
ARAFURA RESOURCES NL

Environmental Survey of Landscape, Flora and Fauna of the Proposed Mt Porter Project Area (ML 23839)



Prepared for

Arafura Resources NL

By

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Frontispiece:

Early morning mist and smoke lying in the valleys in the Open Eucalypt Forests as viewed from the north end of Trap Site 2 on the Mt Porter ridge.

1 EXECUTIVE SUMMARY

An environmental study of the Mt Porter Project area was conducted at the end of the wet season between April 18th and 24th, 2005. A specific survey was also conducted in June 2006 to determine if Gouldian Finches (*Erythrura gouldiae*) were present during the late breeding season. This document was originally completed in April 2005, and it has been updated in November 2006 to include these more recent surveys and changes in legislation.

The aim of the studies at Mt Porter was to identify and assess the potential environmental issues in the area. The area is typical of the Wet – Dry Tropics. Annual rainfall for the region largely falls within a distinct wet season (December to March) with little or no rain falling for the remainder of the year. The distinct seasonality of the region causes significant temporal and spatial fluctuations in species composition and abundance. Therefore, to overcome the shortcomings of a single survey of short duration, the survey results and assessment of the conservation value of the area have been placed in a regional and temporal context by relating it to the more recent surveys.

1.1 Existing Environment

Land Systems and Vegetation Communities: The Mt Porter project area mainly lies within the *Brocks Creek Ridge* Land System, with the southern extent of the mineral lease also including the *Cullen* Land System (Christian and Stewart 1946). Dominant vegetation communities for the Northern Territory have been described and mapped by Wilson *et al.* (1990). The vegetation community mapped as being dominant within Mt Porter project area is described as *Eucalyptus tectifica* and *Corymbia latifolia* Low Woodland with *Sorghum* understorey (Wilson *et al.* 1990). However, this description by Wilson *et al.* (1990) does not appear to be accurate, because the dominant Eucalyptus in these parts is *Eucalyptus tintinans* associated with *Corymbia dichromophloia* and *E. miniata*, over a tall *Sorghum* grassland understorey (ERA 1993; and this study).

The vegetation is relatively homogeneous over the proposed lease area with only slight changes in species richness and abundances between habitat units. Five land unit groups were identified within the lease boundaries, which were generally based on landform and vegetation characteristics. These land units are listed as follows:

- 1) *Ridge Crest and Slopes.*
- 2) *Low Hills.*
- 3) *Riparian.*
- 4) *Low Undulating Plains.*
- 5) *Granite Hills.*

A list of flora from each land unit is provided in Appendix 11.10

Fauna surveys: Fauna of the Mt Porter area is typical of the Pine Creek region. The fauna list for the Mt Porter survey is presented in Appendix 11.3. Species either presently or potentially inhabiting the project area are listed in Appendices 11.6 (mammals), 11.7 (reptiles), 11.8 (frogs) and 11.9 (birds). A relatively small proportion of animal species expected to inhabit the area were recorded during the surveys. This is possibly a reflection of seasonal fluctuations and the relatively short time spent searching and trapping animals during the survey. However, the

surveys at nearby Frances Creek did not identify any new species of conservation significance that could potentially inhabit the Mt Porter area.

Impact Assessment: Clearing of vegetation for developing the gold mining operation at Mt Porter will result in localised habitat loss for flora and fauna, particularly for species residing on the *Ridge Crests and Slopes* land unit. Mining will also indirectly impact on the local fauna through increased noise, vibration, dust, lights, roads, human activity and possible impact on water resources. Although these disturbances are likely to lead to loss of individual plants and animals from the Mt Porter project area, most species are common and widespread throughout their range and their status is unlikely to be affected.

One bat species identified in the area is of conservation significance as defined by the *Environmental Protection and Biodiversity Conservation Act* (1999, 2006) and *Territory Parks and Wildlife Conservation Act* (2006). The Orange Horseshoe Bat in the NT has been removed from the EPBC and NT lists of threatened species in the latest assessments. However, the impact on the remaining species by the mining operations proposed for Mt Porter will be minor due to lack of appropriate habitat for the species in the mine impact areas.

1.2 Conservation Value of the Proposed Mineral Lease (ML(A)23839)

- Two species of conservation significance were identified during the original Mt Porter survey. These were Orange Horseshoe-bat (*Rhinonicterus aurantius*) and White-striped or Arnhem Sheath-tail bat (*Taphozous kapalgensis*). However, as a result of changes to legislation only the Arnhem Sheath-tail bat (*Taphozous kapalgensis*) is listed as near threatened under the *Territory Parks and Wildlife Conservation Act* (2000) (*TPWC Act* (2000) (Updated Threatened species list, NRETA Website, November 2006). Only the Pilbara (Western Australia) form of the Orange Horseshoe-bat (*Rhinonicterus aurantius*) (Pilbara Leaf-nosed bat) is listed under the *Environment Protection and Biodiversity Conservation Act* (1999) (EPBC Act 1999 Website listing November 2006). Local habitat loss is unlikely to affect the status of *T. kapalgensis*, as it is a plains dwelling species. Although Ghost Bats (*Macroderma gigas*) were found during the survey of nearby Francis Ck, they were not found at Mt Porter and no roosting habitat is known to occur on the site. However, mining operations need to minimise the impact on these and other species by conserving habitat where possible (especially rocky ridges and slopes).
- The environmental survey conducted at Mt Porter does not provide an exhaustive species list of inhabitants for the area. Therefore, a species list was compiled which has been supplemented with potential inhabitants based on habitat preference, known distributions and past surveys in the local region (including the more recent survey work at Francis Creek). Six species with conservation significance that have not been identified within the project area and could possibly occur, include: Bare-rumped Sheath-tail Bat (*Taphozous saccolaimus*), Northern Quoll (*Dasyurus hallucatus*), Gouldian Finch (*Erthrura gouldiae*), Red Goshawk (*Erthrotriorchis radiatus*), Partridge Pigeon (*Geophaps smithii smithii*) and Masked Owl (*Tyto novaehollandiae kimberli*). These species may be present either occasionally or seasonally. While these species are potential inhabitants in the area the operations area is not critical habitat for them. Further, no Gouldian Finches were identified during the specific surveys conducted at Mt Porter and Frances Creek.
- The *Riparian* land unit deserves protection and consideration during the development of the mining operation. *Riparian* habitat is environmentally sensitive, species rich and provides important refuge for the local fauna during the dry season. This habitat will provide a

