638365
	5	759460	6638380
27	1	759411	6638423
	2	759425	6638423
	3	759425	6638397
	4	759409	6638397
	5	759410	6638413
	6	759411	6638420
28	1	759212	6638233
	2	759227	6638233
	3	759228	6638220
	4	759212	6638220
29	1	759166	6638236
	2	759178	6638236
	3	759178	6638221
	4	759166	6638222
30	1	759177	6638290
	2	759198	6638291
	3	759199	6638277
	4	759177	6638277

APPENDIX B: COORDINATES DELINEATING THE BOUNDARY OF DRILL PADS WITHIN TENEMENT M77/1097.

Drill Pad	Waypoint	Location (MGA94 Zone 50)	
		Easting (mE)	Northing (mN)
31	1	759149	6638333
	2	759162	6638340
	3	759166	6638331
	4	759152	6638324
	5	759148	6638332
32	1	759133	6638354
	2	759131	6638353
	3	759126	6638350
	4	759121	6638347
	5	759119	6638346
	6	759106	6638370
	7	759121	6638378
33	1	758990	6638185
	2	759002	6638186
	3	759002	6638174
	4	758991	6638174
34	1	758933	6638233
	2	758946	6638234
	3	758946	6638209
	4	758934	6638209
35	1	759312	6638203
	2	759337	6638204
	3	759349	6638139
	4	759326	6638140
	5	759329	6638152
	6	759328	6638160
	7	759326	6638168
	8	759326	6638173
	9	759324	6638184
	10	759321	6638186
	11	759321	6638192
	12	759320	6638195
	13	759315	6638199

APPENDIX B: COORDINATES DELINEATING THE BOUNDARY OF DRILL PADS WITHIN TENEMENT M77/1097.

Drill Pad	Waypoint	Location (MGA94 Zone 50)	
		Easting (mE)	Northing (mN)
36	1	759227	6638149
	2	759254	6638162
	3	759250	6638168
	4	759225	6638155
37	1	759064	6638055
	2	759057	6638062
	3	759076	6638075
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APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE BUNGALBIN EAST SURVEY AREA

Refer to Appendix A for State (SCC) and Federal (FCC; EPBC Act) conservation code definitions. IBRA Distribution: AW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Sandplains; HAM – Hampton; JF – Jarrah Forest; MAL – Mallee; MUR – Murchison; NUL – Nullabor; YAL - Yalgoo.

Taxon / Common Name	Family	SCC	FCC	Description & Habitat	Potential to Occur in Survey Area
Leucopogon spectabilis	Ericaceae	T	E	Habit: erect, sparse shrub to 1 m high Flowers: white Flowering period: not defined, but likely August-October Soils: shallow loams; banded ironstone; in crevices on exposed ridges IBRA Distribution: COO Florabase records: 13	medium preferred soils types occur within survey area
Tetratheca aphylla subsp. *aphylla*	Elaeocarpaceae	T	VU	Habit: caespitose shrub to 60 cm high Flowers: pink / mauve Flowering time: July-October Soils: red-brown loam, sandy loam, banded ironstone; in crevices on hills, outcrops, slopes, valleys & ridges IBRA Distribution: COO Florabase records: 16	medium preferred soils types occur within survey area
Acacia adinophylla	Fabaceae	P1		Habit: prostrate or erect tangled shrub Flowers: yellow Flowering period: September-November Soils: stony loam or sandy soils , clay; ironstone ridges, undulating plains IBRA Distribution: COO Florabase records: 25	high preferred soils types occur within survey area species has previously been recorded within survey area
Acacia sp. Bungalbin Hill (J.J. Alford 1119)	Fabaceae	P1		Habit: shrub (with strong camphor-like odour) Flowers: yellow Flowering period: September Soils: silty sandy loam; banded ironstone; hill slopes, cliffs and ridges IBRA Distribution: COO Florabase records: 5	medium preferred soils types occur within survey area

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE BUNGALBIN EAST SURVEY AREA

Refer to Appendix A for State (SCC) and Federal (FCC; EPBC Act) conservation code definitions. IBRA Distribution: AW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Sandplains; HAM – Hampton; JF – Jarrah Forest; MAL – Mallee; MUR – Murchison; NUL – Nullabor; YAL - Yalgoo.

Taxon / Common Name	Family	SCC	FCC	Description & Habitat	Potential to Occur in Survey Area
Baeckea sp. Helena and Aurora Range (G.J. Keighery 4424)	Myrtaceae	P1		Habit: erect, multi stemmed shrub to 1.2 m high Flowers: white Flowering period: December Soils: deep yellow sand; flat plains IBRA Distribution: COO Florabase records: 2	unlikely soil type does not occur in survey area
Chamelaucium sp. Koolyanobbing (V. Clarke 644)	Myrtaceae	P1		Habit: compact shrub to 30 cm high Flowers: green / red Flowering period: August-October Soils: yellow sand, sandplains IBRA Distribution: COO Florabase records: 9	unlikely soil type does not occur in survey area
Gnephosis intonsa	Asteraceae	P1		Habit: prostrate to ascending annual herb Flowers: yellow-brown Flowering period: September-October Soils: red-brown clay, stony saline loam IBRA Distribution: AW, COO, ESP, MAL, MUR Florabase records: 19	low soil type may not occur in survey area species is an annual and may not be identifiable at the time of the survey
Lepidosperma bungalbin	Cyperaceae	P1		Habit: tufted rhizomatous perennial herb (sedge) Flowers: brown Flowering period: July Soils: red loams with banded ironstone rock and gravel; steep mid slopes IBRA Distribution: COO Florabase records: 9	medium preferred soils types occur within survey area
Persoonia leucopogon	Proteaceae	P1		Habit: erect or decumbent shrub to 60 cm Flowers: yellow / green-yellow Flowering period: October-December Soils: yellow sand , sandy clay IBRA Distribution: AW, COO MUR Florabase records: 5	unlikely soil type does not occur in survey area

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE BUNGALBIN EAST SURVEY AREA

Refer to Appendix A for State (SCC) and Federal (FCC; EPBC Act) conservation code definitions. IBRA Distribution: AW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Sandplains; HAM – Hampton; JF – Jarrah Forest; MAL – Mallee; MUR – Murchison; NUL – Nullabor; YAL - Yalgoo.

Taxon / Common Name	Family	SCC	FCC	Description & Habitat	Potential to Occur in Survey Area
Philotheca deserti subsp. *brevifolia*	Rutaceae	P1		Habit: shrub to 1 m high Flowers: white Flowering period: September Soils: red sandy clay IBRA Distribution: COO, MUR Florabase records: 5	unlikely soil type does not occur in survey area
Goodenia jaurdiensis	Goodeniaceae	P2		Habit: perennial herb to 15 cm high Flowers: yellow Flowering period: September-October Soils: red clay loam with laterite of banded ironstone gravel or quartz gravel; low lying plains and lower slopes IBRA Distribution: COO Florabase records: 5	low preferred soils types occur within survey area
Phlegmatospermum eremaeum	Brassicaceae	P2		Habit: prostrate annual herb Flowers: white-cream Flowering period: June or August-September Soils: stony loam IBRA Distribution: AW, COO, HAM, MAL, NUL Florabase records: 15	low soil type may not occur in survey area species is an annual and may not be identifiable at the time of the survey
Acacia cylindrica	Fabaceae	P3		Habit: shrub to 3 m high Flowers: yellow Flowering period: August-October Soils: yellow/brown sand, gravelly soils; undulating plains, flats IBRA Distribution: AW, COO Florabase records: 29	unlikely soil type does not occur in survey area
Acacia formidabilis	Fabaceae	P3		Habit: diffuse pungent shrub Flowers: yellow Flowering period: August-September Soils: yellow, red-brown sand; undulating plains, hillsides IBRA Distribution: AW, COO, YAL Florabase records: 14	low soil type may occur in survey area

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE BUNGALBIN EAST SURVEY AREA

Refer to Appendix A for State (SCC) and Federal (FCC; EPBC Act) conservation code definitions. IBRA Distribution: AW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Sandplains; HAM – Hampton; JF – Jarrah Forest; MAL – Mallee; MUR – Murchison; NUL – Nullabor; YAL - Yalgoo.

Taxon / Common Name	Family	SCC	FCC	Description & Habitat	Potential to Occur in Survey Area
Astartea sp. Bungalbin Hill (K.R. Newbey 8989)	Myrtaceae	P3		Habit: spreading shrub to 0.4 m high Flowers: white/pink Flowering period: September-December or March Soils: deep yellow sand; sandplains IBRA Distribution: COO Florabase records: 18	unlikely soil type does not occur in survey area
Austrostipa blackii	Poaceae	P3		Habit: tufted perennial grass to 1 m high Flowers: Flowering period: September-November Soils: red-brown sandy clay loam; hill slopes IBRA Distribution: AW, COO, YAL Florabase records: 21	low soil type may occur in survey area
Baeckea sp. Bungalbin Hill (B.J. Lepschi & L.A. Craven 4586)	Myrtaceae	P3		Habit: spreading shrub Flowers: white Flowering period: November Soils: yellow-brown sand, laterite, gravel; moderately exposed flat sand plains IBRA Distribution: COO Florabase records: 20	unlikely soil type does not occur in survey area
Banksia lullfitzii	Proteaceae	P3		Habit: lignotuberous shrub to 2 m high Flowers: yellow/orange, orange/brown Flowering period: March-May Soils: yellow sand; sandplains IBRA Distribution: COO, ESP, MAL Florabase records: 20	unlikely soil type does not occur in survey area
Bossiaea sp. Jackson Range (G. Cockerton & S. McNee LCS 13614)	Fabaceae	P3		Habit: spinescent shrub to 1.7 m high Flowers: yellow-red Flowering period: potentially March-May (July) Soils: sandy loam, clay loams; decomposed granite breakaways, IBRA Distribution: AW, COO, YAL Florabase records: 17	unlikely soil type does not occur in survey area

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE BUNGALBIN EAST SURVEY AREA

Refer to Appendix A for State (SCC) and Federal (FCC; EPBC Act) conservation code definitions. IBRA Distribution: AW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Sandplains; HAM – Hampton; JF – Jarrah Forest; MAL – Mallee; MUR – Murchison; NUL – Nullabor; YAL - Yalgoo.

Taxon / Common Name	Family	SCC	FCC	Description & Habitat	Potential to Occur in Survey Area
Calytrix creswellii	Myrtaceae	P3		Habit: spreading shrub to 1 m high Flowers: white Flowering period: September-December Soils: yellow sand, sometimes with lateritic gravel; sandplains IBRA Distribution: COO, MUR Florabase records: 16	unlikely soil type does not occur in survey area
Dillwynia acerosa	Fabaceae	P3		Habit: shrub to 50 cm high Flowers: yellow/red Flowering period: September Soils: gravelly clay with laterite IBRA Distribution: COO, ESP, JF, MAL Florabase records: 44	unlikely soil type does not occur in survey area
Grevillea georgeana	Proteaceae	P3		Habit: erect to widely spreading shrub to 3 m high Flowers: red Flowering period: January or march or September-November Soils: stony loam/clay; ironstone hilltops and slopes IBRA Distribution: COO, MUR Florabase records: 46	medium preferred soils types occur within survey area
Hibbertia lepidocalyx subsp. *tuberculata*	Dilleniaceae	P3		Habit: shrub to 50 cm Flowers: yellow-orange Flowering period: July-September Soils: orange loam; ironstone gravel IBRA Distribution: COO Florabase records: 6	high preferred soils types occur within survey area species has previously been recorded within survey area
Homalocalyx grandiflorus	Myrtaceae	P3		Habit: spreading shrub to 2 m high Flowers: purple/red/pink Flowering period: October-December Soils: yellow sand; sandplains IBRA Distribution: COO, MUR Florabase records: 13	unlikely soil type does not occur in survey area

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE BUNGALBIN EAST SURVEY AREA

Refer to Appendix A for State (SCC) and Federal (FCC; EPBC Act) conservation code definitions. IBRA Distribution: AW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Sandplains; HAM – Hampton; JF – Jarrah Forest; MAL – Mallee; MUR – Murchison; NUL – Nullabor; YAL - Yalgoo.

Taxon / Common Name	Family	SCC	FCC	Description & Habitat	Potential to Occur in Survey Area
Lepidosperma ferricola	Cyperaceae	P3		Habit: tufted rhizomatous perennial herb (sedge) to 1 m high Flowers: unknown, but likely brown Flowering period: unconfirmed, but expected late autumn Soils: well drained stony loam, silty clay, banded ironstone; rocky ledges, scree slopes, crevices & ravines IBRA Distribution: COO Florabase records: 26	medium preferred soils types occur within survey area
Mirbelia ferricola	Fabaceae	P3		Habit: erect shrub to 2 m high Flowers: yellow Flowering period: September-November Soils: clay-loams, banded ironstone; hillslopes and ridges IBRA Distribution: AW, COO Florabase records: 24	medium preferred soils types occur within survey area
Neurachne annularis	Poaceae	P3		Habit: tussock forming perennial grass to 75 cm high Flowers: Flowering period: September-October Soils: red-brown sandy loams, ironstone gravel; amoung rocks on tops, sides and bases of banded ironstone ranges IBRA Distribution: COO Florabase records: 22	high preferred soils types occur within survey area species has been recorded within survey area
Melichrus sp. Bungalbin Hill (F.H. & M.P. Mollemans 3069)	Ericaceae	P3		Habit: shrub to 80 cm high Flowers: pink/red Flowering period: July or September-October Soils: yellow sand, yellow-brown loamy sand IBRA Distribution: AW, COO, MUR, YAL Florabase records: 23	unlikely soil type does not occur in survey area

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE BUNGALBIN EAST SURVEY AREA

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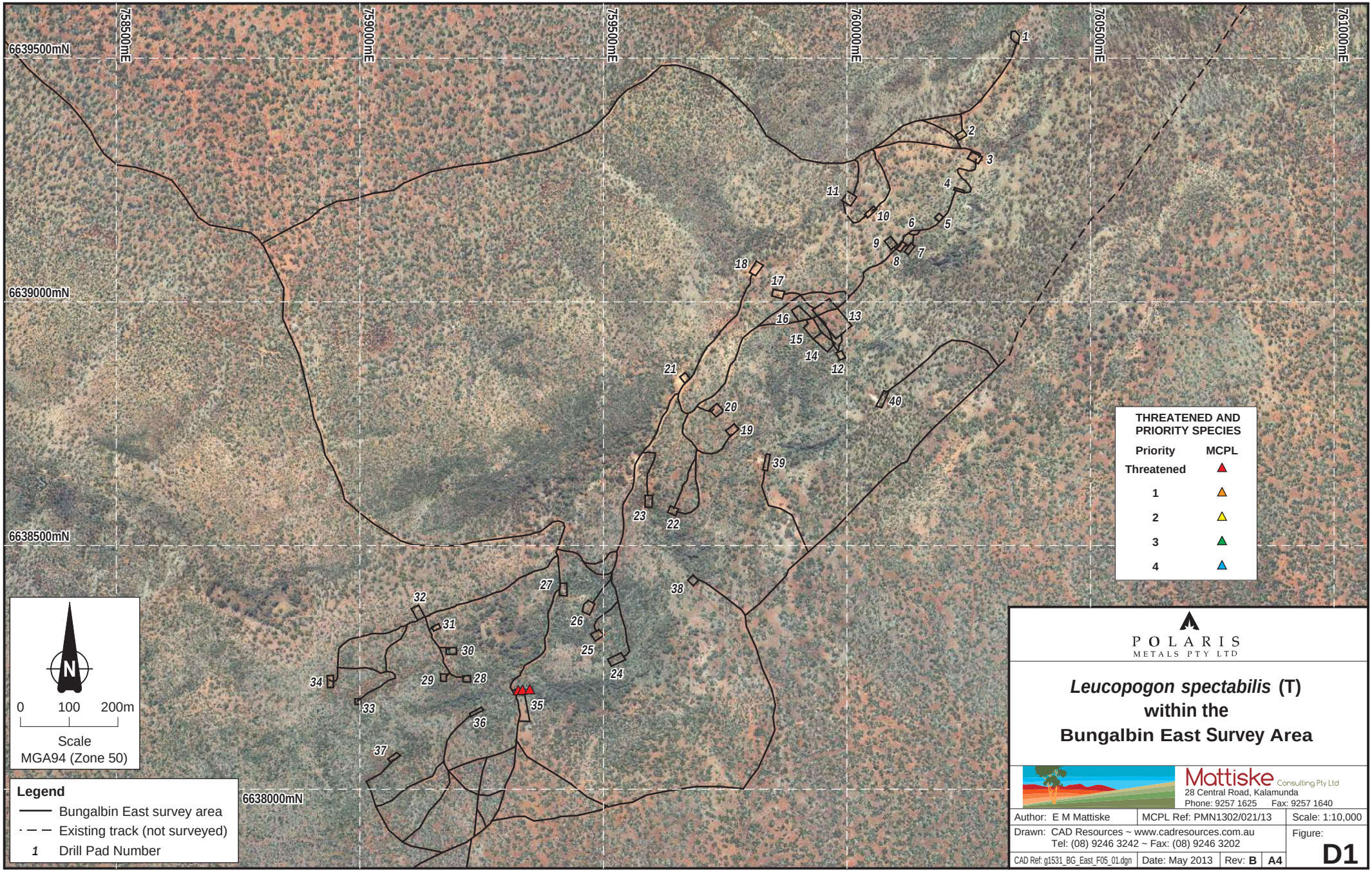
Taxon / Common Name	Family	SCC	FCC	Description & Habitat	Potential to Occur in Survey Area
Spartothamnella sp. Helena & Aurora Range (P.G. Armstrong 155-109)	Lamiaceae	P3		Habit: shrub to 70 cm high Flowers: white (red berries) Flowering period: March-April (likely) Soils: red/orange sandy loams; hillslopes and flats IBRA Distribution: AW, COO, MUR, YAL Florabase records: 24	medium preferred soils types occur within survey area species has been recorded adjacent to survey area
Stenanthemum newbeyi	Rhamnaceae	P3		Habit: shrub to 1.6 m high Flowers: yellow Flowering period: August-September or December-January Soils: clayey sand, clay, loam; laterite or ironstone; hillslopes IBRA Distribution: COO Florabase records: 32	high preferred soils types occur within survey area species has been recorded within survey area
Stylidium choreanthum	Stylidiaceae	P3		Habit: creeping perennial herb, up to 3 cm high and 30 cm wide Flowers: pink/white Flowering period: September-November Soils: white/yellow or red sands; plains IBRA Distribution: AW, COO Florabase records: 27	unlikely soil type does not occur in survey area
Styphelia sp. Bullfinch (M. Hislop 3574)	Ericaceae	P3		Habit: shrub to 50 cm Flowers: white/cream Flowering period: July Soils: clay loams; upper slopes, granitic/, lateritic breakaways IBRA Distribution: COO, YAL Florabase records: 13	medium preferred soils types and topography occur within survey area
Verticordia mitodes	Myrtaceae	P3		Habit: spreading shrub to 70 cm high Flowers: pink-purple Flowering period: October to December or January Soils: yellow sand; sandplains IBRA Distribution: AW, COO Florabase records: 22	unlikely soil type does not occur in survey area

APPENDIX C: ASSESSMENT OF THREATENED AND PRIORITY FLORA POTENTIALLY PRESENT IN THE BUNGALBIN EAST SURVEY AREA

Refer to Appendix A for State (SCC) and Federal (FCC; EPBC Act) conservation code definitions. IBRA Distribution: AW – Avon Wheatbelt; COO – Coolgardie; ESP – Esperance Sandplains; HAM – Hampton; JF – Jarrah Forest; MAL – Mallee; MUR – Murchison; NUL – Nullabor; YAL - Yalgoo.