valuable source of flora and fauna for rehabilitation purposes (i.e. natural spread of seed and species from the *Riparian* zones into rehabilitated areas).

- A small strip of remnant rainforest exists along a *Riparian* zone outside the proposed development approximately 1 km east from the proposed open cut pit and approximately 200 metres from the proposed waste rock dump. The Mt Porter gold mine should not disturb this rainforest community, as it represents a restricted habitat in the local region and contains several plant species that do not commonly occur in adjacent habitats. The area should be suitably flagged on the ground to protect it from inadvertent transgression.
- The Mt Porter project area is typical of the widespread landscape and biota occurring within the Wet-Dry Tropics of the Pine Creek Region. On a national scale the conservation value of the habitat of the Pine Creek region is moderate to high as the flora and fauna of this region is relatively intact, poorly represented within National parks/reserves and is subject to substantial mining development and exploration.
- Mt Porter does not represent an area of significant endemism, but does retain areas of almost pristine habitat where disturbance should be minimised or should not occur (i.e. the rainforest area). The project area has experienced gold exploration (i.e. >200 drill holes, several access tracks, rehabilitation zone) since the gold deposit was discovered on the eastern flanks of Mt Porter during 1984. This has resulted in the introduction of several weed species (i.e. Passion Vine (*Passiflora foetida*), Hyptis (*Hyptis suaveolens*), Painted Spurge (*Euphorbia heterophylla*), Gamba Pea (*Crotalaria goreensis*) and Mission Grass (*Pennisetum polystachyon*) into several gullies and creeklines in the area, especially within the rehabilitation zone and Pit Gully Creek on the southeastern flank of Mt Porter. Thus, the conservation value of the habitat of Mt Porter does vary from low to moderately high within the project area. The proposed location for the open cut pit does not contain a particularly high conservation value due to the area being exposed in the past to high-density drill exploration and rehabilitation. Therefore, the proposed pit area does not fully represent a pristine example of the local landscape.

2 INTRODUCTION

2.1 Project Description

Arafura Resources NL intend to develop a gold mining operation within Mineral Lease Application (23839). The project area is located at Mt Porter, approximately 20 kilometres north of Pine Creek. Mt Porter is within Mary River West pastoral lease (PPL815, NT Portion 1630). Arafura Resources NL commissioned Low Ecological Services Pty. Ltd. to conduct an environmental survey focusing on the landscape, flora and fauna of the Mt Porter project area. This survey aimed to determine:

- Habitat, species richness and abundances.
- Assess their conservation value.
- Propose development strategies to minimise environmental impact from mining.

The proposed mineral lease application area is 362.6 hectares, and it has been proposed that the total area for disturbance as a result of the development will be between 50-60 hectares (Arafura Resources, May 2004). The mining operation will include an open cut pit, waste rock dump(s), offices/workshops, access road from Frances Creek Road and a landfill facility for putrescible and inert waste. The ore produced from the mine will be transported off-site via road-trains for processing at existing mills in the region (most likely Union Reefs Gold Mine). Therefore, a Tailing Storage Facility will not be necessary. All mining operations including stage I of rehabilitation were planned for completion by December 2006 (Arafura Resources 2004), but current plans are to begin mining operations in 2007 (Mackowski, pers. comm., 2006).

2.2 History of site

The area around Mt. Porter has been explored since the early 1980s. Gold Fields Exploration Pty Ltd (subsidiary of Renison Goldfields Consolidated Limited - RGC) discovered the Mt Porter Gold deposit in 1984. Positive outcrop samples led to an intensive drilling program (in ERL 116) to map the extent of the gold deposit and 223 drill holes were established on the slopes and flanks of Mt Porter and adjacent ridges. The final exploration phase by RGC in 1993-1994 drilled 46 holes, which identified a coherent zone of relatively high grade (3-4g/t Au) gold mineralisation at shallow depths (<70m from the surface) (Arafura Resources 2004).

Pine Creek Goldfields Limited (subsidiary of RGC) conducted archaeological, sacred sites, metallurgical and environmental studies during 1993-1994 in anticipation of mining the Mt Porter gold deposit (ERL 116). However, plans were shelved in 1994 due to unjustifiable risk in achieving a financial return because of the economic condition that prevailed at the time. Further drilling of 14 holes down to 550m was undertaken by Homestake Gold to explore for new major zones of mineralization between 1995 to 1997, but lack of results resulted in Homestake withdrawing in 1998.

In 2002, the underlying title (ERL116) was transferred to Arafura Resources NL under a royalty arrangement with RGC's corporate successor, Iluka Resources Limited.