Taxon / Common Name	Family	SCC	FCC	Description & Habitat	Potential to Occur in Survey Area
Banksia arborea	Proteaceae	P4		Habit: large shrub or tree to 8 m high Flowers: yellow Flowering period: March-May or September-October Soils: stony loam; ironstone hills IBRA Distribution: COO, JF, MUR Florabase records: 42	high preferred soils types occur within survey area species has been recorded within survey area
Eremophila caerulea subsp. *merrallii*	Scrophulariaceae	P4		Habit: shrub to 0.35 m high and 0.8 m wide Flowers: blue-purple Flowering period: October-December Soils: sand, clay or loam; undulating plains IBRA Distribution: AW, COO, MAL Florabase records: 21	low soil type does not occur in survey area
Eucalyptus formanii	Myrtaceae	P4		Habit: tree (occasionally mallee) to 11 m high Flowers: white Flowering period: January-April Soils: red sand; ironstone slopes IBRA Distribution: COO, MUR, YAL Florabase records: 64	low soil type potentially present within survey area
Grevillea erectiloba	Proteaceae	P4		Habit: shrub to 3 m high Flowers: red Flowering period: September-November Soils: gravelly loam, lateritic ridges IBRA Distribution: COO, MUR Florabase records: 25	high preferred soils types occur within survey area species has been recorded within survey area
Sowerbaea multicaulis	Asparagaceae	P4		Habit: tufted perennial herb to 25 cm high Flowers: purple-violet Flowering period: October-December Soils: yellow sand; sandplain IBRA Distribution: COO, JF, MAL, MUR Florabase records: 20	unlikely soil type does not occur in survey area

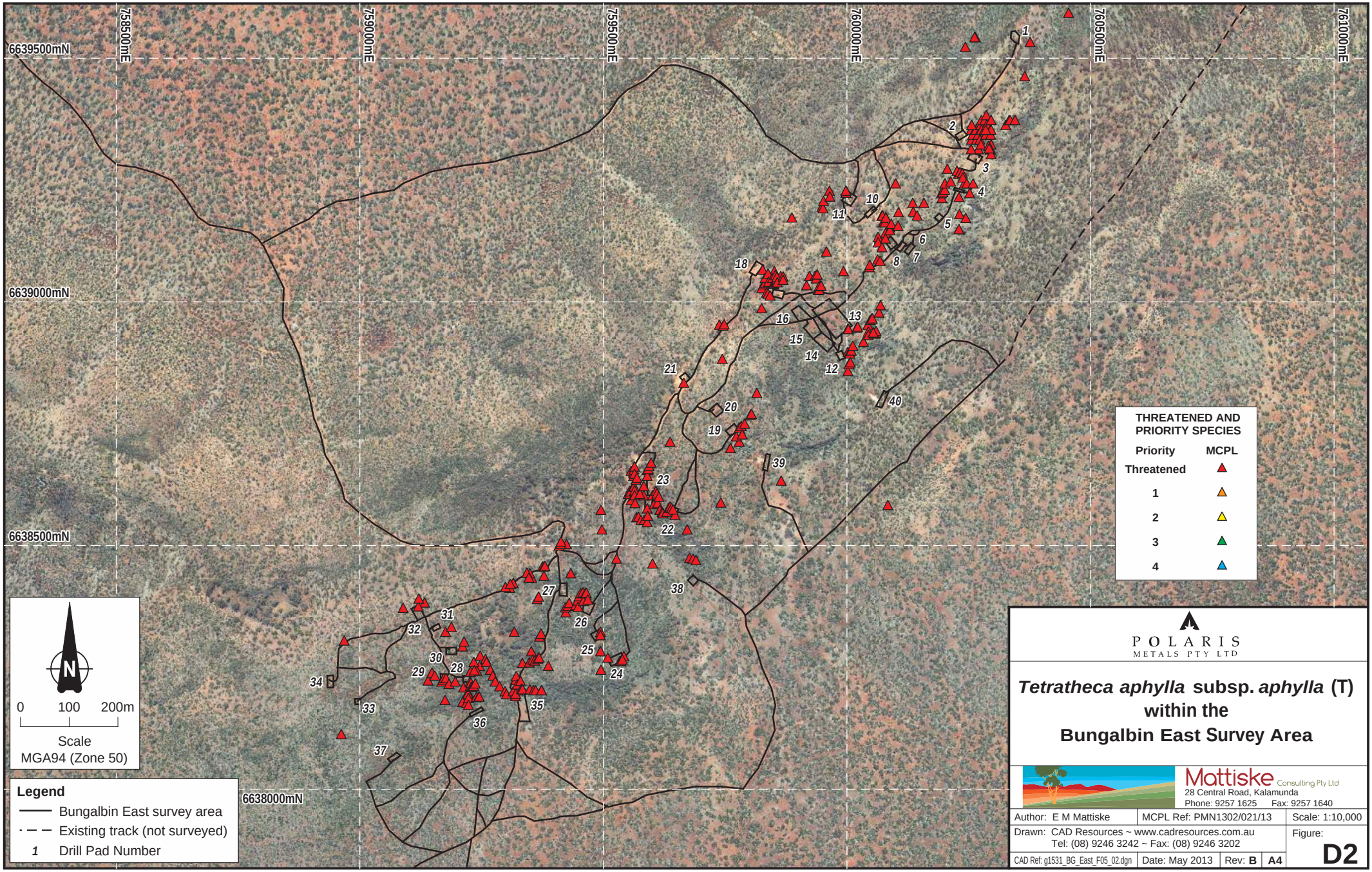


POLARIS METALS PTY LTD

Leucopogon spectabilis (T) within the Bungalbin East Survey Area

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:10,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: D1
CAD Ref: g1531_BG_East_F05_01.dgn	Date: May 2013	Rev: B A4



POLARIS METALS PTY LTD

Tetratheca aphylla subsp. *aphylla* (T) within the Bungalbin East Survey Area

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:10,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: D2
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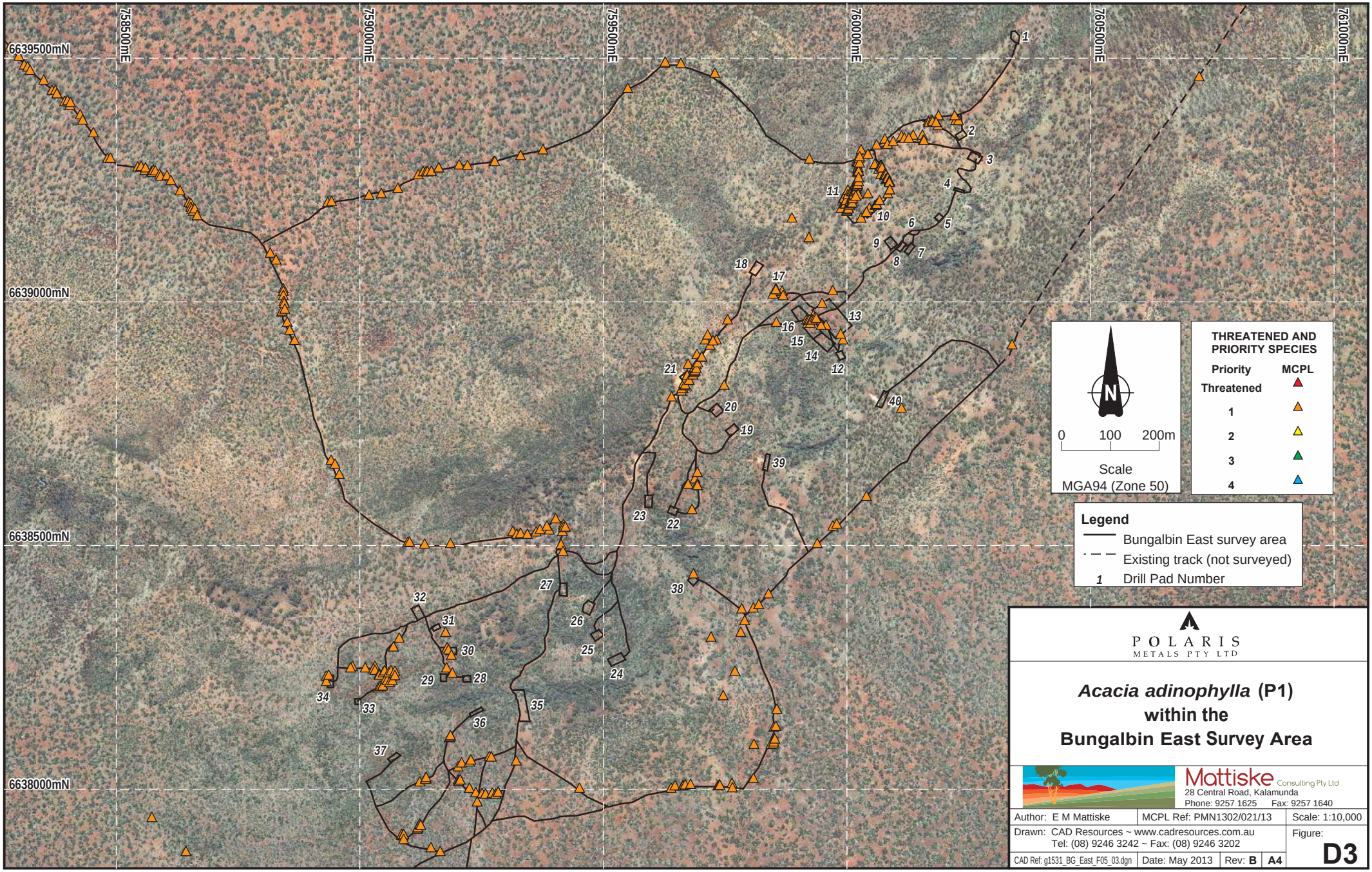

POLARIS METALS PTY LTD

Acacia adinophylla (P1) within the Bungalbin East Survey Area

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:10,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: D3
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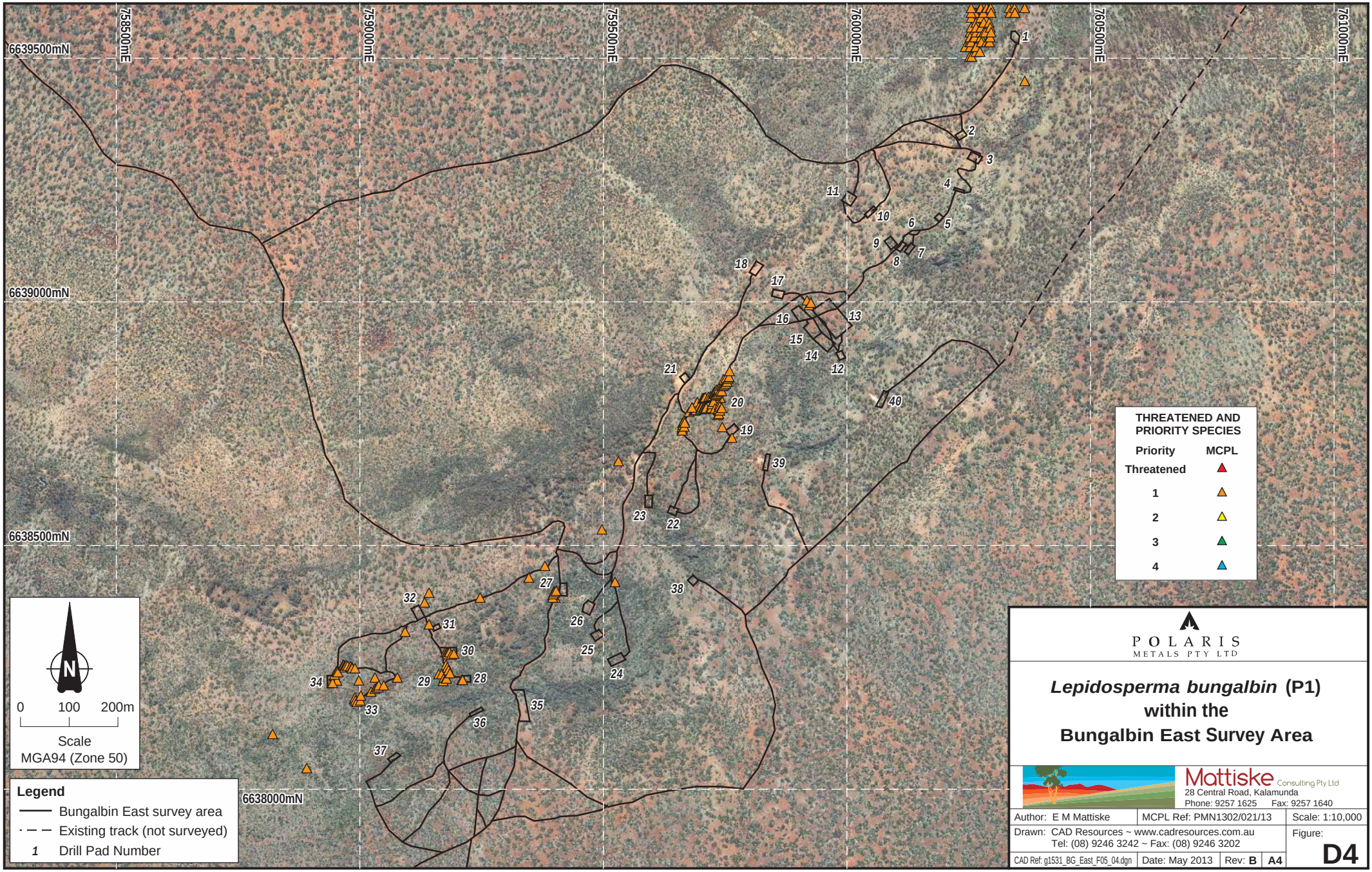

POLARIS METALS PTY LTD

Lepidosperma bungalbin (P1) within the Bungalbin East Survey Area

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:10,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: D4
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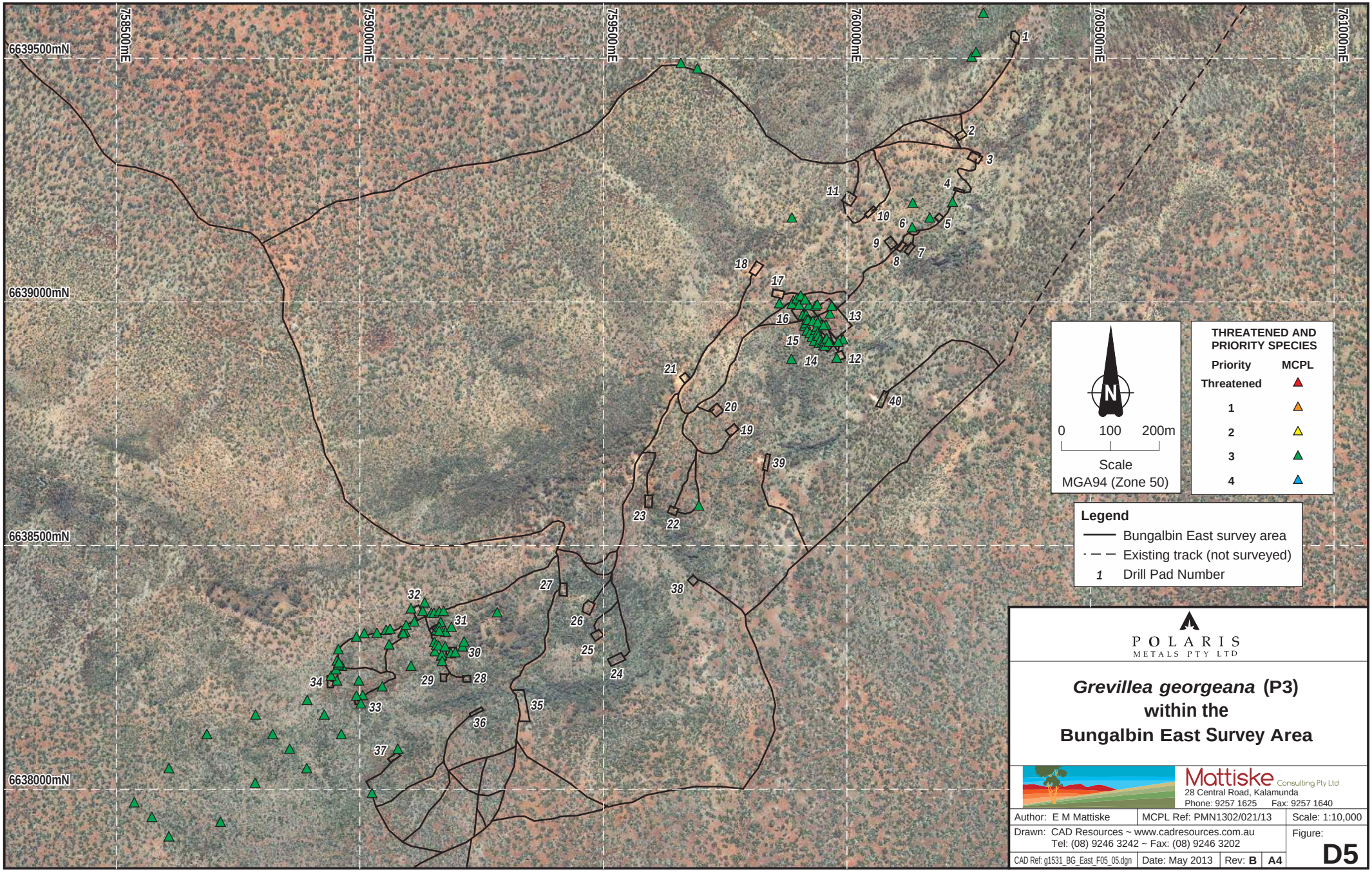
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Scale
MGA94 (Zone 50)
THREATENED AND PRIORITY SPECIES
Priority MCPL
Threatened
1
2
3
4
Legend
Bungalbin East survey area
Existing track (not surveyed)
1 Drill Pad Number
POLARIS METALS PTY LTD
Grevillea georgeana (P3)
within the
Bungalbin East Survey Area
Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640
Author: E M Mattiske
MCPL Ref: PMN1302/021/13
Scale: 1:10,000
Drawn: CAD Resources ~ www.cadresources.com.au
Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202
Figure: D5
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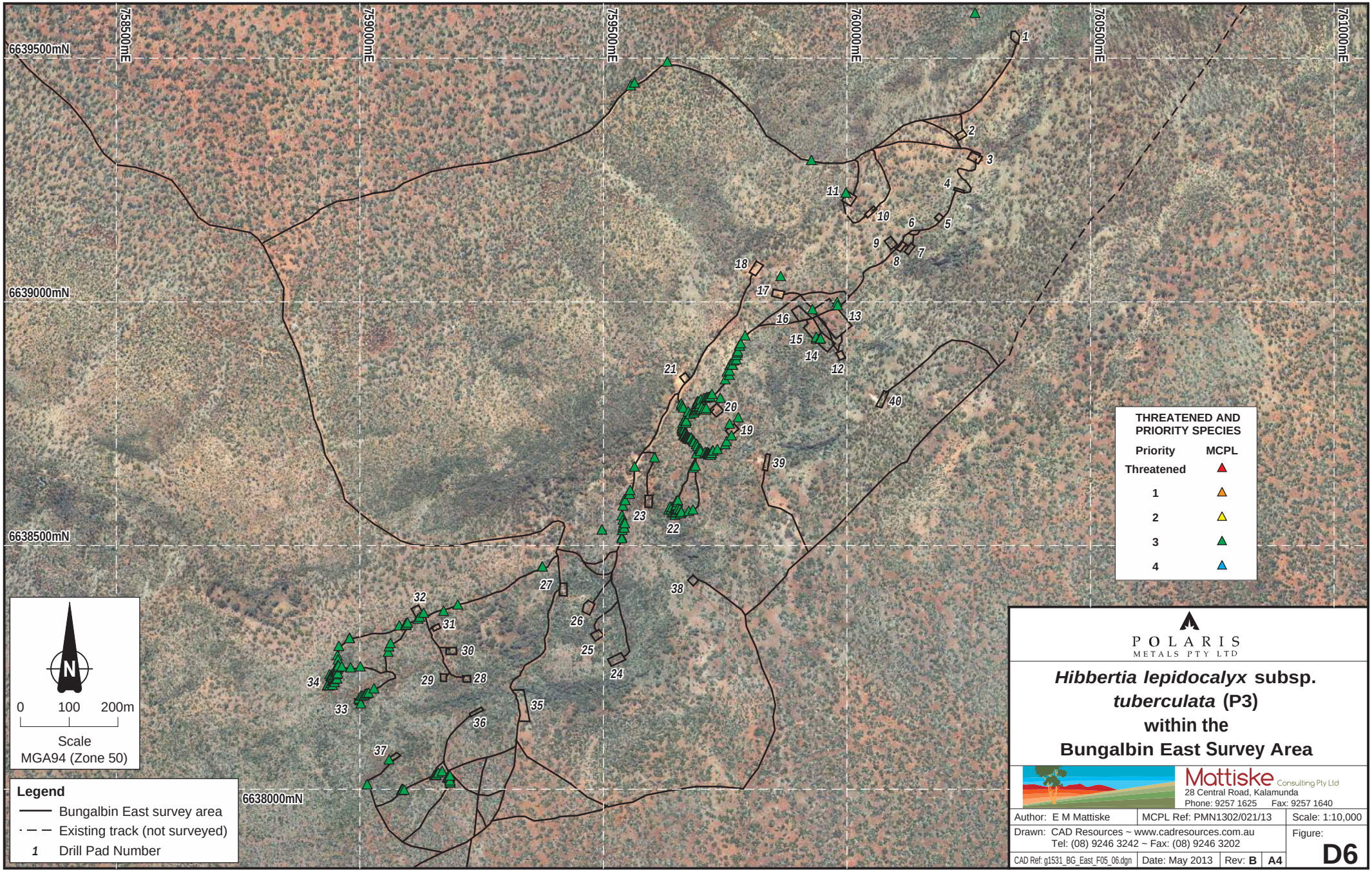
Date: May 2013
Rev: B
A4



POLARIS METALS PTY LTD

Hibbertia lepidocalyx subsp. *tuberculata* (P3) within the Bungalbin East Survey Area