3 SCOPE

The Northern Territory Minister for the Department of Environment and Heritage has determined that the proposal to develop an open cut gold mine at Mt Porter requires assessment under the *Environmental Assessment Act* (1982) at the level of a Public Environmental Report (PER). Therefore, *Arafura Resources NL* (the proponent) requires a landscape and ecological survey in order to develop the proposed Mt Porter gold project. The following subsections (Sections 3.1 and 3.2) define the scope of this report completed by *Low Ecological Services* in April/May 2005.

3.1 Landscape

Baseline Data

- Provide maps and an interpretation of the regional geology and geomorphology of the site and peripheral areas. This has been done by MBS Environmental.
- Discuss the soil types and land units of the site and peripheral areas.
- Detail the existing level of soil erosion and other disturbances.

3.2 Ecology

Baseline Data

- Survey fauna and flora species (including migratory species) and biological communities
- Consider species seasonality, species rarity, potential for occurrence of significant species and sensitivity of species to disturbance;
- Identify rare, threatened and endangered species against NT and Commonwealth legislation, and species with indigenous conservation values.
- Special consideration should be given to the following:
 - ecologically outstanding areas;
 - vegetation that is the habitat of rare, threatened or endangered species or has outstanding diversity;
 - communities that are exceptional examples of their type; and
 - vegetation outside its normal distribution or of other biogeographical significance.

3.3 Limitations of the Survey

Mt Porter is located in the far north of the Northern Territory where the climate is typically monsoonal with distinct wet and dry seasons. It is recognised that a one-off, short-term survey within an area exhibiting strong seasonality will not fully represent species diversity and their relative abundances. Consequently, this report assesses the conservation value of Mt Porter on a habitat basis using data obtained in the survey to validate presence of species but does not rule out other potential species that may occur in the area. However, an environmental survey (flora and fauna) was conducted within the nearby Frances Creek area (See Reilly *et al.* 2005b and Figure 4.1 for location) by Low Ecological Services in November 2005 and May 2006 which allows for a direct comparison. Biological records held by the Parks & Wildlife Commission N.T., regional studies such as Woinarski *et al.* (1989), Environmental Impact Assessments for nearby locations Spring Hill (Grattidge and Low, 1996), Union Reef (NSR, 1993, ERA, 1993), Brocks Creek (Eldridge and Low, 1995) and a vegetation and habitat survey at Mt Porter

by ERA Environmental Services (December 1993) have also been used to place the survey results of Mt Porter into a regional and temporal perspective.

4 SITE LOCATION AND REGIONAL DESCRIPTION

4.1 Location

The Mt Porter Project area is located approximately 20 kilometres north of the Pine Creek township, southwest and upstream of the existing Frances Creek Iron Ore mine (approximately 13° 38' 19"S, 131° 49' 13"E) (Figure 4.1). Pine Creek is approximately 150 kilometres south of Darwin. Mt Porter falls within the Mary River West pastoral lease (PPL815, NT Portion 1630). No pastoral activities currently occur in the immediate vicinity of the proposed mine site although horses and cattle do occasionally wander through the area during the wet season. The Mineral Lease Application (# 23839) covers an area of 362.6 ha.