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:10,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: D6
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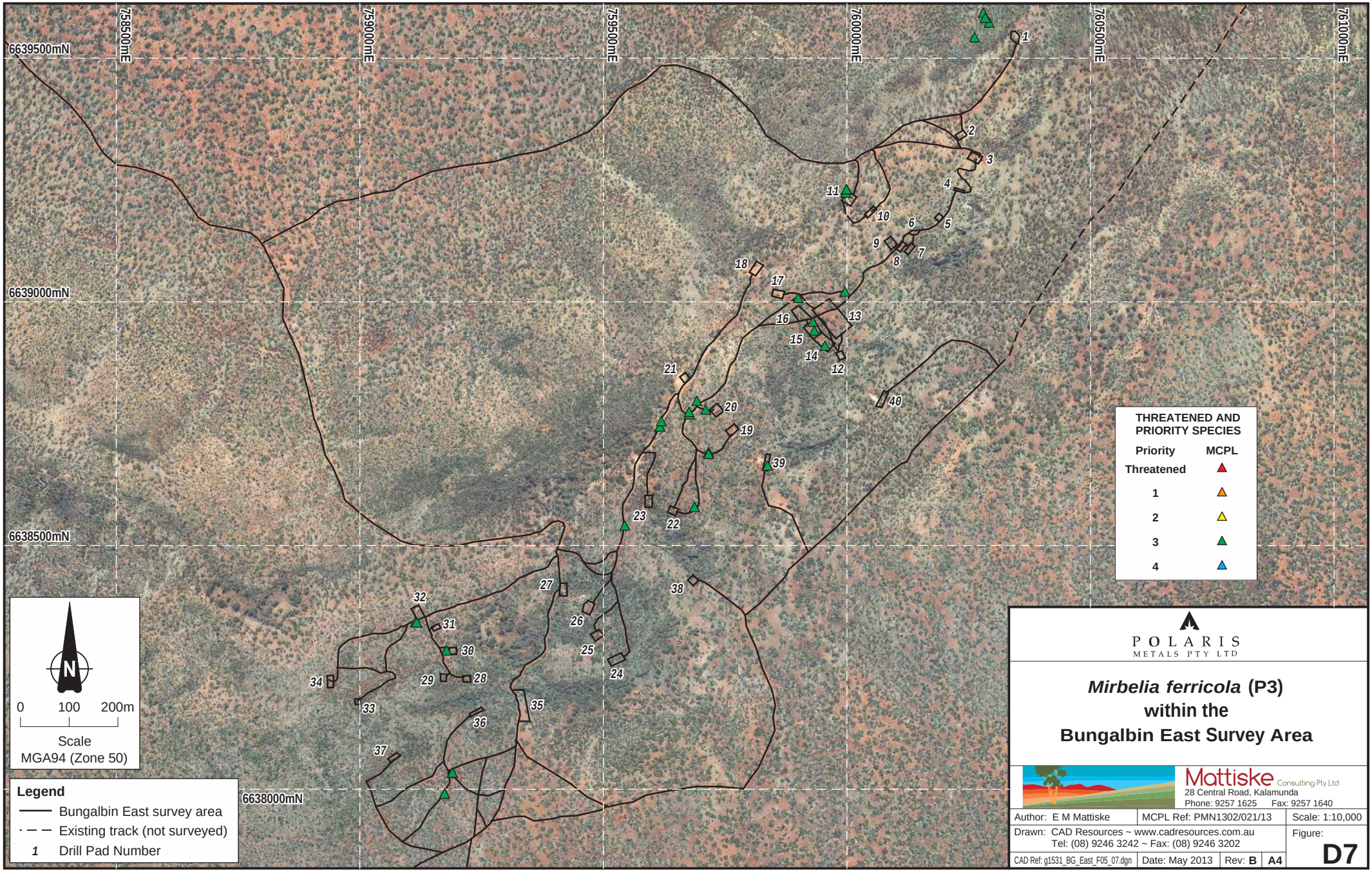

POLARIS METALS PTY LTD

Mirbelia ferricola (P3) within the Bungalbin East Survey Area

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:10,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: D7
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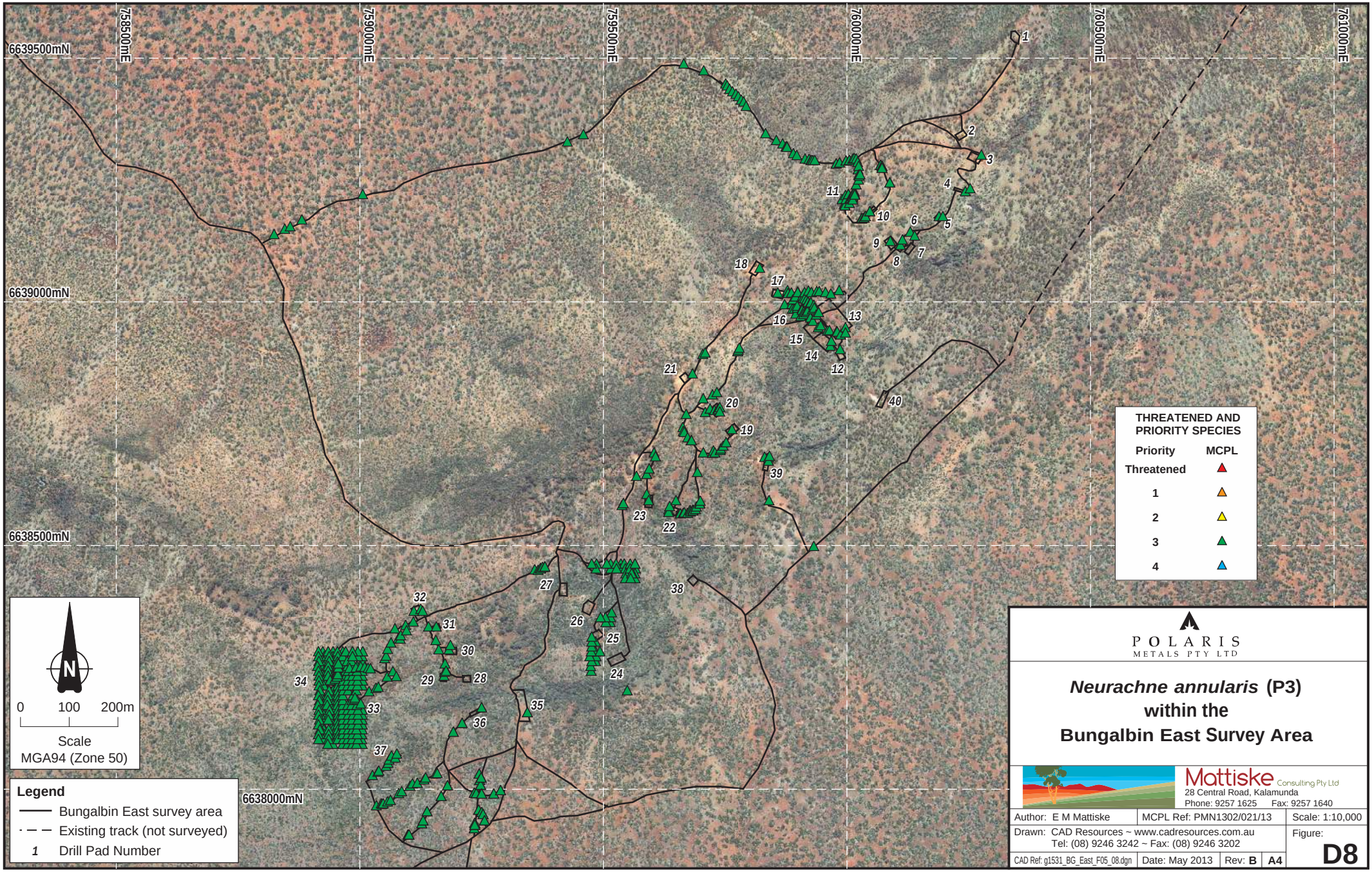

POLARIS METALS PTY LTD

Neurachne annularis (P3) within the Bungalbin East Survey Area

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:10,000
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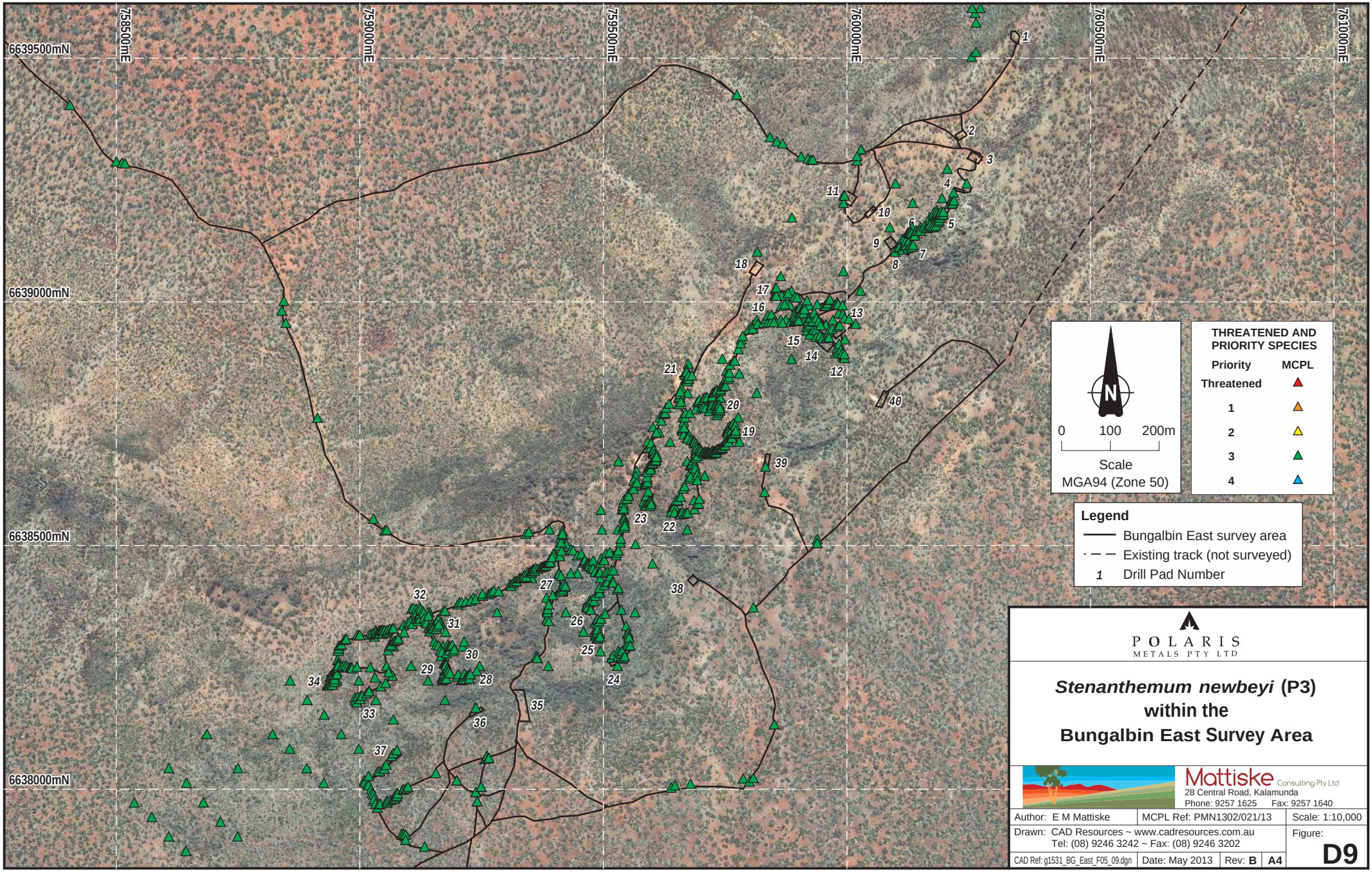
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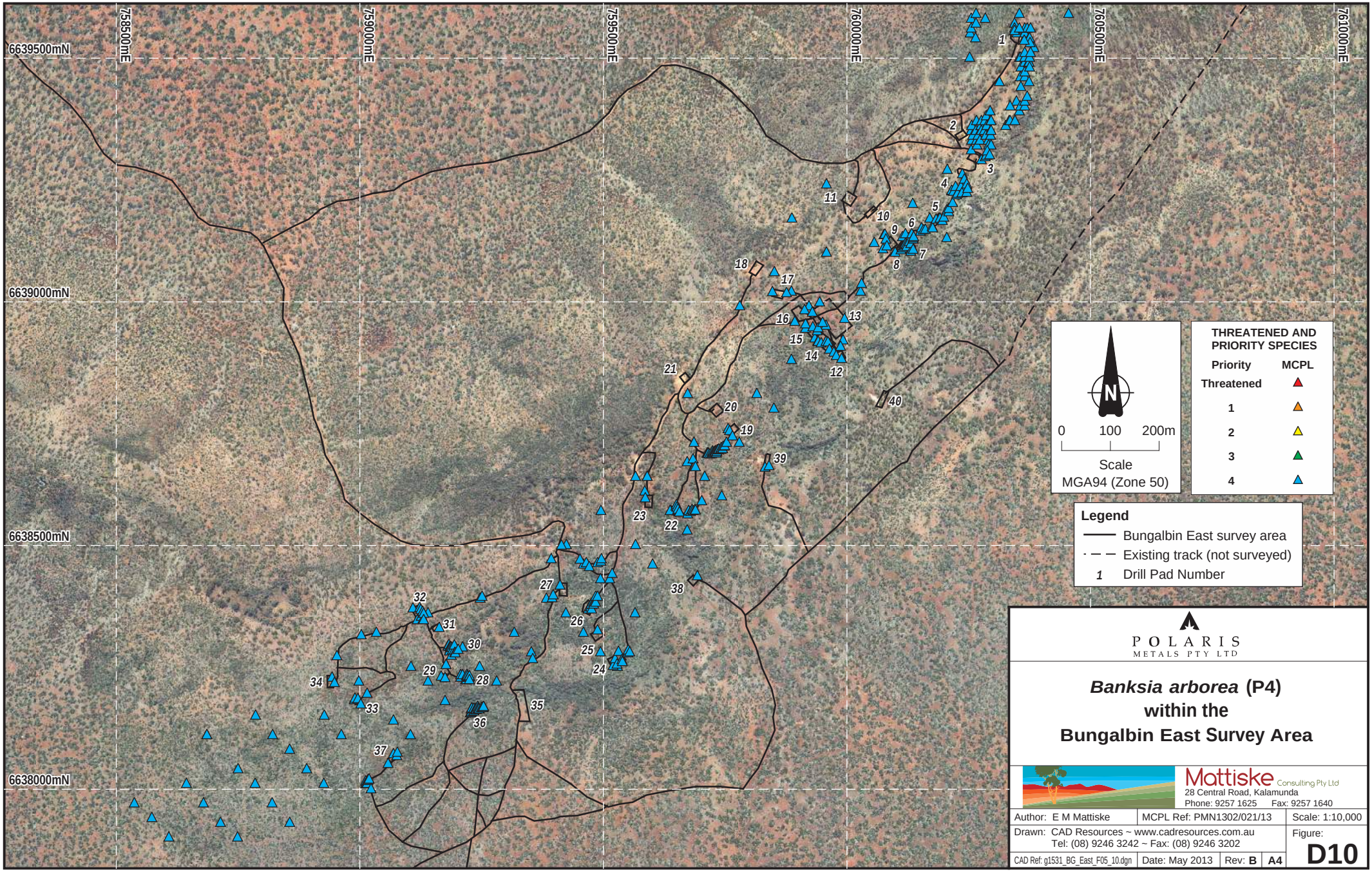
0
100
200m
Scale
MGA94 (Zone 50)
THREATENED AND PRIORITY SPECIES
Priority
MCPL
Threatened
1
2
3
4
Legend
Bungalbin East survey area
Existing track (not surveyed)
1 Drill Pad Number
POLARIS METALS PTY LTD
Stenanthemum newbeyi (P3) within the Bungalbin East Survey Area
Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640
Author: E M Mattiske
MCPL Ref: PMN1302/021/13
Scale: 1:10,000
Drawn: CAD Resources ~ www.cadresources.com.au
Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202
Figure: D9
CAD Ref: g1531_BG_East_F05_09.dgn
Date: May 2013
Rev: B
A4



POLARIS METALS PTY LTD

Banksia arborea (P4) within the Bungalbin East Survey Area

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda
Phone: 9257 1625 Fax: 9257 1640

Author: E M Mattiske	MCPL Ref: PMN1302/021/13	Scale: 1:10,000
Drawn: CAD Resources ~ www.cadresources.com.au Tel: (08) 9246 3242 ~ Fax: (08) 9246 3202		Figure: D10
CAD Ref: g1531_BG_East_F05_10.dgn	Date: May 2013	Rev: B A4

APPENDIX E: LOCATION AND POPULATION NUMBERS OF *LEUCOPOGON SPECTABILIS* (T) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759334	6638201	30	20 x 10
759349	6638202	32	20 x 10

APPENDIX F: LOCATION AND POPULATION NUMBERS OF *TETRATHECA APHYLLA* SUBSP. *APHYLLA* (T) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
758968	6638302	2	1 x 1
759089	6638369	4	10 x 10
759120	6638372	6	5 x 5
759121	6638388	6	10 x 10
759148	6638236	4	3 x 1
759154	6638230	2	2 x 1
759168	6638218	8	3 x 3
759171	6638222	1	1 x 1
759173	6638226	3	2 x 1
759177	6638225	1	1 x 1
759183	6638213	9	5 x 5
759196	6638218	1	1 x 1
759211	6638176	20	10 x 10
759213	6638206	5	5 x 5
759219	6638174	30	10 x 10
759222	6638193	5	3 x 3
759222	6638196	14	10 x 10
759223	6638170	15	5 x 5
759223	6638184	3	2 x 2
759226	6638217	2	1 x 1
759227	6638209	2	2 x 2
759227	6638238	6	5 x 5
759228	6638215	3	2 x 2
759229	6638207	1	1 x 1
759231	6638207	4	2 x 2
759234	6638209	9	3 x 3
759234	6638258	35	10 x 10
759235	6638241	15	10 x 10
759237	6638214	25	10 x 10
759239	6638186	3	1 x 1
759244	6638187	1	1 x 1
759245	6638187	20	10 x 10
759247	6638271	20	10 x 10
759258	6638264	30	10 x 10
759260	6638258	2	1 x 1
759268	6638242	5	5 x 5
759273	6638230	30	10 x 10
759278	6638218	1	1 x 1
759287	6638208	20	10 x 10

APPENDIX F: LOCATION AND POPULATION NUMBERS OF *TETRATHECA APHYLLA* SUBSP. *APHYLLA* (T) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759298	6638198	30	10 x 10
759299	6638412	5	5 x 5
759301	6638192	30	10 x 10
759309	6638418	9	5 x 5
759315	6638198	9	5 x 5
759319	6638188	28	5 x 5
759320	6638193	7	5 x 2
759320	6638221	3	2 x 2
759321	6638229	10	5 x 5
759323	6638212	30	10 x 10
759330	6638219	30	10 x 10
759332	6638203	3	3 x 2
759334	6638202	1	1 x 1
759334	6638256	3	2 x 2
759343	6638441	6	2 x 2
759347	6638431	6	5 x 5
759348	6638257	1	1 x 1
759348	6638257	1	1 x 1
759349	6638202	26	10 x 10
759355	6638263	3	2 x 2
759357	6638200	25	10 x 10
759359	6638261	1	1 x 1
759361	6638200	12	10 x 10
759364	6638387	1	*1 x 1*
759365	6638265	10	5 x 5
759367	6638392	8	3 x 3
759368	6638267	10	10 x 10
759372	6638316	30	10 x 10
759375	6638454	1	1 x 1
759378	6638435	1	1 x 1
759378	6638454	1	1 x 1
759380	6638455	1	1 x 1
759409	6638497	5	*1 x 1*
759412	6638500	1	*1 x 1*
759413	6638505	1	*1 x 1*
759422	6638370	5	5 x 5
759427	6638373	6	5 x 5
759430	6638379	10	10 x 10
759443	6638375	5	4 x 4

APPENDIX F: LOCATION AND POPULATION NUMBERS OF *TETRATHECA APHYLLA* SUBSP. *APHYLLA* (T) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759447	6638384	20	10 x 10
759448	6638371	4	5 x 5
759450	6638393	1	1 x 1
759453	6638399	4	4 x 4
759458	6638401	2	2 x 2
759459	6638383	13	10 x 10
759463	6638399	1	1 x 1
759465	6638400	1	1 x 1
759468	6638386	5	5 x 5
759494	6638313	5	5 x 5
759495	6638242	1	1 x 1
759509	6638267	3	1 x 1
759534	6638260	1	1 x 1
759536	6638260	1	1 x 1
759539	6638263	1	1 x 1
759551	6638603	1	1 x 1
759554	6638603	1	1 x 1
759554	6638609	1	1 x 1
759556	6638608	1	1 x 1
759557	6638590	15	10 x 10
759557	6638650	28	4 x 4
759562	6638619	2	1 x 1
759562	6638640	4	2 x 2
759562	6638647	1	1 x 1
759563	6638618	2	1 x 1
759563	6638653	14	2 x 2
759564	6638600	20	10 x 10
759564	6638610	2	1 x 1
759564	6638644	1	1 x 1
759564	6638659	1	1 x 1
759565	6638584	1	1 x 1
759567	6638632	4	2 x 2
759568	6638555	6	3 x 3
759569	6638636	5	2 x 2
759572	6638556	5	5 x 5
759575	6638603	30	2 x 2
759577	6638549	5	3 x 3
759583	6638619	10	5 x 5
759584	6638550	1	1 x 1

APPENDIX F: LOCATION AND POPULATION NUMBERS OF *TETRATHECA APHYLLA* SUBSP. *APHYLLA* (T) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759590	6638545	20	2 x 2
759590	6638573	2	1 x 1
759590	6638640	1	1 x 1
759590	6638652	1	1 x 1
759591	6638558	20	10 x 10
759592	6638654	1	1 x 1
759594	6638660	20	10 x 10
759598	6638667	10	10 x 10
759604	6638582	4	5 x 5
759608	6638609	3	2 x 1
759610	6638601	1	1 x 1
759610	6638604	2	2 x 1
759611	6638584	1	1 x 1
759614	6638597	7	5 x 5
759616	6638570	1	1 x 1
759621	6638566	30	*1 x 1*
759622	6638563	5	3 x 3
759630	6638566	19	3 x 3
759634	6638574	1	1 x 1
759637	6638577	1	1 x 1
759640	6638574	1	1 x 1
759643	6638571	1	1 x 1
759665	6638831	2	*1 x 1*
759677	6638472	12	10 x 10
759684	6638470	12	5 x 5
759690	6638467	2	3 x 3
759741	6638585	1	1 x 1
759746	6638948	3	1 x 1
759748	6638951	6	2 x 2
759761	6638697	1	1 x 1
759773	6638721	1	1 x 1
759779	6638739	2	3 x 1
759783	6638742	19	5 x 5
759785	6638725	1	1 x 1
759790	6638747	15	5 x 5
759802	6638765	1	1 x 1
759804	6638767	2	1 x 1
759825	6638984	5	5 x 5
759825	6639025	14	10 x 10