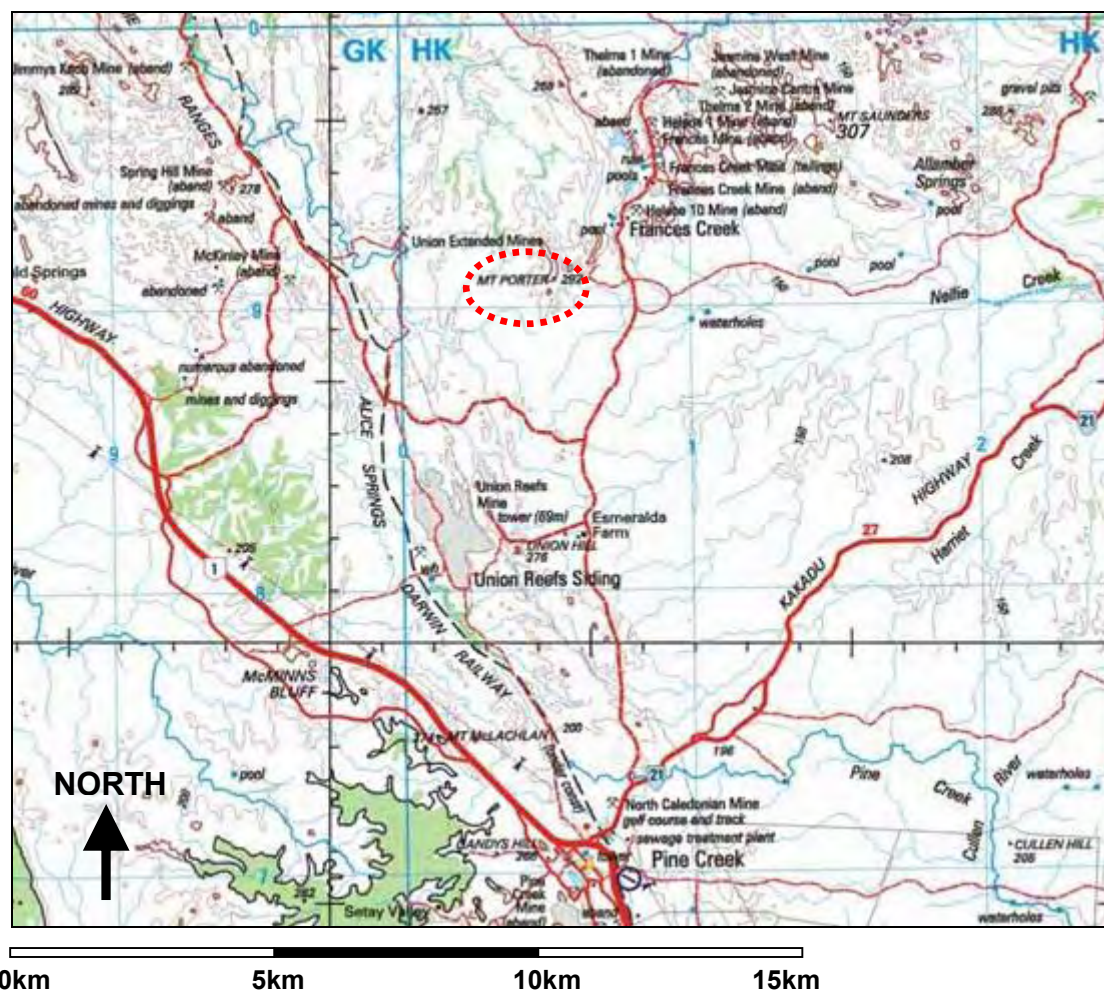


Figure 4.1: Location Map showing Mt Porter project area in relation to the Pine Creek Township.
Note: Map was taken from NATMAP Raster Mosaic 2003.

4.2 Climate

The climate of Mt Porter is typically monsoonal, characterized by a long dry season (May to October), and a short wet season (December to March) when 80 – 90% of the annual rainfall occurs (Woinarski *et al.* 1989). April and November are usually transitional months.

Pine Creek is the nearest location that has long-term weather records. The Pine Creek Post Office has records dating back to 1874. Daily Weather observations for the previous 12 months for Pine Creek are given on the Bureau of Meteorology website (provided below). (<http://www.bom.gov.au/climate/dwo/IDCJDW8040.latest.shtml>)

Rainfall is predictable in the region and averages between 1100 – 1200mm. The Pine Creek Post Office has recorded an average rainfall of ~1150mm since 1874. The period between October and March produces a significant part of the rainfall for the year due to the presence of sub-tropical NW monsoons and associated tropical low-pressure systems. June and August are the driest times of the year with little or no rain. The distinct seasonality greatly affects the regions wildlife, causing significant temporal and spatial fluctuation in species richness and abundance.

Air temperatures are relatively high and constant between years. During the coolest time of the year (June and July) the mean monthly temperature for Pine Creek ranges from a minimum of 10 – 13°C to a maximum 20-32°C. In the hottest part of the year (October to November) the mean monthly temperature ranges from a minimum of 24 – 27°C to a maximum of 37 – 41°C.

Humidity measured at Pine Creek averaged 49% in September 2004 and 79% in February 2005 (Bureau of Meteorology, 2005). Evaporation at Pine Creek is estimated at 3,360 millimetres per year. Therefore, evaporation exceeds rainfall by a factor of 2.9 (based on an average year for Pine Creek).

Figure 4.2 presents rainfall and temperature data collected from Pine Creek 12 months prior to the Mt Porter environmental survey (Bureau of Meteorology 2005).

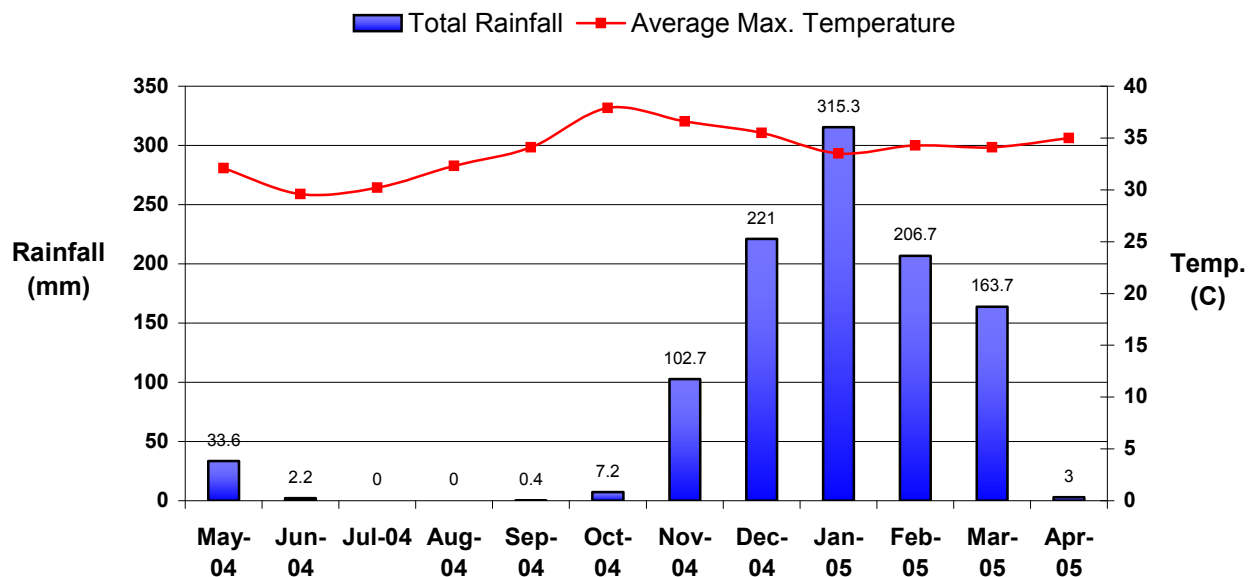


Figure 4.2: Total rainfall (mm) and average maximum temperatures for each month for Previous 12 months. Blue bars represent rainfall data, and the red line represents temperature. Information was extracted from Pine Creek climatic data on the Bureau of Meteorology website.