APPENDIX F: LOCATION AND POPULATION NUMBERS OF *TETRATHECA APHYLLA* SUBSP. *APHYLLA* (T) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759827	6639063	1	1 x 1
759829	6639033	1	1 x 1
759832	6639036	1	1 x 1
759832	6639046	5	5 x 5
759835	6639016	1	1 x 1
759838	6639014	1	1 x 1
759838	6639055	6	10 x 10
759839	6639038	1	1 x 1
759842	6639010	1	1 x 1
759847	6639046	2	1 x 1
759850	6639034	1	1 x 1
759850	6639035	1	1 x 1
759850	6639035	1	1 x 1
759853	6639039	2	1 x 1
759853	6639052	10	10 x 10
759854	6639038	1	1 x 1
759856	6639039	1	1 x 1
759856	6639044	2	1 x 1
759856	6639048	3	2 x 2
759857	6639037	1	1 x 1
759869	6639042	1	1 x 1
759869	6639049	1	1 x 1
759917	6639031	5	5 x 5
759923	6639050	15	5 x 5
759935	6639051	6	3 x 3
759937	6639045	4	3 x 3
759939	6639053	4	4 x 4
759941	6639021	3	3 x 3
759943	6639022	1	1 x 1
759943	6639029	3	3 x 3
759947	6639030	3	3 x 3
759949	6639192	2	1 x 1
759951	6639189	12	3 x 3
759952	6639204	6	5 x 5
759964	6639225	10	5 x 5
759965	6639213	20	10 x 10
759998	6639221	8	5 x 1
759998	6639225	10	5 x 2
760002	6638855	6	5 x 5

APPENDIX F: LOCATION AND POPULATION NUMBERS OF *TETRATHECA APHYLLA* SUBSP. *APHYLLA* (T) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
760002	6638894	1	1 x 1
760002	6638942	1	1 x 1
760003	6638941	1	1 x 1
760004	6638869	4	2 x 2
760006	6638891	2	2 x 2
760006	6638895	1	1 x 1
760007	6638873	4	3 x 3
760009	6638897	7	5 x 5
760012	6638907	1	1 x 1
760020	6638944	1	1 x 1
760022	6638946	1	1 x 1
760034	6638915	1	1 x 1
760044	6638929	1	1 x 1
760044	6638936	1	1 x 1
760046	6639068	1	1 x 1
760047	6639073	6	2 x 2
760048	6638960	3	2 x 2
760051	6638963	15	10 x 5
760052	6638963	20	50 x 50
760054	6638934	1	1 x 1
760054	6638934	1	1 x 1
760057	6638932	2	2 x 2
760057	6638932	20	20 x 20
760059	6638933	3	3 x 3
760060	6638937	1	1 x 1
760063	6639084	1	1 x 1
760064	6639119	1	1 x 1
760066	6638975	10	5 x 5
760068	6639081	3	2 x 2
760069	6638990	10	5 x 5
760072	6639109	2	1 x 1
760072	6639174	1	1 x 1
760073	6639174	1	1 x 1
760075	6639161	4	5 x 5
760078	6639160	28	5 x 5
760079	6639127	8	*1 x 1*
760079	6639138	12	*1 x 1*
760080	6639170	1	1 x 1
760088	6639144	3	2 x 1

APPENDIX F: LOCATION AND POPULATION NUMBERS OF *TETRATHECA APHYLLA* SUBSP. *APHYLLA* (T) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
760091	6639157	50	10 x 10
760105	6639153	1	1 x 1
760106	6639181	18	10 x 10
760136	6639182	14	10 x 10
760144	6639174	1	1 x 1
760158	6639200	1	1 x 1
760194	6639220	3	2 x 2
760197	6639222	2	1 x 1
760199	6639229	1	1 x 1
760201	6639227	2	2 x 2
760201	6639240	15	4 x 4
760213	6639244	16	5 x 5
760226	6639266	30	5 x 5
760230	6639146	10	5 x 5
760230	6639212	10	5 x 5
760231	6639177	2	2 x 2
760232	6639263	5	5 x 5
760237	6639261	9	5 x 5
760238	6639252	10	5 x 5
760244	6639169	25	5 x 5
760246	6639240	4	5 x 5
760252	6639220	12	5 x 5
760259	6639240	70	20 x 20
760291	6639317	8	4 x 4
760292	6639312	10	4 x 4
760376	6639530	12	5 x 5
760054	6638934	1	1 x 1

APPENDIX G: LOCATION AND POPULATION NUMBERS OF *ACACIA ADINOPHYLLA* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
757729	6640043	1	1 x 1
757736	6640040	1	1 x 1
757745	6640032	1	1 x 1
757746	6640038	1	1 x 1
757755	6640028	1	1 x 1
757798	6640013	1	1 x 1
757805	6640002	1	1 x 1
757816	6640004	1	1 x 1
757966	6639868	2	1 x 1
758041	6639765	1	1 x 1
758048	6639746	1	1 x 1
758058	6639736	2	2 x 2
758062	6639736	1	1 x 1
758070	6639727	2	2 x 2
758075	6639721	1	1 x 1
758110	6639699	2	2 x 2
758117	6639696	1	1 x 1
758122	6639694	2	2 x 2
758156	6639647	2	2 x 2
758161	6639643	1	1 x 1
758164	6639636	1	1 x 1
758170	6639637	1	1 x 1
758182	6639625	1	1 x 1
758186	6639622	1	1 x 1
758235	6639582	1	1 x 1
758244	6639573	1	1 x 1
758257	6639553	2	2 x 2
758262	6639550	1	1 x 1
758272	6639536	2	2 x 2
758282	6639521	1	1 x 1
758300	6639502	2	2 x 2
758311	6639484	1	1 x 1
758318	6639480	1	1 x 1
758323	6639473	1	1 x 1
758351	6639453	1	1 x 1
758368	6639432	1	1 x 1
758375	6639432	1	1 x 1
758378	6639425	1	1 x 1
758394	6639409	1	1 x 1

APPENDIX G: LOCATION AND POPULATION NUMBERS OF *ACACIA ADINOPHYLLA* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
758400	6639411	1	1 x 1
758405	6639401	1	1 x 1
758406	6639407	1	1 x 1
758426	6639382	1	1 x 1
758431	6639371	1	1 x 1
758453	6639345	1	1 x 1
758482	6639292	1	1 x 1
758488	6639293	1	1 x 1
758544	6639275	1	1 x 1
758550	6639274	1	1 x 1
758551	6639276	1	1 x 1
758559	6639268	1	1 x 1
758560	6639273	2	2 x 2
758572	6639264	1	1 x 1
758573	6639266	1	1 x 1
758574	6639264	1	1 x 1
758576	6639268	1	1 x 1
758580	6639267	1	1 x 1
758589	6639260	1	1 x 1
758591	6639256	1	1 x 1
758604	6639257	1	1 x 1
758612	6639247	1	1 x 1
758631	6639226	1	1 x 1
758649	6639202	1	1 x 1
758653	6639200	1	1 x 1
758653	6639192	1	1 x 1
758655	6639188	1	1 x 1
758658	6639184	1	1 x 1
758661	6639189	1	1 x 1
758666	6639175	2	2 x 2
758816	6639098	1	1 x 1
758828	6639084	1	1 x 1
758840	6638977	1	1 x 1
758840	6638979	1	1 x 1
758843	6639025	1	1 x 1
758843	6639020	1	1 x 1
758843	6639011	1	1 x 1
758844	6638999	1	1 x 1
758845	6638995	1	1 x 1

APPENDIX G: LOCATION AND POPULATION NUMBERS OF *ACACIA ADINOPHYLLA* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
758846	6638983	1	1 x 1
758851	6638956	1	1 x 1
758856	6638940	1	1 x 1
758866	6638919	1	1 x 1
758893	6637589	1	1 x 1
758914	6637622	1	1 x 1
758918	6637619	1	1 x 1
758931	6638230	1	1 x 1
758931	6638219	2	2 x 1
758934	6639202	1	1 x 1
758936	6638232	1	1 x 1
758941	6638673	2	1 x 1
758942	6639204	1	1 x 1
758942	6637667	1	1 x 1
758949	6638665	1	1 x 1
758958	6638644	2	1 x 1
758964	6637703	1	1 x 1
758981	6638247	1	5 x 5
759011	6638247	1	1 x 1
759019	6639217	1	1 x 1
759028	6638245	1	1 x 1
759031	6638242	1	1 x 1
759038	6638206	1	1 x 1
759040	6638235	1	1 x 1
759040	6638234	1	1 x 1
759040	6638232	1	1 x 1
759041	6637784	1	1 x 1
759042	6638209	1	1 x 1
759044	6639220	1	1 x 1
759047	6638211	1	1 x 1
759047	6638210	1	1 x 1
759048	6638237	1	1 x 1
759051	6638241	2	2 x 2
759053	6638224	1	1 x 1
759056	6638221	1	1 x 1
759059	6638237	1	1 x 1
759061	6638217	2	1 x 1
759064	6638241	1	1 x 1
759067	6638221	2	1 x 1

APPENDIX G: LOCATION AND POPULATION NUMBERS OF *ACACIA ADINOPHYLLA* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759072	6638240	1	1 x 1
759072	6638231	1	1 x 1
759078	6639231	1	1 x 1
759081	6638308	1	1 x 1
759086	6637904	1	1 x 1
759086	6637905	1	1 x 1
759089	6637903	3	2 x 2
759090	6637905	1	1 x 1
759090	6637895	1	1 x 1
759098	6638504	1	1 x 1
759102	6638505	2	1 x 1
759118	6637916	1	1 x 1
759119	6637919	1	1 x 1
759120	6639259	1	1 x 1
759123	6637926	1	1 x 1
759123	6638013	1	1 x 1
759125	6637924	1	1 x 1
759130	6639265	1	1 x 1
759133	6638501	1	1 x 1
759135	6638018	1	1 x 1
759135	6638021	1	1 x 1
759135	6638018	2	2 x 2
759136	6639265	1	1 x 1
759136	6638022	1	1 x 1
759139	6639265	1	1 x 1
759146	6637878	1	1 x 1
759147	6639266	1	1 x 1
759162	6639273	1	1 x 1
759162	6639273	1	1 x 1
759165	6637870	1	1 x 1
759178	6638247	1	1 x 1
759179	6638288	1	1 x 1
759182	6638284	1	1 x 1
759184	6638104	2	3 x 2
759185	6638105	1	1 x 1
759186	6638502	1	1 x 1
759186	6638108	1	1 x 1
759188	6638273	1	1 x 1
759190	6638236	1	1 x 1

APPENDIX G: LOCATION AND POPULATION NUMBERS OF *ACACIA ADINOPHYLLA* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759202	6638044	1	1 x 1
759202	6638017	1	1 x 1
759203	6638014	1	1 x 1
759204	6639279	1	1 x 1
759206	6638017	1	1 x 1
759209	6638052	1	1 x 1
759221	6639278	2	1 x 1
759225	6638054	1	1 x 1
759225	6638000	1	1 x 1
759228	6638058	1	1 x 1
759238	6637991	1	1 x 1
759241	6637972	9	3 x 2
759251	6637989	1	1 x 1
759258	6637988	1	1 x 1
759266	6638065	1	1 x 1
759270	6638064	1	1 x 1
759272	6637990	1	1 x 1
759275	6639286	1	1 x 1
759277	6639286	1	1 x 1
759279	6637988	1	1 x 1
759284	6637992	1	1 x 1
759314	6638527	1	1 x 1
759321	6638056	1	1 x 1
759322	6638521	1	1 x 1
759330	6638523	1	1 x 1
759330	6639298	1	1 x 1
759344	6638521	2	1 x 1
759362	6638526	1	1 x 1
759370	6638531	1	1 x 1
759376	6639310	1	1 x 1
759384	6638538	1	1 x 1
759402	6638553	1	1 x 1
759416	6638527	1	1 x 1
759417	6638486	1	1 x 1
759418	6638541	1	1 x 1
759418	6638535	1	1 x 1
759422	6638536	1	1 x 1
759451	6638000	1	1 x 1
759550	6639436	1	1 x 1

APPENDIX G: LOCATION AND POPULATION NUMBERS OF *ACACIA ADINOPHYLLA* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759626	6639488	1	1 x 1
759627	6639490	2	2 x 2
759640	6638803	1	1 x 1
759647	6638005	1	1 x 1
759659	6639487	1	1 x 1
759660	6638815	1	1 x 1
759661	6638820	1	1 x 1
759663	6638005	1	1 x 1
759664	6638005	1	1 x 1
759665	6638826	1	1 x 1
759665	6638831	1	1 x 1
759668	6638828	1	1 x 1
759668	6638007	1	1 x 1
759671	6638842	1	1 x 1
759672	6638848	1	1 x 1
759672	6638847	1	2 x 2
759674	6638624	1	1 x 1
759676	6638837	1	1 x 1
759679	6638008	1	1 x 1
759682	6638572	1	1 x 1
759684	6638848	1	1 x 1
759686	6638853	1	1 x 1
759687	6638856	1	1 x 1
759687	6638862	1	1 x 1
759687	6638864	1	1 x 1
759688	6638856	1	1 x 1
759688	6638857	1	1 x 1
759688	6638635	1	1 x 1
759691	6638869	1	1 x 1
759691	6638861	1	1 x 1
759692	6638623	1	1 x 1
759693	6638621	1	1 x 1
759693	6638648	1	1 x 1
759694	6638873	1	1 x 1
759701	6638884	1	1 x 1
759702	6638885	1	1 x 1
759719	6638909	1	2 x 2
759725	6638918	1	1 x 1
759725	6638918	1	1 x 1

APPENDIX G: LOCATION AND POPULATION NUMBERS OF *ACACIA ADINOPHYLLA* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759729	6639467	1	1 x 1
759735	6638005	1	1 x 1
759738	6638007	1	1 x 1
759739	6638006	1	1 x 1
759748	6638827	1	1 x 1
759755	6638961	1	1 x 1
759765	6638001	1	1 x 1
759784	6638368	1	1 x 1
759790	6638344	1	1 x 1
759808	6638020	1	1 x 1
759819	6638377	1	1 x 1
759839	6638399	1	1 x 1
759844	6638090	1	1 x 1
759848	6639014	1	1 x 1
759849	6638091	1	1 x 1
759850	6638095	1	1 x 1
759850	6638125	1	1 x 1
759852	6638101	1	1 x 1
759854	6638127	1	1 x 1
759854	6639025	1	1 x 1
759854	6639024	1	1 x 1
759854	6639023	1	1 x 1
759855	6638956	1	1 x 1
759856	6638162	1	1 x 1
759869	6639011	1	1 x 1
759917	6638961	1	1 x 1
759919	6638954	1	1 x 1
759920	6638960	1	1 x 1
759923	6639291	1	1 x 1
759923	6638961	1	1 x 1
759925	6638954	1	1 x 1
759927	6638961	1	1 x 1
759929	6638961	1	1 x 1
759935	6638966	1	1 x 1
759937	6638964	1	1 x 1
759939	6638502	1	1 x 1
759949	6638995	1	1 x 1
759971	6639021	1	1 x 1
759971	6638538	2	2 x 2

APPENDIX G: LOCATION AND POPULATION NUMBERS OF *ACACIA ADINOPHYLLA* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759979	6638542	1	1 x 1
759987	6638932	1	1 x 1
759993	6639211	1	1 x 1
759994	6639211	1	1 x 1
759995	6639200	1	1 x 1
759995	6639199	1	1 x 1
759997	6639199	2	2 x 2
759998	6639206	1	1 x 1
760000	6639184	1	1 x 1
760000	6639187	1	1 x 1
760002	6639227	1	1 x 1
760002	6639218	1	1 x 1
760003	6639189	1	1 x 1
760005	6639200	1	1 x 1
760005	6639197	2	2 x 2
760005	6639196	2	3 x 3
760006	6639205	1	1 x 1
760008	6639199	4	3 x 3
760009	6639225	1	1 x 1
760010	6639208	1	1 x 1
760010	6639212	1	1 x 1
760011	6639215	1	1 x 1
760011	6639201	1	1 x 1
760011	6639224	1	1 x 1
760012	6639210	2	2 x 2
760014	6639216	1	1 x 1
760014	6639218	1	1 x 1
760015	6639224	1	1 x 1
760015	6639226	1	1 x 1
760017	6639240	1	1 x 1
760017	6639239	3	2 x 2
760018	6639229	1	1 x 1
760019	6639231	1	1 x 1
760019	6639228	1	1 x 1
760019	6639237	1	1 x 1
760019	6639235	1	1 x 1
760019	6639216	1	1 x 1
760020	6639245	1	1 x 1
760021	6639235	1	1 x 1

APPENDIX G: LOCATION AND POPULATION NUMBERS OF *ACACIA ADINOPHYLLA* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
760021	6639287	1	1 x 1
760021	6639247	2	1 x 1
760021	6639244	1	1 x 1
760021	6639240	1	1 x 1
760021	6639238	1	1 x 1
760021	6639264	2	2 x 2
760022	6639271	1	1 x 1
760022	6639292	1	1 x 1
760022	6639284	1	1 x 1
760022	6639239	1	1 x 1
760023	6639273	1	1 x 1
760023	6639274	1	1 x 1
760023	6639269	1	1 x 1
760023	6639285	1	1 x 1
760023	6639266	1	1 x 1
760023	6639218	2	3 x 3
760024	6639245	1	1 x 1
760024	6639266	1	1 x 1
760024	6639253	2	2 x 2
760025	6639293	1	1 x 1
760026	6639283	1	1 x 1
760026	6639296	1	1 x 1
760040	6639182	1	1 x 1
760040	6638599	1	1 x 1
760043	6639301	1	1 x 1
760058	6639196	1	1 x 1
760059	6639196	1	1 x 1
760061	6639198	1	1 x 1
760067	6639206	2	3 x 1
760069	6639278	1	1 x 1
760070	6639278	1	1 x 1
760070	6639276	1	1 x 1
760072	6639273	1	1 x 1
760078	6639260	1	1 x 1
760078	6639258	1	1 x 1
760078	6639332	2	2 x 2
760079	6639261	1	1 x 1
760080	6639258	1	1 x 1
760080	6639249	1	1 x 1

APPENDIX G: LOCATION AND POPULATION NUMBERS OF *ACACIA ADINOPHYLLA* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
760082	6639251	1	1 x 1
760083	6639321	1	1 x 1
760084	6639252	1	1 x 1
760087	6639244	1	1 x 1
760087	6639246	1	1 x 1
760087	6639243	1	1 x 1
760088	6639228	1	1 x 1
760095	6639327	1	1 x 1
760112	6639338	1	1 x 1
760118	6639334	1	1 x 1
760127	6639334	1	1 x 1
760157	6639330	1	1 x 1
760158	6639329	1	1 x 1
760167	6639369	1	1 x 1
760168	6639366	1	1 x 1
760175	6639371	1	1 x 1
760176	6639368	2	1 x 1
760183	6639366	1	1 x 1
760221	6639380	1	1 x 1
760018	6639215	1	1 x 1

APPENDIX H: LOCATION AND POPULATION NUMBERS OF *LEPIDOSPERMA BUNGALBIN* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
758944	6638215	1	1 x 1
758948	6638232	3	3 x 1
758952	6638239	1	1 x 1
758953	6638238	3	1 x 1
758955	6638237	1	1 x 1
758966	6638252	1	1 x 1
758966	6638251	1	1 x 1
758967	6638252	2	1 x 1
758969	6638250	1	1 x 1
758969	6638247	3	5 x 5
758972	6638251	3	1 x 1
758975	6638250	1	1 x 1
758981	6638249	1	1 x 1
758984	6638247	1	1 x 1
758984	6638245	2	5 x 5
758989	6638182	2	2 x 2
758990	6638185	6	5 x 5
758990	6638245	3	5 x 5
758991	6638179	1	1 x 1
758994	6638176	2	2 x 2
759001	6638179	1	1 x 1
759002	6638189	2	5 x 5
759023	6638197	1	1 x 1
759031	6638203	2	1 x 1
759031	6638226	1	1 x 1
759035	6638206	1	1 x 1
759038	6638206	1	1 x 1
759039	6638210	1	1 x 1
759049	6638210	1	1 x 1
759077	6638226	1	1 x 1
759142	6638335	2	1 x 1
759162	6638233	3	1 x 1
759168	6638233	2	1 x 1
759171	6638219	1	1 x 1
759173	6638226	7	4 x 2
759176	6638278	1	1 x 1
759177	6638252	14	3 x 3
759177	6638225	10	4 x 2
759178	6638224	2	3 x 1

APPENDIX H: LOCATION AND POPULATION NUMBERS OF *LEPIDOSPERMA BUNGALBIN* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759179	6638278	2	1 x 1
759179	6638277	4	2 x 2
759180	6638274	3	1 x 1
759180	6638247	3	2 x 1
759182	6638241	1	1 x 1
759184	6638278	3	2 x 2
759185	6638235	1	1 x 1
759188	6638273	5	2 x 2
759193	6638275	1	1 x 1
759209	6638221	1	1 x 1
759211	6638221	1	1 x 1
759347	6638431	3	5 x 5
759380	6638455	1	1 x 1
759396	6638395	1	1 x 1
759396	6638390	1	1 x 1
759397	6638397	1	1 x 1
759399	6638403	1	1 x 1
759399	6638401	3	2 x 2
759403	6638404	3	2 x 2
759524	6638422	1	1 x 1
759662	6638737	1	1 x 1
759662	6638740	2	2 x 1
759662	6638733	3	2 x 1
759663	6638749	1	1 x 1
759663	6638745	1	1 x 1
759666	6638741	2	1 x 1
759666	6638753	1	1 x 1
759667	6638749	2	1 x 1
759676	6638771	1	1 x 1
759686	6638774	1	1 x 1
759686	6638774	1	1 x 1
759688	6638774	1	1 x 1
759689	6638776	5	2 x 2
759690	6638778	1	1 x 1
759690	6638777	1	1 x 1
759690	6638780	5	2 x 2
759690	6638775	3	2 x 2
759692	6638783	1	1 x 1
759693	6638791	1	1 x 1