4.3 Biological Records

While no previous systematic wildlife survey has been conducted for the Mt Porter project area, Low Ecological Services conducted two surveys in November 2005 and in May 2006 in the

nearby Francis Creek Iron Ore mine. Further, ERS Environmental Services completed a terrestrial vegetation survey for Mt Porter in 1993. These surveys provided baseline data for flora and habitat surveys for this report. Several short-term but comprehensive environmental surveys have been conducted for a number of mines within the region of Mt Porter, including: Spring Hill (Grattidge and Low 1996), Brocks Creek (Eldridge and Low 1995), Union Reefs (NSR 1993), Pine Creek (Mitchell 1995), Cosmo Howley Mine (Davidson 1985) and Mt Todd Mine (NSR 1992). Woinarski *et al.* (1989) also conducted a year long study of fauna distribution and density in nearby Kakadu National Park to examine changes in distribution of fauna in relation to wet and dry seasons.

4.4 Land System Description

The geomorphology and land systems of the Katherine – Darwin region were described and mapped by Christian and Stewart (1946). The Mt Porter mineral lease contains two land systems, 1) *Brocks Creek Ridge* Land System, which is dominant on the west and north side of the lease and 2) *Cullen* Land System, located on the east and south side of the lease (Figure 4.3). These two land systems fall into the broader geomorphological unit referred to as Elevated Backbone Country or eroding upland country. The *Brocks Creek Ridge* Land System is the main land system encountered within the lease area with approximately 80% coverage. The proposed location for the open cut pit lies within the *Brocks Creek Ridge* Land System. The access road leading into the proposed Mt Porter mine site and the infrastructure location are the only potential disturbance for the *Cullen* Land System.

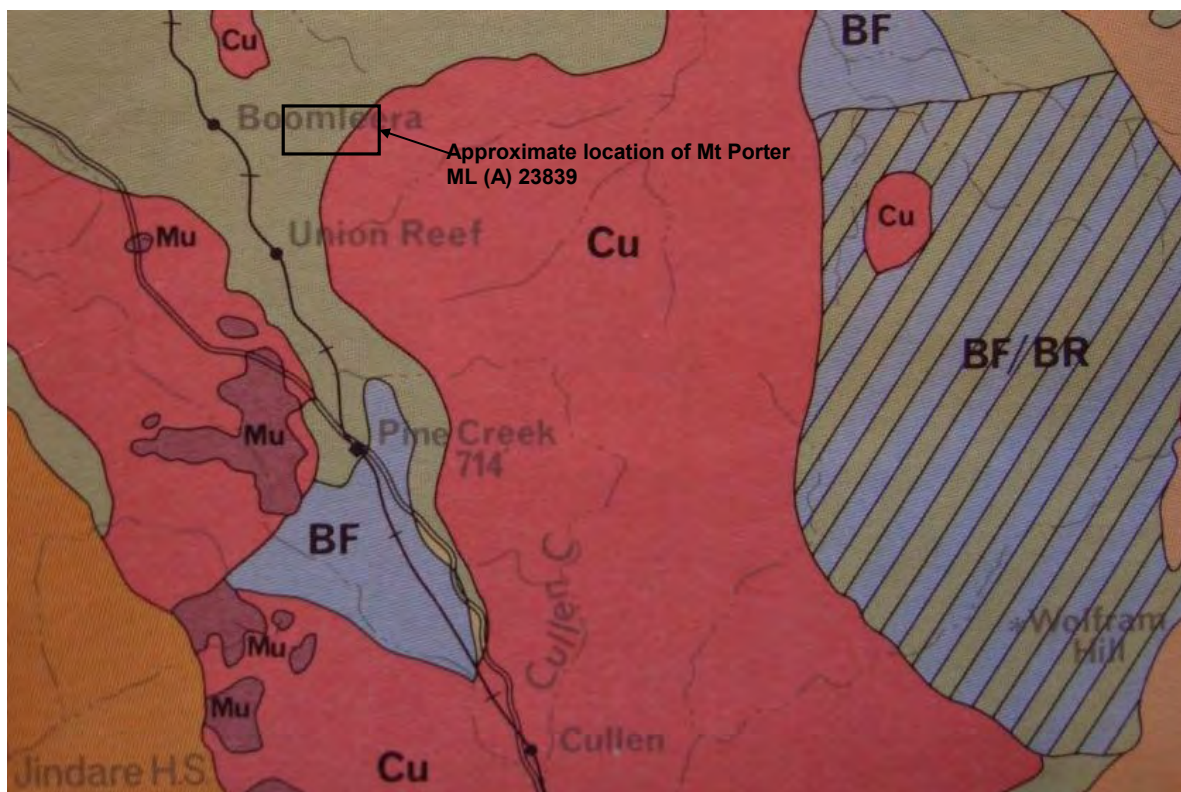


Figure 4.3: Land System Map of the Mt Porter project area.

Legend: Green (BR) is *Brocks Creek Ridge* LS, Red (Cu) is *Cullen* LS, Blue (BF) is *Brocks Creek Foothills* LS.

Note: Map is an extract from the Land System Map for Katherine – Darwin Region (Christian *et al.* 1946).

4.5 Geology

The Mt Porter Gold Deposit lies in a province of highly mineralized Archaean and Palaeoproterozoic rocks within a belt of basement rocks called the Pine Creek Inlier. The Palaeoproterozoic sedimentary rocks, with minor volcanic intercalations, rest on a late Archaean granitic basement. The strata is strongly folded and regionally metamorphosed to low and medium grades, and were intruded by large bodies of granite during and after the period of metamorphism and deformation which is dated at about 1,870 to 1,800 million years ago.