APPENDIX H: LOCATION AND POPULATION NUMBERS OF *LEPIDOSPERMA BUNGALBIN* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759696	6638781	1	1 x 1
759700	6638780	4	1 x 1
759700	6638777	5	4 x 2
759702	6638781	11	2 x 2
759704	6638799	1	1 x 1
759705	6638799	1	1 x 1
759706	6638780	5	1 x 1
759706	6638781	11	2 x 2
759706	6638777	10	4 x 2
759707	6638800	5	2 x 2
759709	6638801	1	1 x 1
759709	6638778	3	2 x 2
759710	6638779	3	2 x 2
759711	6638779	4	2 x 2
759716	6638802	1	1 x 1
759720	6638803	1	1 x 1
759721	6638781	10	2 x 2
759722	6638779	1	1 x 1
759723	6638787	7	2 x 2
759724	6638804	1	1 x 1
759726	6638792	1	1 x 1
759727	6638811	1	1 x 1
759728	6638808	1	1 x 1
759729	6638778	1	1 x 1
759729	6638813	3	2 x 1
759730	6638805	20	5 x 2
759731	6638806	1	1 x 1
759731	6638809	1	1 x 1
759733	6638815	3	1 x 1
759733	6638814	1	1 x 1
759733	6638815	1	1 x 1
759733	6638817	7	2 x 1
759733	6638809	3	2 x 2
759735	6638813	1	1 x 1
759735	6638765	1	1 x 1
759736	6638812	1	1 x 1
759736	6638778	1	1 x 1
759737	6638815	1	1 x 1
759737	6638767	1	1 x 1

APPENDIX H: LOCATION AND POPULATION NUMBERS OF *LEPIDOSPERMA BUNGALBIN* (P1) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759737	6638819	3	2 x 2
759738	6638786	1	1 x 1
759739	6638782	2	1 x 1
759739	6638774	1	1 x 1
759740	6638815	1	1 x 1
759743	6638825	3	1 x 1
759743	6638814	1	1 x 1
759743	6638779	2	1 x 1
759745	6638824	1	1 x 1
759747	6638838	5	1 x 1
759748	6638826	1	1 x 1
759751	6638829	3	3 x 3
759752	6638841	9	2 x 2
759754	6638833	2	2 x 2
759756	6638839	1	1 x 1
759758	6638842	2	1 x 1
759758	6638843	1	1 x 1
759759	6638855	5	3 x 3
759764	6638718	7	3 x 1
759926	6638995	1	1 x 1

APPENDIX I: LOCATION AND POPULATION NUMBERS OF *GREVILLEA GEORGEANA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
758941	6638230	1	1 x 1
758951	6638243	1	1 x 1
758953	6638261	1	1 x 1
758956	6638256	1	1 x 1
758956	6638284	1	1 x 1
758956	6638253	1	1 x 1
758957	6638257	2	3 x 3
758993	6638310	1	1 x 1
758993	6638189	1	5 x 5
759002	6638173	1	2 x 2
759009	6638317	1	1 x 1
759025	6637989	1	1 x 1
759035	6638318	1	1 x 1
759046	6638208	1	1 x 1
759054	6638324	1	1 x 1
759060	6638294	1	1 x 1
759062	6638326	1	1 x 1
759088	6638320	1	1 x 1
759089	6638317	1	1 x 1
759095	6638334	1	1 x 1
759105	6638368	1	2 x 2
759112	6638341	1	1 x 1
759129	6638363	2	10 x 10
759147	6638359	1	1 x 1
759152	6638359	2	5 x 5
759153	6638299	2	2 x 2
759156	6638322	1	1 x 1
759157	6638324	1	1 x 1
759157	6638293	1	1 x 1
759162	6638292	1	1 x 1
759163	6638330	1	1 x 1
759163	6638322	2	2 x 2
759163	6638362	1	5 x 5
759167	6638270	1	1 x 1
759168	6638273	1	1 x 1
759169	6638260	1	1 x 1
759172	6638363	1	1 x 1
759175	6638290	1	1 x 1
759187	6638276	1	1 x 1

APPENDIX I: LOCATION AND POPULATION NUMBERS OF *GREVILLEA GEORGEANA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759196	6638278	1	1 x 1
759659	6639487	1	2 x 2
759693	6639476	1	1 x 1
759696	6638579	1	1 x 1
759861	6638994	1	1 x 1
759887	6638993	1	1 x 1
759897	6639004	1	1 x 1
759902	6638991	1	1 x 1
759905	6639010	1	1 x 1
759913	6638948	3	5 x 5
759914	6639002	1	1 x 1
759915	6638953	1	1 x 1
759916	6638971	1	1 x 1
759917	6638961	1	1 x 1
759918	6638938	2	5 x 5
759920	6638960	1	1 x 1
759924	6638933	2	5 x 5
759928	6638925	2	2 x 2
759930	6638958	1	1 x 1
759933	6638917	1	1 x 1
759935	6638989	1	1 x 1
759936	6638939	3	5 x 5
759938	6638946	2	5 x 5
759939	6638992	1	1 x 1
759940	6638934	3	5 x 5
759940	6638955	2	5 x 5
759941	6638927	1	1 x 1
759943	6638913	2	2 x 2
759945	6638920	1	1 x 1
759949	6638914	1	1 x 1
759952	6638908	1	1 x 1
759952	6638949	1	2 x 2
759954	6638917	1	1 x 1
759955	6638907	1	1 x 1
759958	6638922	1	1 x 1
759963	6638915	2	2 x 2
759965	6638973	1	1 x 1
759969	6638989	1	1 x 1
759979	6638882	1	2 x 2

APPENDIX I: LOCATION AND POPULATION NUMBERS OF *GREVILLEA GEORGEANA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759982	6638915	1	5 x 5
760217	6639202	1	1 x 1

APPENDIX J: LOCATION AND POPULATION NUMBERS OF *HIBBERTIA LEPIDOCALYX* SUBSP. *TUBERCULATA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
758933	6638210	1	1 x 1
758934	6638211	3	3 x 1
758938	6638233	1	1 x 1
758938	6638210	1	1 x 1
758940	6638229	1	1 x 1
758941	6638230	1	1 x 1
758941	6638215	1	1 x 1
758943	6638228	1	1 x 1
758943	6638233	16	4 x 1
758944	6638231	2	1 x 1
758944	6638211	4	3 x 3
758945	6638219	4	1 x 2
758945	6638220	5	2 x 1
758945	6638222	8	3 x 1
758945	6638226	7	3 x 1
758948	6638217	2	1 x 1
758948	6638223	8	3 x 2
758948	6638225	15	4 x 2
758948	6638232	19	4 x 2
758950	6638225	7	3 x 2
758951	6638240	1	1 x 1
758951	6638240	11	3 x 3
758952	6638239	1	1 x 1
758952	6638244	1	1 x 1
758952	6638247	1	1 x 1
758952	6638226	7	2 x 1
758952	6638248	11	3 x 2
758953	6638224	1	1 x 1
758953	6638236	1	1 x 1
758953	6638238	1	1 x 1
758953	6638239	1	1 x 1
758953	6638233	15	3 x 2
758954	6638272	1	1 x 1
758954	6638244	1	1 x 1
758955	6638235	1	1 x 1
758955	6638263	1	1 x 1
758955	6638252	1	1 x 1
758956	6638247	1	1 x 1

APPENDIX J: LOCATION AND POPULATION NUMBERS OF *HIBBERTIA LEPIDOCALYX* SUBSP. *TUBERCULATA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
758956	6638248	1	1 x 1
758956	6638251	1	1 x 1
758957	6638291	1	1 x 1
758963	6638249	6	5 x 5
758979	6638308	1	1 x 1
758979	6638307	1	1 x 1
758981	6638247	1	1 x 1
758998	6638183	2	2 x 2
759001	6638249	1	1 x 1
759002	6638173	1	1 x 1
759002	6638189	4	5 x 5
759005	6638189	6	5 x 5
759009	6638190	4	5 x 5
759011	6638193	4	5 x 5
759014	6638194	8	5 x 5
759015	6638007	1	1 x 1
759018	6638195	5	5 x 5
759029	6638204	1	1 x 1
759058	6638279	2	1 x 1
759060	6638290	1	1 x 1
759060	6638058	2	5 x 5
759063	6638297	1	1 x 1
759081	6638333	1	1 x 1
759086	6637995	1	1 x 1
759086	6637997	1	1 x 1
759086	6637995	1	1 x 1
759087	6637998	4	1 x 1
759088	6637998	2	1 x 1
759088	6637997	1	1 x 1
759091	6637996	3	1 x 1
759094	6638334	1	1 x 1
759095	6638338	1	1 x 1
759095	6638334	1	1 x 1
759095	6638335	1	1 x 1
759098	6638339	1	1 x 1
759119	6638347	1	1 x 1
759123	6638351	1	1 x 1
759131	6638359	2	5 x 5

APPENDIX J: LOCATION AND POPULATION NUMBERS OF *HIBBERTIA LEPIDOCALYX* SUBSP. *TUBERCULATA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759153	6638026	1	1 x 1
759155	6638026	2	1 x 1
759157	6638027	1	1 x 1
759161	6638031	1	1 x 1
759169	6638034	2	1 x 1
759172	6638363	1	1 x 1
759180	6638022	3	1 x 1
759183	6638020	1	1 x 1
759184	6638022	4	2 x 2
759184	6638025	1	1 x 1
759185	6638011	2	1 x 1
759185	6638015	2	1 x 1
759185	6638025	1	1 x 1
759201	6638376	1	1 x 1
759374	6638454	1	1 x 1
759375	6638454	5	3 x 1
759538	6638515	1	1 x 1
759538	6638559	3	2 x 2
759538	6638512	5	2 x 2
759539	6638529	2	2 x 2
759540	6638579	1	1 x 1
759540	6638550	1	1 x 1
759540	6638534	6	2 x 2
759541	6638539	5	2 x 2
759542	6638544	6	5 x 5
759543	6638592	2	1 x 1
759543	6638534	2	2 x 2
759544	6638543	3	2 x 2
759545	6638590	1	1 x 1
759554	6638603	2	1 x 1
759555	6638611	1	1 x 1
759556	6639441	1	1 x 1
759564	6638659	1	1 x 1
759564	6639447	1	1 x 1
759605	6638678	1	1 x 1
759631	6639490	3	2 x 2
759634	6638571	5	2 x 2
759637	6638577	5	2 x 2

APPENDIX J: LOCATION AND POPULATION NUMBERS OF *HIBBERTIA LEPIDOCALYX* SUBSP. *TUBERCULATA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759639	6638571	20	3 x 3
759641	6638576	2	2 x 2
759642	6638565	6	3 x 3
759646	6638566	8	2 x 2
759647	6638573	4	2 x 2
759649	6638574	2	1 x 1
759649	6638579	4	1 x 1
759649	6638570	5	2 x 2
759649	6638581	11	3 x 3
759649	6638566	17	5 x 5
759650	6638589	6	2 x 2
759650	6638580	18	4 x 4
759652	6638588	3	2 x 2
759652	6638586	15	4 x 4
759653	6638570	2	1 x 1
759653	6638590	1	1 x 1
759653	6638573	5	2 x 2
759657	6638572	5	5 x 5
759657	6638572	9	5 x 5
759658	6638564	1	1 x 1
759658	6638563	4	5 x 5
759660	6638786	8	1 x 1
759660	6638789	1	1 x 1
759660	6638566	2	1 x 1
759662	6638784	5	1 x 1
759662	6638737	1	1 x 1
759662	6638739	2	1 x 1
759662	6638737	1	1 x 1
759662	6638743	3	2 x 1
759662	6638739	3	2 x 1
759662	6638733	8	4 x 1
759663	6638749	1	1 x 1
759664	6638780	5	1 x 1
759664	6638731	2	1 x 1
759665	6638731	1	1 x 1
759665	6638725	1	1 x 1
759665	6638723	11	5 x 1
759666	6638734	1	1 x 1

APPENDIX J: LOCATION AND POPULATION NUMBERS OF *HIBBERTIA LEPIDOCALYX* SUBSP. *TUBERCULATA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759666	6638735	2	1 x 1
759666	6638754	8	3 x 2
759667	6638728	1	1 x 1
759668	6638730	1	1 x 1
759668	6638729	2	1 x 1
759668	6638726	7	2 x 2
759669	6638753	1	1 x 1
759669	6638749	1	1 x 1
759669	6638721	2	1 x 1
759670	6638754	1	1 x 1
759670	6638753	5	2 x 2
759671	6638723	3	1 x 1
759671	6638721	1	1 x 1
759671	6638720	10	4 x 1
759672	6638722	9	2 x 2
759673	6638720	7	2 x 1
759673	6638717	7	4 x 1
759674	6638772	1	1 x 1
759675	6638568	1	1 x 1
759676	6638719	8	2 x 1
759677	6638716	1	1 x 1
759677	6638716	1	1 x 1
759677	6638716	1	1 x 1
759678	6638767	1	1 x 1
759680	6638718	5	1 x 1
759680	6638717	1	1 x 1
759680	6638718	3	2 x 2
759684	6638714	1	1 x 1
759684	6638713	3	1 x 1
759684	6638571	1	1 x 1
759685	6638657	3	5 x 5
759686	6638774	1	1 x 1
759686	6638770	2	1 x 1
759686	6638711	3	1 x 1
759686	6638710	2	1 x 1
759688	6638774	1	1 x 1
759689	6638661	1	1 x 1
759690	6638777	1	1 x 1

APPENDIX J: LOCATION AND POPULATION NUMBERS OF *HIBBERTIA LEPIDOCALYX* SUBSP. *TUBERCULATA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759690	6638778	4	1 x 1
759690	6638777	3	1 x 1
759691	6638706	2	1 x 1
759691	6638705	2	1 x 1
759691	6638686	1	1 x 1
759691	6638787	4	1 x 2
759692	6638780	2	1 x 1
759692	6638788	1	1 x 1
759692	6638783	2	1 x 1
759693	6638701	1	1 x 1
759693	6638793	2	1 x 1
759693	6638791	1	1 x 1
759695	6638793	1	1 x 1
759696	6638787	2	1 x 1
759696	6638781	3	2 x 2
759696	6638695	9	4 x 2
759697	6638783	3	1 x 1
759699	6638696	1	1 x 1
759699	6638788	6	2 x 2
759699	6638691	9	4 x 2
759700	6638797	1	1 x 1
759700	6638777	15	2 x 2
759702	6638781	11	2 x 2
759706	6638777	10	2 x 2
759707	6638800	1	1 x 1
759709	6638686	1	1 x 1
759709	6638689	5	2 x 2
759710	6638776	1	1 x 1
759711	6638801	6	2 x 2
759711	6638779	5	2 x 2
759713	6638801	2	1 x 1
759713	6638689	2	1 x 1
759713	6638688	2	1 x 1
759715	6638687	2	1 x 1
759715	6638688	3	1 x 1
759716	6638802	1	1 x 1
759716	6638686	2	1 x 1
759716	6638684	2	2 x 1

APPENDIX J: LOCATION AND POPULATION NUMBERS OF *HIBBERTIA LEPIDOCALYX* SUBSP. *TUBERCULATA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759717	6638686	1	1 x 1
759718	6638684	7	2 x 2
759719	6638803	1	1 x 1
759720	6638683	1	1 x 1
759722	6638687	1	1 x 1
759722	6638687	1	1 x 1
759723	6638808	2	1 x 1
759724	6638692	1	1 x 1
759725	6638692	2	2 x 2
759734	6638695	2	1 x 1
759750	6638705	1	1 x 1
759750	6638838	5	2 x 1
759753	6638711	1	1 x 1
759754	6638854	5	1 x 1
759759	6638847	2	1 x 1
759759	6638856	3	1 x 1
759759	6638747	8	2 x 1
759760	6638868	43	10 x 2
759762	6638871	13	4 x 2
759763	6638723	1	1 x 1
759765	6638868	17	5 x 1
759768	6638877	7	3 x 2
759773	6638879	1	1 x 1
759773	6638888	8	2 x 2
759775	6638896	1	1 x 1
759775	6638893	1	1 x 1
759776	6638896	1	1 x 1
759779	6638908	1	1 x 1
759780	6638907	1	1 x 1
759782	6638912	2	1 x 1
759791	6638928	1	1 x 1
759927	6639288	1	1 x 1
759929	6638982	5	2 x 2
759937	6638922	1	1 x 1
759937	6638925	2	2 x 2
759944	6638921	1	1 x 1
759946	6638922	2	2 x 2
759980	6638997	1	1 x 1

APPENDIX J: LOCATION AND POPULATION NUMBERS OF *HIBBERTIA LEPIDOCALYX* SUBSP. *TUBERCULATA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759981	6638990	1	1 x 1
759998	6639221	1	1 x 1

APPENDIX K: LOCATION AND POPULATION NUMBERS OF *MIRBELIA FERRICOLA* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759114	6638340	1	1 x 1
759117	6638339	1	1 x 1
759174	6637988	1	1 x 1
759178	6638282	1	1 x 1
759190	6638031	1	1 x 1
759544	6638538	1	1 x 1
759616	6638741	1	1 x 1
759619	6638752	1	1 x 1
759676	6638766	1	1 x 1
759676	6638771	1	1 x 1
759687	6638576	1	1 x 1
759692	6638794	1	1 x 1
759710	6638776	1	1 x 1
759716	6638689	1	1 x 1
759716	6638685	1	1 x 1
759837	6638661	1	1 x 1
759900	6639005	1	1 x 1
759930	6638956	1	1 x 1
759933	6638938	1	1 x 1
759955	6638907	2	2 x 2
759996	6639018	1	1 x 1
759998	6639221	1	1 x 1
759999	6639228	1	1 x 1

APPENDIX L: LOCATION AND POPULATION NUMBERS OF *NEURACHNE ANNULARIS* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRURY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
758824	6639136	2	1 x 1
758846	6639147	1	1 x 1
758857	6639152	1	1 x 1
758881	6639166	1	1 x 1
758939	6638221	22	20 x 15
758949	6638224	4	1 x 1
758952	6638244	3	1 x 1
758952	6638243	5	3 x 3
758953	6638228	1	1 x 1
758953	6638236	4	2 x 1
758953	6638238	1	1 x 1
758954	6638259	9	4 x 4
758954	6638246	6	1 x 1
758955	6638254	1	1 x 1
758955	6638251	1	1 x 1
758955	6638248	1	1 x 1
758955	6638233	10	4 x 2
758955	6638237	2	1 x 1
758956	6638255	32	4 x 4
758956	6638247	1	1 x 1
758979	6638246	5	5 x 5
758989	6638182	8	5 x 5
758990	6638185	8	5 x 5
758992	6638247	1	1 x 1
759002	6638249	14	3 x 3
759002	6638173	8	5 x 5
759006	6639218	1	1 x 1
759010	6638248	11	3 x 3
759017	6638246	2	2 x 2
759019	6638198	10	5 x 5
759022	6638245	1	1 x 1
759026	6638026	3	1 x 1
759033	6638205	1	1 x 1
759034	6637964	14	3 x 10
759037	6638033	1	1 x 1
759038	6638207	6	1 x 1
759039	6638035	1	1 x 1
759044	6637968	17	4 x 4
759046	6637967	3	1 x 1

APPENDIX L: LOCATION AND POPULATION NUMBERS OF *NEURACHNE ANNULARIS* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRURY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759048	6637968	12	2 x 2
759051	6638266	1	1 x 1
759054	6638271	1	1 x 1
759054	6638045	3	1 x 1
759056	6638228	1	1 x 1
759057	6638285	2	2 x 2
759057	6637972	31	4 x 10
759058	6638051	10	10 x 10
759060	6638058	11	10 x 10
759063	6637975	4	2 x 2
759064	6638298	1	1 x 1
759065	6638066	7	10 x 10
759068	6638239	1	1 x 1
759072	6638327	1	1 x 1
759073	6638062	13	5 x 5
759075	6638229	1	1 x 1
759076	6638070	28	10 x 10
759079	6638307	2	2 x 2
759080	6637989	27	4 x 4
759083	6638306	4	3 x 3
759084	6638313	5	2 x 2
759086	6637993	7	1 x 1
759094	6638334	1	1 x 1
759096	6638323	1	1 x 1
759099	6637904	7	2 x 1
759101	6637904	1	1 x 1
759103	6638004	33	5 x 5
759108	6638009	8	1 x 1
759110	6638341	3	1 x 1
759111	6638363	14	5 x 5
759118	6638010	1	1 x 1
759125	6638367	6	5 x 5
759127	6637927	46	5 x 2
759129	6638363	10	10 x 10
759130	6637933	1	1 x 1
759132	6638017	1	1 x 1
759135	6638021	3	1 x 1
759138	6637952	7	3 x 2
759141	6638331	1	1 x 1