The local geology of Mt Porter consists of metasedimentary rocks which belong to the Koolpin Formation of the South Alligator Group (characterized by carbonaceous shales, chloritic sulphidic laminated cherty “shales”, with prominently developed chert nodules). At least three doleritic sills have been identified at Mt Porter. Thin fine-grained felsic and/or mafic dykes also intrude the mineralized sequence at Mt Porter.

The primary structure through the Mt Porter prospect is the Mt Porter Anticline, which is a prominent and persistent NNW plunging regional structure. The anticline has many features which characterize other major fold structures in the Pine Creek Geosyncline, such as steeply dipping to slightly overturned limbs, complex axial zones, complex fault zones, evidence of massive brecciation and mineralisation, and thickening of incompetent units (especially carbonaceous shale in the axial zone).

The Allamber Springs Granite that is a phase of the Cullen Batholith intrudes the Mt Porter Anticline and mineralized metasediment sequence. The NE trending granite contact traverses the southeast portion of the tenement.

Background geological information was extracted from Arafura Resources (2004).

4.6 Geomorphology

The *Brocks Creek Ridge* Land System is described as consisting of sharp, rocky, north/south ridges, and hills with steep slopes (up to 40 – 60%) to gentle crests that are dissected by watercourses. Erosion is active and there is little or no accumulation of soils on the steep slopes. The system is formed on strongly folded metamorphics of the Brocks Creek Group (i.e. slates, quartzites, sandstone, greywacke and siltstone). The steep rocky ridges are associated with lower convex hills, small alluvial flats and channels incised through sandy or loamy material (Christian and Stewart, 1946).

The *Cullen* Land System contains topography that varies from rough, rocky granite outcrops to gently undulating country with small areas of flat land. The base rock of this land system is Cullen Granite, which is known to commonly intrude rocks in the Brocks Creek Group from the *Brocks Creek Ridge* Land System. The granites in the *Cullen* land system differ in structure and mineral composition and are very resistant to erosion. The relief of the land system is variable. The *Cullen* Land System, located on the eastern edge of the proposed Mt Porter project, is part of the largest section of this land system in the region (Christian and Stewart, 1946).

Background geomorphological information was extracted from Christian and Stewart (1946).

4.7 Soils

Soils for the *Brocks Creek Ridge* Land System generally comprise of very gravelly sandy loam and skeletal soils formed on metamorphics of the Brocks Creek Group (Christian and Stewart,

1946). Alluvial flat areas contain heavier darker soils that obviously contain higher levels of clay and silt, which are described as “Acid” Alluvial soils.

Soils within the steep topography of the *Cullen* Land System of large, rounded granite boulders are described as very gritty, sandy skeletal soils. The undulating country is generally comprised of granitic sandy yellow podsolic soils.

4.8 Vegetation

Vegetation communities of the Northern Territory have been mapped and described by Wilson *et al.* (1990). The Mt Porter project area occurs within an area dominated by *Eucalyptus tectifica* and *Corymbia latifolia* woodland with *Sorghum* grassland understorey (Mapping Unit 21; Wilson *et al.* 1990) (Figure 4.4). However, ERA (1993) point out that this description does not appear to be accurate, because the dominant Eucalyptus in this area is *E. tintinans* associated with *Corymbia dichromophloia* and *E. miniata*, over a tall *Sorghum* grassland understorey.