APPENDIX L: LOCATION AND POPULATION NUMBERS OF *NEURACHNE ANNULARIS* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRURY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759156	6638303	1	1 x 1
759156	6638029	9	1 x 1
759157	6638331	2	2 x 2
759159	6638030	4	1 x 1
759162	6638284	1	1 x 1
759167	6637983	25	8 x 8
759173	6638230	33	15 x 15
759174	6638238	3	1 x 1
759175	6638255	1	1 x 1
759177	6638240	2	1 x 1
759180	6638005	2	1 x 1
759183	6638284	1	1 x 1
759186	6638293	1	1 x 1
759192	6638115	2	1 x 1
759210	6638133	4	1 x 1
759235	6637917	25	10 x 3
759235	6637990	21	4 x 1
759236	6637924	1	1 x 1
759236	6637928	1	1 x 1
759239	6637989	15	4 x 1
759244	6637955	2	1 x 1
759245	6638029	29	5 x 2
759246	6638016	18	3 x 2
759248	6638006	3	1 x 1
759249	6638021	11	3 x 2
759250	6637950	50	5 x 3
759250	6637988	8	3 x 4
759250	6638165	1	1 x 1
759253	6637946	90	10 x 3
759256	6637933	80	10 x 3
759275	6637988	3	1 x 1
759289	6637995	1	1 x 1
759344	6638155	73	65 x 20
759359	6638448	1	1 x 1
759366	6638447	1	1 x 1
759371	6638450	3	2 x 1
759371	6638451	1	1 x 1
759371	6638451	2	1 x 1
759375	6638453	12	3 x 1

APPENDIX L: LOCATION AND POPULATION NUMBERS OF *NEURACHNE ANNULARIS* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRURY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759379	6638453	3	1 x 1
759380	6638454	9	2 x 1
759426	6639326	1	1 x 1
759459	6639341	2	1 x 1
759538	6638580	11	2 x 2
759541	6638584	4	2 x 2
759568	6638640	1	1 x 1
759589	6638644	4	2 x 2
759589	6638644	6	2 x 2
759589	6638603	3	1 x 1
759593	6638590	17	25 x 15
759594	6638655	1	1 x 1
759604	6638688	1	1 x 1
759607	6638680	1	1 x 1
759634	6638571	4	2 x 2
759634	6638566	2	2 x 2
759636	6638578	1	1 x 1
759649	6638590	1	1 x 1
759658	6638563	5	5 x 5
759663	6638740	4	2 x 1
759664	6638564	2	1 x 1
759664	6638732	1	1 x 1
759665	6639486	4	5 x 5
759666	6638565	5	1 x 1
759666	6638730	3	1 x 1
759670	6638767	1	1 x 1
759673	6638719	1	1 x 1
759673	6638564	15	5 x 5
759678	6638570	1	1 x 1
759679	6638567	15	5 x 5
759680	6638713	2	1 x 1
759681	6638713	1	1 x 1
759683	6638850	1	1 x 1
759684	6638571	1	1 x 1
759684	6638569	27	2 x 2
759689	6638572	1	1 x 1
759691	6638577	1	1 x 1
759693	6638648	5	1 x 1
759698	6638585	2	1 x 1

APPENDIX L: LOCATION AND POPULATION NUMBERS OF *NEURACHNE ANNULARIS* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRURY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759698	6638583	2	1 x 1
759699	6638589	1	1 x 1
759704	6638890	1	1 x 1
759705	6638799	1	1 x 1
759705	6638688	1	1 x 1
759706	6639472	2	5 x 5
759709	6638771	1	1 x 1
759709	6638893	1	1 x 1
759719	6638778	1	1 x 1
759724	6638807	5	2 x 1
759724	6638687	3	1 x 1
759726	6638692	1	1 x 1
759728	6638775	1	1 x 1
759729	6638688	1	1 x 1
759733	6638812	6	2 x 1
759735	6638778	1	1 x 1
759736	6638777	3	1 x 1
759739	6638781	1	2 x 2
759739	6638772	15	3 x 3
759740	6638693	1	1 x 1
759741	6638696	1	1 x 1
759746	6638702	1	1 x 1
759751	6639445	3	2 x 2
759752	6638709	5	2 x 2
759754	6639441	5	2 x 2
759759	6639434	1	1 x 1
759764	6638736	24	23 x 15
759765	6639429	2	1 x 1
759772	6639424	1	1 x 1
759776	6638896	1	1 x 1
759776	6638896	1	1 x 1
759777	6638899	2	1 x 1
759777	6639419	1	1 x 1
759779	6638903	2	2 x 2
759783	6639412	1	1 x 1
759788	6639408	1	1 x 1
759793	6639399	3	2 x 1
759821	6639067	1	1 x 1
759831	6638679	1	1 x 1

APPENDIX L: LOCATION AND POPULATION NUMBERS OF *NEURACHNE ANNULARIS* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRURY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759833	6639343	1	1 x 1
759839	6638678	3	2 x 2
759839	6638671	4	5 x 5
759840	6638590	7	10 x 10
759841	6638681	18	5 x 5
759855	6639329	4	5 x 1
759858	6639016	49	22 x 15
759868	6639322	3	3 x 1
759872	6638992	40	3 x 100
759875	6639316	2	1 x 1
759877	6639316	1	1 x 1
759877	6639315	1	1 x 1
759878	6639021	65	5 x 5
759879	6639015	2	1 x 1
759886	6639016	8	2 x 2
759887	6638993	12	2 x 3
759888	6638983	30	4 x 4
759889	6639002	5	1 x 1
759890	6639302	1	1 x 1
759892	6638983	3	1 x 1
759894	6639008	16	3 x 3
759895	6638973	37	3 x 3
759897	6639298	1	1 x 1
759898	6638989	54	4 x 4
759898	6638985	7	2 x 2
759899	6639017	3	3 x 3
759899	6639018	1	1 x 1
759905	6638968	48	5 x 5
759908	6638984	41	5 x 5
759908	6638981	75	5 x 5
759909	6639010	12	3 x 3
759910	6639005	4	1 x 1
759911	6638977	1	1 x 1
759911	6638972	14	3 x 3
759913	6639017	23	12 x 12
759913	6639004	10	2 x 2
759914	6639291	15	5 x 1
759916	6638976	23	3 x 3
759917	6639002	5	1 x 1

APPENDIX L: LOCATION AND POPULATION NUMBERS OF *NEURACHNE ANNULARIS* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRURY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759919	6638979	35	4 x 4
759920	6638997	20	3 x 3
759920	6638997	1	1 x 1
759921	6639020	4	1 x 1
759922	6639290	3	3 x 1
759924	6638994	22	2 x 2
759925	6638965	8	2 x 2
759926	6639288	2	1 x 1
759926	6638996	30	3 x 3
759927	6639288	2	1 x 1
759927	6639017	44	5 x 5
759929	6638982	6	3 x 3
759930	6639288	2	2 x 2
759930	6638958	1	1 x 1
759932	6638496	2	2 x 2
759932	6638991	20	2 x 2
759933	6638985	3	1 x 1
759934	6639288	1	1 x 1
759937	6638971	20	6 x 6
759938	6639019	18	5 x 5
759941	6638945	1	1 x 1
759942	6638976	28	4 x 4
759943	6639019	5	2 x 2
759946	6638949	12	2 x 2
759956	6639017	2	2 x 2
759960	6638938	30	3 x 3
759964	6638939	41	4 x 4
759966	6638907	54	5 x 5
759967	6639014	54	5 x 5
759968	6638917	37	4 x 4
759978	6639281	2	2 x 1
759979	6638937	59	4 x 4
759980	6638936	66	4 x 4
759984	6639021	42	5 x 5
759985	6639283	3	3 x 1
759986	6638900	40	5 x 5
759987	6638930	85	1 x 1
759990	6639208	40	5 x 5
759995	6639198	1	1 x 1

APPENDIX L: LOCATION AND POPULATION NUMBERS OF *NEURACHNE ANNULARIS* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRURY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759996	6639195	3	1 x 1
759997	6639216	16	6 x 2
759997	6638945	21	2 x 2
759997	6638934	37	3 x 3
759998	6639208	4	3 x 3
759998	6639287	1	1 x 1
760003	6639218	2	3 x 1
760005	6639200	7	4 x 4
760005	6639288	1	1 x 1
760006	6639209	1	1 x 1
760008	6639210	6	4 x 4
760011	6639215	1	1 x 1
760012	6639291	1	1 x 1
760012	6639214	3	2 x 2
760012	6639211	1	1 x 1
760012	6639207	8	2 x 2
760015	6639292	1	1 x 1
760015	6639224	1	1 x 1
760015	6639221	1	1 x 1
760016	6639218	1	1 x 1
760016	6639217	1	1 x 1
760019	6639291	15	5 x 5
760019	6639238	2	1 x 1
760022	6639284	4	3 x 3
760023	6639269	1	1 x 1
760024	6639276	1	1 x 1
760024	6639258	1	1 x 1
760024	6639248	5	1 x 1
760025	6639256	2	1 x 1
760027	6639259	3	1 x 1
760030	6639168	1	1 x 1
760031	6639169	1	1 x 1
760035	6639170	1	1 x 1
760038	6639173	1	1 x 1
760047	6639183	6	25 x 10
760069	6639278	1	1 x 1
760072	6639272	4	4 x 1
760072	6639276	1	1 x 1
760088	6639242	2	1 x 1

APPENDIX L: LOCATION AND POPULATION NUMBERS OF *NEURACHNE ANNULARIS* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRURY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
760089	6639122	324	20 x 15
760110	6639114	13	20 x 10
760114	6639125	37	20 x 15
760130	6639141	91	25 x 8
760139	6639133	7	3 x 3
760189	6639173	103	15 x 15
760197	6639173	63	3 x 100
760243	6639224	188	3 x 125
760253	6639230	230	20 x 5
760276	6639299	6	5 x 5

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
757744	6640036	1	1 x 1
758405	6639401	1	1 x 1
758500	6639285	1	1 x 1
758512	6639282	1	1 x 1
758512	6639282	2	1 x 1
758518	6639281	1	1 x 1
758840	6638979	1	1 x 1
758844	6638999	1	1 x 1
758848	6638954	1	1 x 1
758913	6638759	1	1 x 1
758933	6638210	1	1 x 1
758934	6638213	2	1 x 1
758934	6638214	1	1 x 1
758936	6638211	1	1 x 1
758938	6638214	1	1 x 1
758939	6638229	1	1 x 1
758941	6638215	2	1 x 1
758941	6638222	1	1 x 1
758943	6638228	1	1 x 1
758943	6638233	17	5 x 2
758944	6638211	5	3 x 3
758944	6638231	2	2 x 1
758945	6638219	3	1 x 1
758945	6638220	2	2 x 1
758945	6638222	1	1 x 1
758945	6638227	1	1 x 1
758947	6638224	1	1 x 1
758948	6638217	2	1 x 1
758948	6638223	1	1 x 1
758948	6638232	7	3 x 2
758951	6638240	1	1 x 1
758951	6638240	2	1 x 1
758951	6638240	2	1 x 1
758952	6638238	5	2 x 2
758953	6638233	5	3 x 2
758953	6638238	1	1 x 1
758954	6638262	1	1 x 1
758955	6638251	2	1 x 1
758955	6638254	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
758955	6638263	1	1 x 1
758956	6638247	2	1 x 1
758956	6638251	1	1 x 1
758956	6638255	1	1 x 1
758956	6638255	1	1 x 1
758956	6638281	1	1 x 1
758956	6638284	1	1 x 1
758957	6638286	1	1 x 1
758957	6638291	1	1 x 1
758959	6638292	1	1 x 1
758963	6638249	6	5 x 5
758963	6638294	1	1 x 1
758967	6638250	1	1 x 1
758968	6638303	1	1 x 1
758971	6638305	1	1 x 1
758972	6638251	1	1 x 1
758972	6638305	1	1 x 1
758972	6638305	1	1 x 1
758975	6638247	6	5 x 5
758980	6638247	1	1 x 1
758981	6638247	3	5 x 5
758983	6638247	1	1 x 1
758984	6638245	2	2 x 2
758990	6638185	12	5 x 5
758991	6638179	3	5 x 5
758994	6638175	1	1 x 1
758994	6638248	1	1 x 1
758995	6638313	1	1 x 1
758996	6638187	6	5 x 5
758999	6638313	1	1 x 1
759000	6638313	1	1 x 1
759001	6638182	1	1 x 1
759002	6638189	3	5 x 5
759005	6638189	2	5 x 5
759009	6638015	1	1 x 1
759010	6638011	1	1 x 1
759014	6638194	6	5 x 5
759016	6638008	1	1 x 1
759018	6638005	4	2 x 2

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759018	6638024	4	1 x 1
759019	6638198	4	5 x 5
759019	6638199	1	1 x 1
759020	6638314	1	1 x 1
759021	6638247	1	1 x 1
759023	6637997	1	1 x 1
759025	6637989	1	1 x 1
759025	6638316	2	1 x 1
759026	6638317	2	1 x 1
759028	6637986	1	1 x 1
759028	6638552	1	1 x 1
759029	6637973	1	1 x 1
759029	6637977	1	1 x 1
759031	6638226	3	2 x 2
759032	6637967	1	1 x 1
759032	6638317	2	1 x 1
759032	6638321	1	1 x 1
759033	6638317	1	1 x 1
759033	6638322	1	1 x 1
759033	6638323	1	1 x 1
759035	6638318	1	1 x 1
759036	6637959	1	1 x 1
759037	6638033	1	1 x 1
759039	6637966	1	1 x 1
759039	6638317	1	1 x 1
759040	6638321	2	1 x 1
759040	6638323	1	1 x 1
759041	6638034	2	1 x 1
759041	6638317	2	2 x 2
759042	6637967	2	2 x 2
759043	6638208	1	1 x 1
759043	6638323	1	1 x 1
759045	6638323	1	1 x 1
759046	6638317	1	1 x 1
759046	6638323	1	1 x 1
759047	6638316	2	1 x 1
759047	6638324	2	1 x 1
759049	6638040	5	5 x 5
759050	6638039	3	2 x 2

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759050	6638323	1	1 x 1
759051	6638323	1	1 x 1
759051	6638528	3	2 x 2
759053	6638215	2	1 x 1
759054	6638047	1	1 x 1
759054	6638318	6	5 x 1
759055	6637973	1	1 x 1
759055	6638529	1	1 x 1
759056	6637969	1	1 x 1
759057	6637972	1	1 x 1
759057	6638321	1	1 x 1
759057	6638324	1	1 x 1
759057	6638324	1	1 x 1
759058	6638282	2	1 x 1
759059	6638237	1	1 x 1
759060	6638290	1	1 x 1
759062	6638326	2	2 x 2
759063	6637975	3	2 x 2
759063	6638294	1	1 x 1
759064	6638293	1	1 x 1
759065	6638065	2	5 x 5
759067	6638327	1	1 x 1
759068	6637977	1	1 x 1
759069	6638071	3	5 x 5
759069	6638327	2	2 x 2
759071	6637978	1	1 x 1
759071	6638301	1	1 x 1
759072	6637978	1	1 x 1
759072	6637983	5	3 x 1
759072	6638301	2	1 x 1
759073	6637983	1	1 x 1
759075	6637985	1	1 x 1
759076	6637982	1	1 x 1
759076	6637983	1	1 x 1
759076	6637989	2	1 x 1
759076	6638077	4	5 x 5
759076	6638303	2	1 x 1
759078	6637988	1	1 x 1
759079	6638306	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759079	6638307	2	1 x 1
759086	6637904	1	1 x 1
759086	6637905	1	1 x 1
759088	6637996	1	1 x 1
759090	6637905	1	1 x 1
759090	6637997	1	1 x 1
759090	6638333	1	1 x 1
759091	6638319	1	1 x 1
759094	6637893	1	1 x 1
759094	6637904	1	1 x 1
759095	6637999	1	1 x 1
759099	6638002	1	1 x 1
759099	6638339	1	1 x 1
759103	6638337	1	1 x 1
759104	6638341	1	1 x 1
759106	6638367	1	1 x 1
759108	6638336	2	1 x 1
759110	6638369	14	5 x 5
759113	6638360	3	5 x 5
759115	6638347	1	1 x 1
759116	6638367	10	5 x 5
759117	6638355	1	1 x 1
759117	6638360	11	5 x 5
759119	6638342	1	1 x 1
759119	6638347	1	1 x 1
759122	6638356	4	5 x 5
759123	6638353	4	5 x 5
759123	6638371	7	5 x 5
759124	6638347	1	1 x 1
759124	6638357	15	5 x 5
759125	6638367	6	5 x 5
759129	6638363	17	10 x 10
759131	6638359	17	5 x 5
759132	6638348	3	2 x 2
759133	6637879	1	1 x 1
759135	6638342	1	1 x 1
759137	6638338	1	1 x 1
759141	6638353	1	1 x 1
759142	6638328	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759142	6638329	1	1 x 1
759143	6638321	1	1 x 1
759147	6638326	3	2 x 2
759147	6638328	2	1 x 1
759148	6638333	1	1 x 1
759148	6638333	2	2 x 2
759150	6638337	1	1 x 1
759151	6638327	1	1 x 1
759151	6638332	1	1 x 1
759156	6638030	1	1 x 1
759157	6638293	1	1 x 1
759157	6638326	2	1 x 1
759158	6638331	4	2 x 2
759160	6638345	4	2 x 2
759161	6638342	2	1 x 1
759161	6638345	1	1 x 1
759162	6638292	1	1 x 1
759162	6638335	1	1 x 1
759165	6638282	1	1 x 1
759167	6638270	1	1 x 1
759169	6638220	1	1 x 1
759169	6638226	2	3 x 1
759169	6638279	1	1 x 1
759170	6638225	1	1 x 1
759171	6638222	1	1 x 1
759172	6638363	1	1 x 1
759173	6638235	1	1 x 1
759173	6638256	6	3 x 1
759175	6638223	1	1 x 1
759175	6638224	1	1 x 1
759175	6638255	1	1 x 1
759175	6638363	2	2 x 2
759176	6638255	2	1 x 1
759177	6638240	4	3 x 1
759177	6638243	6	4 x 1
759177	6638252	5	4 x 1
759177	6638254	2	2 x 1
759177	6638255	1	1 x 1
759178	6638224	2	2 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759178	6638276	3	2 x 2
759180	6638245	2	2 x 1
759181	6638294	33	3 x 3
759182	6638239	2	1 x 1
759182	6638241	2	1 x 1
759183	6638287	2	1 x 1
759183	6638289	1	1 x 1
759184	6638282	1	1 x 1
759185	6638235	2	1 x 1
759185	6638290	2	1 x 1
759185	6638291	2	1 x 1
759186	6638291	1	1 x 1
759190	6638293	10	2 x 2
759191	6638280	1	1 x 1
759194	6638284	1	1 x 1
759199	6638015	1	1 x 1
759200	6638228	2	2 x 2
759201	6638376	1	1 x 1
759202	6638233	1	1 x 1
759204	6638380	1	1 x 1
759208	6638221	1	1 x 1
759209	6638221	1	1 x 1
759209	6638381	1	1 x 1
759212	6638222	1	1 x 1
759212	6638223	1	1 x 1
759215	6638234	6	3 x 3
759217	6638223	1	1 x 1
759218	6638382	1	1 x 1
759220	6638230	1	1 x 1
759221	6638229	1	1 x 1
759225	6638224	2	2 x 2
759225	6638232	1	1 x 1
759227	6638233	3	4 x 4
759228	6638384	1	1 x 1
759238	6637991	4	4 x 1
759238	6638164	1	1 x 1
759238	6638164	1	1 x 1
759238	6638387	1	1 x 1
759241	6637972	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759249	6638002	4	2 x 2
759251	6638394	1	1 x 1
759252	6638394	2	2 x 2
759252	6638398	8	5 x 5
759257	6638059	1	1 x 1
759259	6638061	3	2 x 2
759261	6638065	1	1 x 1
759261	6638065	1	1 x 1
759261	6638065	2	2 x 2
759263	6638060	1	1 x 1
759265	6638061	2	2 x 2
759265	6638397	2	2 x 2
759269	6638400	2	2 x 2
759270	6638401	6	5 x 5
759275	6638404	1	1 x 1
759285	6638403	3	2 x 2
759309	6638418	7	5 x 5
759310	6638414	12	5 x 5
759315	6638420	3	5 x 5
759317	6638423	1	1 x 1
759321	6638424	2	5 x 5
759322	6638424	4	5 x 5
759327	6638430	5	5 x 5
759330	6638430	2	2 x 2
759333	6638431	4	2 x 2
759338	6638432	4	5 x 5
759338	6638436	10	5 x 5
759341	6638521	1	1 x 1
759342	6638433	1	1 x 1
759345	6638442	5	4 x 1
759347	6638525	1	1 x 1
759350	6638443	2	1 x 1
759352	6638441	2	1 x 1
759353	6638444	1	1 x 1
759353	6638445	3	2 x 1
759355	6638448	5	2 x 1
759357	6638448	3	2 x 1
759359	6638445	1	1 x 1
759361	6638451	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759363	6638270	2	7 x 7
759364	6638266	1	1 x 1
759365	6638449	2	2 x 1
759371	6638452	2	1 x 1
759374	6638454	1	1 x 1
759376	6638453	1	1 x 1
759378	6638455	1	1 x 1
759379	6638455	1	1 x 1
759380	6638455	1	1 x 1
759382	6638456	1	1 x 1
759384	6638345	1	1 x 1
759384	6638347	1	1 x 1
759384	6638364	2	2 x 2
759385	6638360	1	1 x 1
759385	6638362	1	1 x 1
759386	6638367	1	1 x 1
759386	6638461	1	1 x 1
759387	6638461	1	1 x 1
759388	6638342	1	1 x 1
759388	6638376	1	1 x 1
759388	6638462	1	1 x 1
759390	6638468	1	1 x 1
759391	6638463	1	1 x 1
759395	6638473	1	1 x 1
759396	6638395	1	1 x 1
759408	6638497	1	1 x 1
759409	6638439	1	1 x 1
759409	6638441	1	1 x 1
759411	6638404	1	1 x 1
759411	6638475	2	2 x 2
759412	6638403	1	1 x 1
759412	6638512	1	1 x 1
759413	6638435	1	1 x 1
759413	6638503	1	1 x 1
759414	6638486	1	1 x 1
759415	6638519	1	1 x 1
759416	6638521	1	1 x 1
759416	6638527	2	1 x 1
759417	6638407	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759419	6638418	1	1 x 1
759421	6638412	1	1 x 1
759422	6638414	1	1 x 1
759434	6638489	1	1 x 1
759438	6638487	1	1 x 1
759447	6638477	3	2 x 2
759455	6638480	1	1 x 1
759458	6638462	1	1 x 1
759460	6638465	1	1 x 1
759462	6638467	1	1 x 1
759466	6638455	1	1 x 1
759467	6638460	1	1 x 1
759468	6638370	1	1 x 1
759470	6638459	1	1 x 1
759470	6638462	1	1 x 1
759471	6638455	1	1 x 1
759472	6638385	1	1 x 1
759473	6638381	1	1 x 1
759474	6638365	1	1 x 1
759474	6638366	1	1 x 1
759475	6638452	1	1 x 1
759476	6638452	1	1 x 1
759477	6638386	1	1 x 1
759479	6638449	1	1 x 1
759479	6638450	1	1 x 1
759479	6638466	1	1 x 1
759481	6638383	3	2 x 2
759482	6638320	1	1 x 1
759483	6638312	1	1 x 1
759483	6638339	2	2 x 2
759483	6638443	1	1 x 1
759484	6638316	1	1 x 1
759484	6638394	2	2 x 2
759486	6638312	5	2 x 2
759486	6638325	4	3 x 3
759487	6638307	1	1 x 1
759487	6638337	5	5 x 5
759487	6638345	1	1 x 1
759488	6638319	2	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759488	6638325	4	5 x 5
759488	6638346	1	1 x 1
759489	6638306	2	2 x 2
759489	6638307	2	2 x 2
759489	6638307	4	5 x 5
759491	6638342	1	1 x 1
759491	6638443	1	1 x 1
759492	6638400	1	1 x 1
759492	6638404	1	1 x 1
759492	6638410	2	5 x 5
759492	6638443	1	1 x 1
759493	6638310	4	5 x 5
759493	6638316	2	2 x 2
759493	6638442	1	1 x 1
759494	6638462	2	2 x 2
759495	6638347	1	1 x 1
759496	6638471	1	1 x 1
759500	6638468	1	1 x 1
759502	6638416	4	5 x 5
759502	6638467	1	1 x 1
759504	6638357	1	1 x 1
759504	6638441	1	1 x 1
759506	6638481	1	1 x 1
759508	6638422	10	10 x 10
759509	6638443	2	1 x 1
759513	6638483	1	1 x 1
759514	6638434	15	10 x 10
759516	6638446	1	1 x 1
759517	6638267	20	5 x 5
759519	6638423	2	1 x 1
759520	6638421	2	2 x 2
759521	6638273	5	3 x 3
759521	6638446	1	1 x 1
759526	6638477	1	1 x 1
759527	6638482	1	1 x 1
759529	6638407	1	1 x 1
759530	6638269	6	2 x 2
759531	6638281	2	2 x 2
759531	6638410	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759531	6638487	1	1 x 1
759534	6638278	5	2 x 2
759535	6638503	2	1 x 1
759536	6638269	3	2 x 2
759536	6638511	1	1 x 1
759537	6638365	1	1 x 1
759538	6638275	1	1 x 1
759538	6638571	2	1 x 1
759539	6638265	1	1 x 1
759539	6638281	4	2 x 2
759540	6638267	1	1 x 1
759540	6638534	1	1 x 1
759540	6638579	1	1 x 1
759540	6638579	1	1 x 1
759540	6638579	1	1 x 1
759541	6638570	3	2 x 2
759541	6638585	3	1 x 1
759542	6638554	2	1 x 1
759542	6638555	1	1 x 1
759542	6638573	3	2 x 2
759543	6638534	1	1 x 1
759543	6638550	1	1 x 1
759543	6638592	1	1 x 1
759544	6638270	1	1 x 1
759544	6638538	2	2 x 2
759544	6638543	1	1 x 1
759547	6638332	1	1 x 1
759548	6638593	1	1 x 1
759549	6638297	1	1 x 1
759549	6638316	1	1 x 1
759550	6638293	3	1 x 1
759551	6638318	1	1 x 1
759551	6638603	6	2 x 2
759552	6638312	1	1 x 1
759552	6638599	1	1 x 1
759553	6638308	2	1 x 1
759554	6638291	1	1 x 1
759555	6638292	1	1 x 1
759560	6638615	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759562	6638613	7	2 x 2
759562	6638619	2	1 x 1
759562	6638630	1	1 x 1
759569	6638626	3	1 x 1
759583	6638587	1	1 x 1
759584	6638621	1	1 x 1
759585	6638622	1	1 x 1
759586	6638579	1	1 x 1
759587	6638584	1	1 x 1
759587	6638632	1	1 x 1
759588	6638579	1	1 x 1
759588	6638599	1	1 x 1
759588	6638624	1	1 x 1
759588	6638632	2	2 x 2
759589	6638652	1	1 x 1
759590	6638627	1	1 x 1
759590	6638634	1	1 x 1
759590	6638638	1	1 x 1
759590	6638648	3	2 x 2
759592	6638608	3	2 x 2
759593	6638585	1	1 x 1
759594	6638588	1	1 x 1
759594	6638661	1	1 x 1
759595	6638578	1	1 x 1
759595	6638588	1	1 x 1
759596	6638660	1	1 x 1
759597	6638653	2	2 x 2
759597	6638657	1	1 x 1
759597	6638698	4	2 x 2
759598	6638582	1	1 x 1
759598	6638587	3	1 x 1
759598	6638664	2	1 x 1
759598	6638707	2	1 x 1
759601	6638665	1	1 x 1
759601	6638666	4	3 x 3
759602	6638688	1	1 x 1
759602	6638689	1	1 x 1
759602	6638692	8	4 x 4
759603	6638685	3	2 x 2