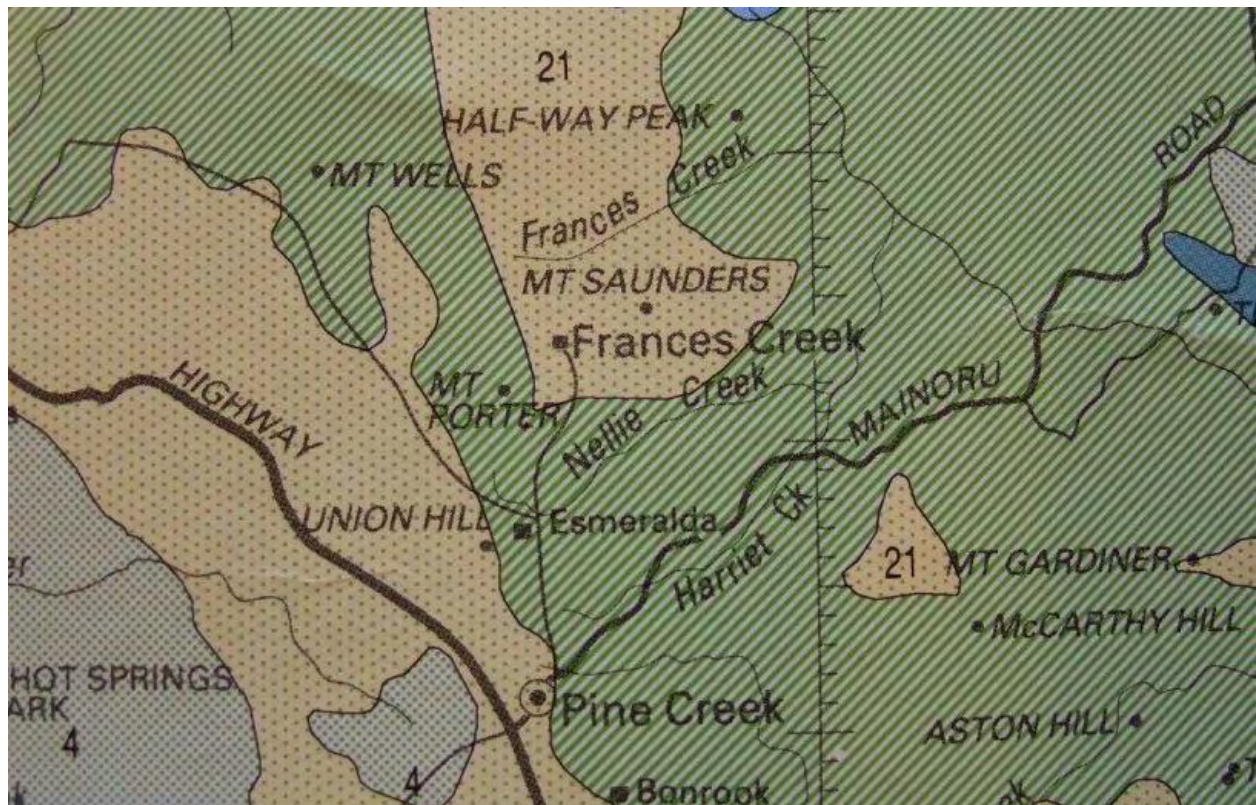


Figure 4.4: Vegetation Map for the Mt Porter project area

Green Stripes: *Eucalyptus tectifica* and *Corymbia latifolia* woodland with *Sorghum* grassland understorey
 Cream with green dots: *E. tintinans* associated with *Corymbia dichromophloia* and *E. miniata*, over a tall *Sorghum* grassland understorey. Note: Map is an extract from Wilson *et al.* (1990) Vegetation Map of the Northern Territory.

4.9 Fauna

Several fauna species of conservation significance (*EPBC Act* 1999; *TPWC Act* 2000) could potentially occur within the Mt Porter project area; these are listed in Table 7.1. Two species of concern are the Bare-rumped Sheath-tail Bat *Saccolaimus saccolaimus nudicluniatus* (Critically Endangered) and the Gouldian Finch *Erythrura gouldiae* (Endangered). However, both of these species are unlikely to occur in the area as shown by their absence from previous fauna studies in the vicinity of Mt Porter.

5 SURVEY METHODS

Two surveys were conducted at Mt Porter by Low Ecological Services in 2005 and 2006. The methodology is similar to the surveys conducted at Francis Creek (Reilly *et al.* 2005b).

Survey one: A five and a half day survey of the landscape, flora and fauna for the Mt Porter Gold Project area was conducted between 18 and 24 April 2005, by Dr Bill Low and Tom Reilly of **Low Ecological Services** and bat specialist Dennis Matthews. John Goulevitch, Exploration Geologist for Arafura Resources, met us on-site on 19 April to help orientate and provide background information of the project area. Several access tracks within the project area were recently graded by Arafura Resources, which allowed good access to the study area.

The 2005 survey began with the identification of the major land units within the boundary of the lease, which was based on geology, topography, soils and vegetation composition. Five distinct land units were identified within the ML (A):

- 1) *Ridge Crests and Slopes.*
- 2) *Low Hills.*
- 3) *Riparian.*
- 4) *Low Undulating Plains.*
- 5) *Granite Hills.*

Land units were mapped using 1: 60,000 aerial photographs.

Survey Sites: Flora and fauna survey sites were chosen to represent the five land units to provide a general indication of species for the area. Two additional vegetation communities, referred to as Pandanus Waterhole and Granite Hills, were also included in the survey, however no trap sites were set up at these two sites. All sites were photographed at ground level. Survey sites are described in Table 5.1 and locations are given in Figure 5.1.

Table 5.1: Brief description of survey sites with the type of assessment method used at each site.

Survey Site ID	Land Units	Assessment Method
Trap site 1	Ridge Crest and Slopes, Gully	25 Elliott traps, 1 Pitfall trap, bat detector, fauna sign search, flora composition
Trap site 2	Ridge Crest and Slopes	25 Elliott traps, bat detector, fauna sign search, flora composition
Trap site 3	Low Hills	25 Elliott traps, 1 Pitfall trap, bat detector, fauna sign search, flora composition
Trap site 4	Riparian (swampy meadow), Low Undulating Hills	25 Elliott traps, 1 Pitfall trap, fauna sign search, flora composition
Trap site 5	Riparian (rainforest), Low Undulating Plains	25 Elliott traps, 1 Pitfall trap, bat detector, fauna sign search, flora composition
Pandanus Waterhole	Riparian (running creek)	Fauna sign search, flora composition
Granite Hills	Granite Hills	Fauna sign search, flora composition