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759603	6638690	3	3 x 3
759604	6638686	2	1 x 1
759604	6638687	1	1 x 1
759604	6638693	3	2 x 2
759605	6638685	2	2 x 2
759606	6638670	1	1 x 1
759606	6638673	6	3 x 3
759607	6638677	2	2 x 2
759607	6638677	2	2 x 2
759608	6638672	3	2 x 2
759608	6638728	1	1 x 1
759609	6638679	1	1 x 1
759609	6638684	1	1 x 1
759609	6638729	1	1 x 1
759619	6638753	1	1 x 1
759623	6638767	1	1 x 1
759624	6638768	1	1 x 1
759625	6638771	1	1 x 1
759627	6638769	1	1 x 1
759629	6638780	1	1 x 1
759635	6638788	1	1 x 1
759639	6638566	2	2 x 2
759646	6638565	2	2 x 2
759646	6638577	1	1 x 1
759647	6638005	1	1 x 1
759649	6638590	1	1 x 1
759652	6638588	2	2 x 2
759653	6638590	3	2 x 2
759656	6638787	1	1 x 1
759657	6638802	3	2 x 2
759657	6638808	1	1 x 1
759658	6638563	4	2 x 2
759658	6638813	4	2 x 2
759659	6638561	4	2 x 2
759659	6638597	1	1 x 1
759659	6638792	3	2 x 2
759662	6638566	1	1 x 1
759662	6638733	1	1 x 1
759662	6638736	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759662	6638737	1	1 x 1
759662	6638739	2	1 x 1
759664	6638614	3	1 x 1
759664	6638615	1	1 x 1
759665	6638725	1	1 x 1
759665	6638751	1	1 x 1
759666	6638562	4	4 x 4
759666	6638739	1	1 x 1
759667	6638619	3	1 x 1
759667	6638847	2	1 x 1
759668	6638760	1	1 x 1
759668	6638838	1	1 x 1
759669	6638769	1	1 x 1
759670	6638841	1	1 x 1
759671	6638565	2	1 x 1
759671	6638842	1	1 x 1
759671	6638853	1	1 x 1
759671	6638858	1	1 x 1
759672	6638718	2	2 x 1
759672	6638834	1	1 x 1
759673	6638564	1	1 x 1
759673	6638717	2	2 x 2
759673	6638839	2	2 x 2
759674	6638842	1	1 x 1
759675	6638634	1	1 x 1
759675	6638839	1	1 x 1
759675	6638846	1	1 x 1
759678	6638661	1	1 x 1
759678	6638769	1	1 x 1
759679	6638008	1	1 x 1
759679	6638638	1	1 x 1
759679	6638648	1	1 x 1
759680	6638713	1	1 x 1
759681	6638663	1	1 x 1
759682	6638665	1	1 x 1
759682	6638846	1	1 x 1
759684	6638672	1	1 x 1
759685	6638657	1	1 x 1
759685	6638713	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759686	6638707	2	1 x 1
759686	6638711	2	1 x 1
759687	6638572	2	2 x 2
759687	6638710	3	2 x 2
759688	6638662	1	1 x 1
759689	6638655	1	1 x 1
759689	6638677	8	5 x 5
759689	6638687	3	1 x 1
759690	6638693	1	1 x 1
759690	6638707	3	1 x 1
759690	6638777	1	1 x 1
759691	6638686	1	1 x 1
759691	6638701	1	1 x 1
759692	6638582	1	1 x 1
759692	6638642	1	1 x 1
759692	6638696	1	1 x 1
759693	6638631	1	1 x 1
759693	6638681	1	1 x 1
759693	6638791	2	1 x 1
759695	6638793	1	1 x 1
759696	6638583	1	1 x 1
759697	6638593	1	1 x 1
759697	6638796	1	1 x 1
759698	6638693	1	1 x 1
759698	6638696	1	1 x 1
759698	6638698	2	1 x 1
759699	6638691	3	2 x 1
759700	6638691	1	1 x 1
759702	6638781	1	2 x 2
759704	6638689	1	1 x 1
759705	6638687	5	4 x 1
759705	6638795	1	1 x 1
759705	6638796	1	1 x 1
759706	6638781	1	1 x 1
759707	6638800	1	1 x 1
759709	6638686	1	1 x 1
759709	6638690	1	1 x 1
759709	6638801	1	1 x 1
759710	6638779	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759712	6638686	1	1 x 1
759713	6638689	1	1 x 1
759713	6638801	1	1 x 1
759715	6638688	2	1 x 1
759715	6638688	2	1 x 1
759715	6638689	1	1 x 1
759716	6638684	2	1 x 1
759716	6638689	1	1 x 1
759717	6638686	1	1 x 1
759717	6638687	1	1 x 1
759717	6638773	2	2 x 2
759718	6638684	1	1 x 1
759718	6638686	2	1 x 1
759721	6638684	4	1 x 1
759721	6638687	4	1 x 1
759721	6638786	1	1 x 1
759722	6638688	1	1 x 1
759722	6638780	2	1 x 1
759723	6638785	1	1 x 1
759724	6638692	9	3 x 3
759724	6638803	1	1 x 1
759724	6638809	1	1 x 1
759725	6638689	2	1 x 1
759727	6638811	1	1 x 1
759728	6638686	2	1 x 1
759728	6638689	1	1 x 1
759728	6638691	3	1 x 1
759729	6638687	2	1 x 1
759729	6638690	2	1 x 1
759729	6638812	1	1 x 1
759730	6638787	1	1 x 1
759731	6638784	1	1 x 1
759732	6638688	2	1 x 1
759732	6638693	3	2 x 2
759732	6638776	7	2 x 2
759733	6638765	1	1 x 1
759733	6638815	1	1 x 1
759733	6638817	1	1 x 1
759734	6638695	2	7 x 7

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759734	6638777	2	2 x 2
759734	6638783	1	1 x 1
759736	6638770	1	1 x 1
759737	6638694	2	1 x 1
759737	6638696	1	1 x 1
759737	6638784	2	1 x 1
759738	6638786	1	1 x 1
759739	6638774	1	1 x 1
759739	6638775	2	1 x 1
759739	6638779	7	2 x 2
759740	6638815	1	1 x 1
759741	6638695	1	1 x 1
759741	6638696	1	1 x 1
759741	6638818	2	1 x 1
759742	6638698	4	2 x 2
759743	6638825	1	1 x 1
759744	6638697	2	1 x 1
759744	6638698	4	2 x 2
759744	6638823	1	1 x 1
759746	6638702	2	1 x 1
759748	6638825	1	1 x 1
759749	6638705	1	1 x 1
759749	6638826	1	1 x 1
759750	6638703	1	1 x 1
759750	6638838	2	1 x 1
759751	6638825	1	1 x 1
759752	6638709	1	1 x 1
759752	6638841	4	2 x 1
759753	6638711	5	2 x 2
759753	6638712	3	2 x 2
759753	6638715	1	1 x 1
759753	6638856	1	1 x 1
759754	6638733	1	1 x 1
759754	6638847	1	1 x 1
759755	6638711	4	2 x 2
759755	6638719	1	1 x 1
759755	6638730	1	1 x 1
759755	6638732	1	1 x 1
759755	6638733	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759756	6638715	3	2 x 2
759756	6638729	1	1 x 1
759756	6638738	4	1 x 1
759756	6638839	1	1 x 1
759757	6638709	1	1 x 1
759758	6638739	1	1 x 1
759758	6638843	2	1 x 1
759759	6638719	5	2 x 2
759759	6638742	2	1 x 1
759759	6638852	2	2 x 2
759760	6638738	1	1 x 1
759760	6638868	1	1 x 1
759763	6638721	2	2 x 1
759763	6638723	3	1 x 1
759763	6638725	1	1 x 1
759763	6638733	1	1 x 1
759763	6638742	3	1 x 1
759764	6638718	4	2 x 2
759764	6638722	1	1 x 1
759766	6638746	1	1 x 1
759767	6638727	1	1 x 1
759767	6638746	1	1 x 1
759767	6638748	1	1 x 1
759768	6638877	1	1 x 1
759768	6638877	1	1 x 1
759770	6638744	1	1 x 1
759770	6638876	1	1 x 1
759771	6638728	1	1 x 1
759771	6638744	1	1 x 1
759772	6638733	1	1 x 1
759774	6639422	1	1 x 1
759782	6638912	2	1 x 1
759786	6638927	2	1 x 1
759787	6638019	1	1 x 1
759800	6638013	1	1 x 1
759807	6638942	4	2 x 2
759808	6638020	3	1 x 1
759817	6638952	1	1 x 1
759829	6638954	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759831	6638607	2	1 x 1
759833	6638659	1	1 x 1
759834	6638962	1	1 x 1
759838	6638955	1	1 x 1
759838	6638969	1	1 x 1
759842	6639335	1	1 x 1
759844	6638955	1	1 x 1
759845	6638971	6	5 x 5
759850	6638955	4	5 x 5
759851	6639010	2	2 x 2
759853	6639025	2	1 x 1
759854	6639012	1	1 x 1
759855	6639009	1	1 x 1
759855	6639026	1	1 x 1
759856	6639326	3	3 x 2
759865	6638989	1	1 x 1
759868	6638954	1	1 x 1
759868	6639322	1	1 x 1
759872	6638992	3	5 x 5
759879	6639015	1	1 x 1
759885	6638956	8	5 x 5
759892	6638959	1	1 x 1
759892	6638972	2	1 x 1
759893	6638958	3	2 x 2
759893	6638967	3	2 x 2
759893	6639007	1	1 x 1
759896	6638958	3	2 x 2
759897	6638966	2	3 x 3
759898	6638958	3	2 x 2
759898	6639006	2	1 x 1
759901	6638959	2	2 x 2
759903	6638974	1	1 x 1
759903	6638986	1	1 x 1
759904	6638978	2	2 x 2
759904	6638985	3	3 x 3
759906	6639295	1	1 x 1
759908	6638977	2	2 x 2
759908	6638981	1	1 x 1
759911	6638974	2	2 x 2

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759913	6638982	1	1 x 1
759918	6638938	10	5 x 5
759918	6638946	21	5 x 5
759920	6638960	2	3 x 1
759920	6639291	2	1 x 1
759921	6638957	6	2 x 2
759923	6638950	6	2 x 2
759924	6638930	11	10 x 10
759925	6638965	1	1 x 1
759926	6639288	1	1 x 1
759930	6638956	4	5 x 5
759930	6638958	1	1 x 1
759930	6639289	1	1 x 1
759931	6638939	74	10 x 10
759933	6638972	2	1 x 1
759933	6638975	4	2 x 2
759936	6638939	7	5 x 5
759937	6638925	52	10 x 10
759937	6638964	1	1 x 1
759939	6638502	1	1 x 1
759939	6638502	1	1 x 1
759939	6638992	1	1 x 1
759942	6638957	1	1 x 1
759945	6638928	5	2 x 2
759946	6638949	1	1 x 1
759950	6638922	16	4 x 4
759954	6638988	2	1 x 1
759957	6638923	2	1 x 1
759957	6638989	2	1 x 1
759960	6638995	1	1 x 1
759961	6638994	2	1 x 1
759962	6638926	1	1 x 1
759962	6638935	8	2 x 2
759963	6638924	1	1 x 1
759963	6639001	3	1 x 1
759964	6638939	1	1 x 1
759965	6639002	2	1 x 1
759970	6638942	6	5 x 5
759971	6638960	4	5 x 5

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759975	6638991	2	1 x 1
759977	6638891	1	1 x 1
759977	6638991	1	1 x 1
759980	6638902	1	1 x 1
759980	6638997	3	2 x 2
759981	6638946	2	5 x 5
759981	6638992	2	1 x 1
759981	6638992	4	2 x 2
759982	6638895	6	5 x 5
759982	6638992	1	1 x 1
759983	6638974	4	5 x 5
759984	6638911	3	5 x 5
759985	6638949	2	5 x 5
759988	6638899	1	1 x 1
759990	6638891	1	1 x 1
759991	6638990	1	1 x 1
759992	6638972	6	5 x 5
759994	6639216	1	1 x 1
759995	6638882	3	5 x 5
759995	6638890	5	5 x 5
759995	6638964	5	10 x 10
759995	6639215	1	1 x 1
760004	6638962	2	1 x 1
760018	6638952	1	1 x 1
760021	6639287	1	1 x 1
760021	6639296	1	1 x 1
760107	6639108	2	2 x 2
760108	6639110	1	1 x 1
760113	6639126	1	1 x 1
760114	6639104	5	4 x 4
760116	6639112	2	2 x 2
760118	6639128	1	1 x 1
760119	6639113	1	1 x 1
760119	6639114	1	1 x 1
760120	6639118	1	1 x 1
760121	6639122	1	1 x 1
760122	6639113	1	1 x 1
760125	6639107	1	1 x 1
760125	6639139	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
760126	6639139	1	1 x 1
760128	6639122	10	5 x 5
760129	6639141	1	1 x 1
760130	6639137	1	1 x 1
760131	6639113	1	1 x 1
760131	6639140	1	1 x 1
760133	6639110	1	1 x 1
760133	6639137	1	1 x 1
760133	6639138	1	1 x 1
760136	6639114	1	1 x 1
760139	6639133	1	1 x 1
760139	6639133	16	20 x 3
760139	6639137	1	1 x 1
760139	6639138	1	1 x 1
760142	6639143	2	1 x 1
760146	6639143	1	1 x 1
760151	6639143	1	1 x 1
760151	6639150	1	1 x 1
760159	6639152	2	2 x 2
760162	6639148	1	1 x 1
760165	6639148	2	2 x 2
760170	6639150	2	2 x 2
760171	6639155	2	2 x 2
760174	6639150	1	1 x 1
760175	6639153	1	1 x 1
760178	6639151	2	2 x 2
760178	6639174	1	1 x 1
760178	6639176	3	3 x 3
760178	6639180	4	4 x 4
760183	6639153	2	2 x 2
760184	6639178	1	1 x 1
760185	6639185	1	1 x 1
760186	6639167	1	1 x 1
760186	6639180	2	2 x 2
760187	6639161	4	2 x 2
760188	6639175	1	1 x 1
760189	6639164	2	2 x 2
760191	6639170	1	1 x 1
760191	6639177	1	1 x 1

APPENDIX M: LOCATION AND POPULATION NUMBERS OF *STENANTHEMUM NEWBEYI* (P3) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
760192	6639178	1	1 x 1
760193	6639182	2	3 x 3
760194	6639175	3	3 x 3
760198	6639176	1	1 x 1
760198	6639182	1	1 x 1
760210	6639198	1	1 x 1
760214	6639198	1	1 x 1
760215	6639208	2	1 x 1
760216	6639208	1	1 x 1
760217	6639199	3	2 x 2
760217	6639202	1	1 x 1
760218	6639206	1	1 x 1
760219	6639221	1	1 x 1
760220	6639205	2	2 x 2
760246	6639240	3	5 x 5

APPENDIX N: LOCATION AND POPULATION NUMBERS OF *BANKSIA ARBOREA* (P4) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
758943	6638228	1	1 x 1
758948	6638217	1	1 x 1
758953	6638272	2	2 x 2
758989	6638182	2	5 x 5
758990	6638185	1	5 x 5
758996	6638184	2	5 x 5
759002	6638173	1	5 x 5
759003	6638315	1	1 x 1
759012	6638010	1	1 x 1
759012	6638015	1	1 x 1
759014	6638010	1	1 x 1
759015	6638010	2	2 x 2
759015	6638195	1	5 x 5
759016	6638016	1	1 x 1
759017	6638018	1	1 x 1
759019	6638019	2	1 x 1
759023	6637999	1	1 x 1
759058	6638051	1	1 x 1
759069	6638071	2	5 x 5
759076	6638067	2	5 x 5
759077	6638074	1	1 x 1
759109	6638370	1	1 x 1
759118	6638346	1	1 x 1
759123	6638371	6	10 x 10
759125	6638367	2	5 x 5
759126	6638353	1	1 x 1
759129	6638363	3	10 x 10
759130	6638348	2	2 x 2
759131	6638346	1	1 x 1
759131	6638359	1	1 x 1
759163	6638330	1	1 x 1
759167	6638230	1	1 x 1
759175	6638227	1	1 x 1
759177	6638254	1	1 x 1
759177	6638254	1	1 x 1
759181	6638292	1	1 x 1
759181	6638292	1	1 x 1
759183	6638295	2	1 x 1
759184	6638282	1	1 x 1

APPENDIX N: LOCATION AND POPULATION NUMBERS OF *BANKSIA ARBOREA* (P4) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759185	6638291	1	1 x 1
759186	6638291	1	1 x 1
759187	6638290	1	1 x 1
759187	6638290	1	1 x 1
759188	6638273	1	1 x 1
759189	6638289	2	2 x 2
759190	6638284	3	2 x 2
759194	6638284	1	1 x 1
759194	6638294	1	1 x 1
759195	6638279	1	1 x 1
759196	6638278	1	1 x 1
759202	6638285	1	1 x 1
759207	6638228	1	1 x 1
759207	6638233	1	1 x 1
759207	6638233	1	1 x 1
759211	6638233	2	2 x 2
759217	6638223	2	2 x 2
759219	6638223	4	3 x 3
759219	6638231	2	2 x 2
759220	6638234	1	1 x 1
759221	6638231	2	2 x 2
759223	6638228	1	1 x 1
759223	6638228	2	2 x 2
759225	6638223	1	1 x 1
759225	6638229	1	1 x 1
759225	6638231	1	1 x 1
759227	6638155	1	1 x 1
759229	6638157	1	1 x 1
759234	6638159	1	1 x 1
759234	6638164	2	2 x 1
759238	6638162	1	1 x 1
759238	6638164	1	1 x 1
759239	6638162	1	1 x 1
759242	6638168	1	1 x 1
759243	6638164	1	1 x 1
759245	6638163	1	1 x 1
759250	6638166	1	1 x 1
759251	6638394	1	2 x 2
759253	6638166	1	1 x 1

APPENDIX N: LOCATION AND POPULATION NUMBERS OF *BANKSIA ARBOREA* (P4) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759253	6638167	1	1 x 1
759254	6638168	1	1 x 1
759355	6638266	1	1 x 1
759393	6638471	1	1 x 1
759395	6638391	1	1 x 1
759397	6638397	2	2 x 2
759411	6638417	1	1 x 1
759414	6638499	2	3 x 3
759452	6638470	1	1 x 1
759465	6638463	1	1 x 1
759469	6638368	1	2 x 2
759471	6638455	1	1 x 1
759472	6638374	1	2 x 2
759474	6638372	2	2 x 2
759475	6638378	2	2 x 2
759475	6638378	2	4 x 4
759476	6638368	2	5 x 5
759480	6638378	1	1 x 1
759480	6638382	1	1 x 1
759484	6638382	3	5 x 5
759484	6638394	1	2 x 2
759488	6638325	1	2 x 2
759488	6638394	1	5 x 5
759488	6638463	1	1 x 1
759495	6638466	1	1 x 1
759496	6638471	1	1 x 1
759513	6638430	1	1 x 1
759518	6638441	1	1 x 1
759520	6638252	1	1 x 1
759524	6638266	2	1 x 1
759528	6638255	1	1 x 1
759531	6638281	1	1 x 1
759538	6638264	1	1 x 1
759539	6638260	1	1 x 1
759550	6638278	1	1 x 1
759551	6638284	1	1 x 1
759554	6638280	1	1 x 1
759585	6638610	1	1 x 1
759586	6638596	1	1 x 1

APPENDIX N: LOCATION AND POPULATION NUMBERS OF *BANKSIA ARBOREA* (P4) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759590	6638640	1	1 x 1
759590	6638640	1	1 x 1
759649	6638579	2	1 x 1
759650	6638582	2	4 x 4
759651	6638577	2	2 x 2
759653	6638571	3	5 x 5
759653	6638573	1	5 x 5
759656	6638567	1	1 x 1
759673	6638563	1	5 x 5
759675	6638570	1	1 x 1
759679	6638568	1	1 x 1
759682	6638572	2	1 x 1
759684	6638570	1	1 x 1
759684	6638676	1	1 x 1
759686	6638710	1	1 x 1
759688	6638572	1	1 x 1
759689	6638571	1	5 x 5
759689	6638660	1	1 x 1
759693	6638436	1	1 x 1
759702	6638590	1	5 x 5
759713	6638688	1	1 x 1
759715	6638687	1	1 x 1
759715	6638689	1	1 x 1
759718	6638686	1	1 x 1
759722	6638687	1	1 x 1
759724	6638692	2	2 x 2
759725	6638689	1	1 x 1
759728	6638691	1	1 x 1
759730	6638691	1	1 x 1
759730	6638693	2	1 x 1
759732	6638688	1	1 x 1
759733	6638691	2	2 x 2
759734	6638695	3	1 x 1
759736	6638695	1	1 x 1
759736	6638695	3	1 x 1
759737	6638696	1	1 x 1
759741	6638696	2	1 x 1
759741	6638696	1	1 x 1
759741	6638696	1	1 x 1

APPENDIX N: LOCATION AND POPULATION NUMBERS OF *BANKSIA ARBOREA* (P4) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
759742	6638699	1	1 x 1
759745	6638697	1	1 x 1
759746	6638702	1	1 x 1
759749	6638703	1	1 x 1
759753	6638710	1	1 x 1
759756	6638738	1	1 x 1
759759	6638734	1	1 x 1
759765	6638723	1	1 x 1
759832	6638659	1	1 x 1
759840	6638662	1	5 x 5
759847	6639019	1	1 x 1
759876	6639017	1	1 x 1
759893	6638958	2	5 x 5
759913	6638982	1	1 x 1
759915	6638944	1	1 x 1
759915	6638953	1	1 x 1
759929	6638977	1	1 x 1
759930	6638947	1	5 x 5
759934	6638924	1	1 x 1
759939	6638939	1	5 x 5
759940	6638917	1	1 x 1
759941	6638917	1	1 x 1
759941	6638945	1	5 x 5
759944	6638998	1	1 x 1
759947	6638914	1	1 x 1
759950	6638956	1	5 x 5
759957	6638917	1	1 x 1
759961	6638916	1	1 x 1
759964	6638901	1	1 x 1
759973	6638895	1	5 x 5
759978	6638888	1	2 x 2
759987	6638907	2	5 x 5
759989	6638882	1	5 x 5
759995	6638964	35	10 x 10
760030	6639036	1	1 x 1
760074	6639107	1	1 x 1
760076	6639136	1	1 x 1
760078	6639137	2	2 x 2
760080	6639127	1	1 x 1

APPENDIX N: LOCATION AND POPULATION NUMBERS OF *BANKSIA ARBOREA* (P4) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
760082	6639113	1	1 x 1
760111	6639105	1	1 x 1
760114	6639109	1	1 x 1
760114	6639132	1	1 x 1
760118	6639112	1	1 x 1
760119	6639115	1	1 x 1
760120	6639118	3	3 x 3
760120	6639138	1	1 x 1
760122	6639116	3	2 x 2
760123	6639112	1	1 x 1
760128	6639122	5	5 x 5
760131	6639102	2	10 x 2
760131	6639118	2	4 x 4
760133	6639138	1	1 x 1
760136	6639106	1	1 x 1
760136	6639127	1	1 x 1
760136	6639130	1	2 x 2
760137	6639132	2	2 x 2
760151	6639143	1	1 x 1
760153	6639150	1	1 x 1
760157	6639146	1	1 x 1
760161	6639147	1	1 x 1
760175	6639153	1	1 x 1
760176	6639150	2	2 x 2
760183	6639168	2	4 x 4
760191	6639170	1	1 x 1
760196	6639165	1	1 x 1
760199	6639172	2	4 x 4
760205	6639187	1	1 x 1
760209	6639183	1	1 x 1
760209	6639190	1	1 x 1
760215	6639226	1	1 x 1
760215	6639227	2	5 x 5
760217	6639202	1	1 x 1
760219	6639225	1	1 x 1
760223	6639235	1	5 x 5
760225	6639218	1	1 x 1
760227	6639221	1	1 x 1
760234	6639235	1	5 x 5

APPENDIX N: LOCATION AND POPULATION NUMBERS OF *BANKSIA ARBOREA* (P4) RECORDED WITHIN THE BUNGALBIN EAST SURVEY AREA, FEBRUARY 2013.

Note: "Recording Area" indicates the size of the area within which the indicated number of plants was recorded.

Location (GDA94, Zone 50)		Number of Plants	Recording Area (m x m)
Easting (mE)	Northing (mN)		
760236	6639222	1	5 x 5
760237	6639261	2	5 x 5
760241	6639250	1	5 x 5
760246	6639223	2	5 x 5
760246	6639240	1	5 x 5
760248	6639231	2	5 x 5
760284	6639296	1	1 x 1
760286	6639299	1	1 x 1
760288	6639308	1	1 x 1
760293	6639300	1	1 x 1
760344	6639555	1	2 x 2
760344	6639560	1	1 x 1
760354	6639560	1	1 x 1
760364	6639535	1	1 x 1
759230	6638165	1	1 x 1
759229	6638163	1	1 x 1

APPENDIX O: ASSESSMENT OF IMPACT ON THREATENED AND PRIORITY FLORA RECORDED IN THE BUNGALBIN EAST PROSPECT SURVEY AREA

Total size of area surveyed = 5.79 ha. Extent to be disturbed is based on the clearing of 1.72 ha of native vegetation at 40 drill pad locations and 11.62 km of tracks. All drill pad areas and track areas surveyed were previously cleared areas. Potential impact takes into account a 5 m buffer about the direct impact area.

SCC = *Wildlife Conservation Act 1950* / DEC listing (State Conservation Code); FCC = *EPBC Act 1999* listing (Federal Conservation Code)

Taxon	SCC	FCC	Description	Soils, topography and vegetation	Flowering time	Likelihood of detection if present	Confirmed / likely occurrence in program area	Extent / abundance outside program area	Confirmed / likely impact
Leucopogon spectabilis	T	E	Erect, narrow and sparingly branched shrub to about 1m	Shallow red-brown loam, ironstone, in rock crevices on exposed ridges	Aug-Oct	High when flowering, generally high due to specific habitat and identifiable vegetative characteristics	Confirmed. 62 individuals within Bungalbin East survey area 62 individuals recorded within tenement M77/1097	160 individuals within defined area of COO2 bioregion.	Taxon is restricted in habitat, currently only known from the Helena and Aurora Range, and is present in very low numbers. <u>Likely impact</u> Existing old drill pads and tracks Number of plants = 0 Locally = 0 % Regionally = 0 % Impact = low <u>Potential impact</u> Whilst the likely impact has been classed as low, this taxon is growing on a rocky slope immediately adjacent to drill pad 35. No plants would be directly impacted by clearing at drill pad 35, but may be impacted as a consequence of failure to take due care during drilling operations.

APPENDIX O: ASSESSMENT OF IMPACT ON THREATENED AND PRIORITY FLORA RECORDED IN THE BUNGALBIN EAST PROSPECT SURVEY AREA

Total size of area surveyed = 5.79 ha. Extent to be disturbed is based on the clearing of 1.72 ha of native vegetation at 40 drill pad locations and 11.62 km of tracks. All drill pad areas and track areas surveyed were previously cleared areas. Potential impact takes into account a 5 m buffer about the direct impact area.

SCC = *Wildlife Conservation Act 1950* / DEC listing (State Conservation Code); FCC = *EPBC Act 1999* listing (Federal Conservation Code)

Taxon	SCC	FCC	Description	Soils, topography and vegetation	Flowering time	Likelihood of detection if present	Confirmed / likely occurrence in program area	Extent / abundance outside program area	Confirmed / likely impact
Tetratheca aphylla subsp. *aphylla*	T	V	Tufted shrub, 0.3m-1m high and 0.1-1.2m wide	Red-brown loam, sandy loam and banded ironstone	Sep	High when flowering, generally good due to vegetative characteristics	Confirmed. 1,913 individuals within Bungalbin East survey area 2,713 individuals recorded within tenement M77/1097	5,691 individuals within defined area of COO2 bioregion.	Taxon is restricted in habitat, currently only known from the Helena and Aurora Range, and is present in low numbers, but is common in local area. <u>Likely impact</u> Existing old drill pads and tracks: Number of plants = 51 Locally = 1.88 % Regionally = 0.90fs % Impact = low (locally), low (regionally) <u>Potential impact</u> 5 m buffer zone about existing old drill pads and tracks: Number of plants = 151 Locally = 5.56 % Regionally = 2.65 % Impact = low (locally), low (regionally)

APPENDIX O: ASSESSMENT OF IMPACT ON THREATENED AND PRIORITY FLORA RECORDED IN THE BUNGALBIN EAST PROSPECT SURVEY AREA

Total size of area surveyed = 5.79 ha. Extent to be disturbed is based on the clearing of 1.72 ha of native vegetation at 40 drill pad locations and 11.62 km of tracks. All drill pad areas and track areas surveyed were previously cleared areas. Potential impact takes into account a 5 m buffer about the direct impact area.

SCC = *Wildlife Conservation Act 1950* / DEC listing (State Conservation Code); FCC = *EPBC Act 1999* listing (Federal Conservation Code)

Taxon	SCC	FCC	Description	Soils, topography and vegetation	Flowering time	Likelihood of detection if present	Confirmed / likely occurrence in program area	Extent / abundance outside program area	Confirmed / likely impact
Acacia adinophylla	P1	n/a	Prostrate shrub about 0.5m or erect tangled shrub to 1.5m high to 1.7m wide	stony loam or sandy soils , clay; ironstone ridges, undulating plains	Sep-Nov	High Readily observable due to characteristic growth form; dissimilar to other taxa in area	Confirmed. 421 individuals within Bungalbin East survey area 613 individuals recorded within tenement M77/1097	846 individuals within defined area of COO2 bioregion.	Taxon is a disturbance opportunist. <u>Likely impact</u> Existing old drill pads and tracks: Number of plants = 133 Locally = 21.69 % Regionally = 15.72 % Impact = high (locally), medium (regionally) <u>Potential impact</u> 5 m buffer zone about existing old drill pads and tracks: Number of plants = 370 Locally = 60.36 % Regionally = 43.73 % Impact = high (locally), high (regionally)

APPENDIX O: ASSESSMENT OF IMPACT ON THREATENED AND PRIORITY FLORA RECORDED IN THE BUNGALBIN EAST PROSPECT SURVEY AREA

Total size of area surveyed = 5.79 ha. Extent to be disturbed is based on the clearing of 1.72 ha of native vegetation at 40 drill pad locations and 11.62 km of tracks. All drill pad areas and track areas surveyed were previously cleared areas. Potential impact takes into account a 5 m buffer about the direct impact area.

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Taxon	SCC	FCC	Description	Soils, topography and vegetation	Flowering time	Likelihood of detection if present	Confirmed / likely occurrence in program area	Extent / abundance outside program area	Confirmed / likely impact
Lepidosperma bungalbin	P1	n/a	Sedge, grows in clumps, 0.8m high and 0.8m wide	Red loam soils with banded ironstone rock and gravel, on steep mid slopes	July	Moderate Distinctive vegetative characteristics	Confirmed. 355 individuals within Bungalbin East survey area; 2,608 individuals recorded within tenement M77/1097	2,981 individuals within defined area of COO2 bioregion.	<u>Likely impact</u> Existing old drill pads and tracks: Number of plants = 86 Locally = 3.29 % Regionally = 2.88 % Impact = low (locally), low (regionally) <u>Potential impact</u> 5 m buffer zone about existing old drill pads and tracks: Number of plants = 317 Locally =12.15 % Regionally = 10.63 % Impact = low (locally), low (regionally)

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Taxon	SCC	FCC	Description	Soils, topography and vegetation	Flowering time	Likelihood of detection if present	Confirmed / likely occurrence in program area	Extent / abundance outside program area	Confirmed / likely impact
Grevillea georgeana	P3	n/a	Erect to widely spreading shrub, 1-3m high, up to 4m wide	Rocky or stony soil, or sand, or loam on ironstone hills and rocky slopes	Jul-Oct	High when flowering, generally good due to vegetative characteristics	Confirmed. 98 individuals within Bungalbin East survey area 269 individuals recorded within tenement M77/1097	1,838 individuals within defined area of COO2 bioregion.	<u>Likely impact</u> Existing old drill pads and tracks: Number of plants = 39 Locally = 14.50 % Regionally = 2.12 % Impact = medium (locally), low (regionally) <u>Potential impact</u> Existing old drill pads and tracks (including 5m buffer zone around drill pads and tracks): Number of plants = 93 Locally = 34.57 % Regionally = 5.06 % Impact = medium (locally), low (regionally)

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Taxon	SCC	FCC	Description	Soils, topography and vegetation	Flowering time	Likelihood of detection if present	Confirmed / likely occurrence in program area	Extent / abundance outside program area	Confirmed / likely impact
Hibbertia lepidocalyx subsp. *tuberculata*	P3	n/a	Erect spreading shrub to 0.5m	orange loam; ironstone gravel	Jul-Sep	High when flowering, generally good due to vegetative characteristics	Confirmed. 932 individuals within Bungalbin East survey area 966 individuals recorded within tenement M77/1097	2,769 individuals within defined area of COO2 bioregion.	<u>Likely impact</u> Existing old drill pads and tracks: Number of plants = 267 Locally = 27.63 % Regionally = 9.64 % Impact = high (locally), medium (regionally) <u>Potential impact</u> Existing old drill pads and tracks (including 5m buffer zone around drill pads and tracks): Number of plants = 876 Locally = 90.68 % Regionally = 31.63 % Impact = high (locally), medium (regionally)

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Taxon	SCC	FCC	Description	Soils, topography and vegetation	Flowering time	Likelihood of detection if present	Confirmed / likely occurrence in program area	Extent / abundance outside program area	Confirmed / likely impact
Mirbelia ferricola	P3	n/a	Erect, pungent shrub to 2.0m high	clay-loams, banded ironstone; hill slopes and ridges	Sep-Nov	High Readily observable due to characteristic growth form; dissimilar to other taxa in area	Confirmed. 24 individuals within Bungalbin East survey area 57 individuals recorded within tenement M77/1097	695 individuals within defined area of COO2 bioregion.	<u>Likely impact</u> Existing old drill pads and tracks: Number of plants = 6 Locally = 10.52 % Regionally = 0.86 % Impact = medium (locally), low (regionally) <u>Potential impact</u> Existing old drill pads and tracks (including 5m buffer zone around drill pads and tracks): Number of plants = 24 Locally = 42.10 % Regionally = 3.45 % Impact = high (locally), low (regionally)

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Taxon	SCC	FCC	Description	Soils, topography and vegetation	Flowering time	Likelihood of detection if present	Confirmed / likely occurrence in program area	Extent / abundance outside program area	Confirmed / likely impact
Neurachne annularis	P3	n/a	Tussock forming perennial grass like or herb to 0.75m high in ring formations	Shallow red-brown sandy loam, yellowish loam or sometimes gravel or stones, on tops, sides and bases of BIF	Sep-Oct	High Readily observable due to characteristic growth form; dissimilar to other taxa in area	Confirmed. 4,086 individuals within Bungalbin East prospect survey area 21,072 individuals recorded within tenement M77/1097	1,026,140 individuals within defined area of COO2 bioregion.	<u>Likely impact</u> Existing old drill pads and tracks: Number of plants = 2,917 Locally = 13.84 % Regionally = 0.28 % Impact = medium (locally), low (regionally) <u>Potential impact</u> Existing old drill pads and tracks (including 5m buffer zone around drill pads and tracks): Number of plants = 4,086 Locally = 19.39 % Regionally = 0.40 % Impact = medium (locally), low (regionally)

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Taxon	SCC	FCC	Description	Soils, topography and vegetation	Flowering time	Likelihood of detection if present	Confirmed / likely occurrence in program area	Extent / abundance outside program area	Confirmed / likely impact
Stenanthemum newbeyi	P3	n/a	Erect or spreading shrub 1-1.6m high	Clayey sand, clay or loam over laterite or ironstone on hill slopes	Sep-Oct	High when flowering, otherwise moderate	Confirmed. 2,008 individuals within Bungalbin East survey area 3,077 individuals recorded within tenement M77/1097	6,913 individuals within defined area of COO2 bioregion.	<u>Likely impact</u> Existing old drill pads and tracks: Number of plants = 921 Locally = 29.93 % Regionally = 13.32 % Impact = high (locally), medium (regionally) <u>Potential impact</u> Existing old drill pads and tracks (including 5m buffer zone around drill pads and tracks): Number of plants = 1,915 Locally = 62.23 % Regionally = 27.70 % Impact = high (locally), medium (regionally)

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Taxon	SCC	FCC	Description	Soils, topography and vegetation	Flowering time	Likelihood of detection if present	Confirmed / likely occurrence in program area	Extent / abundance outside program area	Confirmed / likely impact
Banksia arborea	P4	n/a	Small tree, 2-8m high, fissures on trunk and large branches	Stony loam, ironstone hills	Mar-May or Sept-Oct	High Distinctive vegetative characteristics	Confirmed. 357 individuals within Bungalbin East survey area 799 individuals recorded within tenement M77/1097	3,087 individuals within defined area of COO2 bioregion.	<u>Likely impact</u> Existing old drill pads and tracks: Number of plants = 197 Locally = 24.66 % Regionally = 6.38 % Impact = high (locally), low (regionally) <u>Potential impact</u> Existing old drill pads and tracks (including 5m buffer zone around drill pads and tracks): Number of plants = 357 Locally = 31.66 % Regionally = 11.56 % Impact = high (locally), low (regionally)