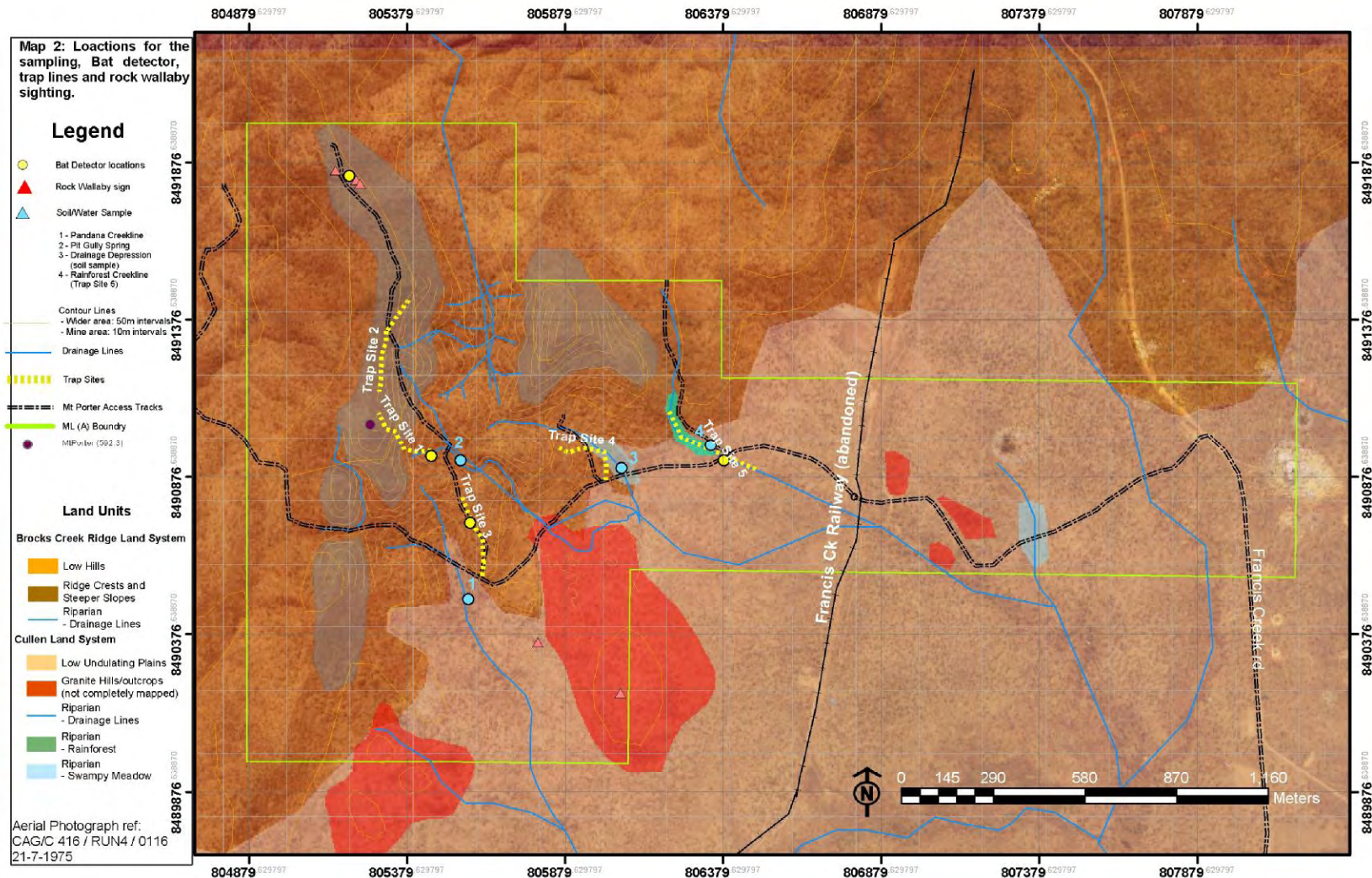


Figure 5.1. Land Units, trap sites and sample locations located at Mt Porter survey area.

Flora Assessment: Species composition and dominance, community structure, the presence and phenological state of trees, and the presence of culturally important trees were determined. Plant species were identified in the field. Where identifications were uncertain, specimens were collected for consultation with Botanist Des Nelson (Alice Springs) and the Herbarium (Darwin).

Fauna Assessment: The general presence of small mammals and reptiles were surveyed using a transect of 25 Elliott traps (10 to 15 metre spacing) to represent each of the five land units. Pitfall traps were installed within trap sites 1, 3, 4 and 5. Each site was trapped for three nights. Any fauna trapped were identified, details recorded, then released. Sightings and evidence of fauna were also opportunistically recorded for each land unit whilst checking trap lines each day (approximately one hour per day) and whenever observers were present in particular land units. Birds and their general abundance were recorded within trap sites or opportunistically by observation or call. All incidental sightings or signs of animals within the survey area were recorded. Spotlighting was conducted each evening for 1 or 2 hours, mainly by walking the roads into the range of habitats available.

Bat Species Identification: Bat calls were used to identify bat species in the area. Calls were recorded by the ANABAT System (version 6) (Chris Corben, Titley Electronics) (Photo 1). On three of the nights the detector was placed in one location all night (for sites 1, 2 and 3), on the other night a GPS was attached to the detector and walked along the main access track from the proposed open cut pit to the creekline at trap site 5, where it was left overnight.

Bat calls were stored on a memory card and then transferred to a computer for analysis. Poor calls and calls of insects were deleted. Calls were identified by using the “Key to the calls of the Top End of the Northern Territory” by Damian Milne, Parks and Wildlife Commission of the Northern Territory. The ANABAT System (version 6) used this way can not provide abundance data of species recorded, because one bat can pass the detector many times and may be the only bat of that species in the area. Therefore, only a check list of species can be provided. However, the record does give an indication of the relative activity of different species at a particular location. Some species were not separated from other species due to constraints of this technique; these species are listed at the end of Appendix 11.3.



Photograph 1: Bat Detector unit used during Mt Porter Survey, ANABAT (version 6). Device to the right is the detector unit. (photo Dennis Matthews).

Soil and Water Sampling: Soil and water samples were collected from drainage lines and depositional areas within the survey area, i.e. creeklines, waterholes and swampy depressions. Four soil samples and three water samples were collected using standard sampling techniques and bottles/jars (AS/NZ 5667.1: 1998 Water Quality – sampling). Samples were immediately sealed and refrigerated. Figure 5.1 shows the location for each sample.

Northern Territory Environmental Laboratories (NTEL) analysed the samples (NTEL is a NATA accredited laboratory). Appendices 11.1 and 11.2 provide the analytic results for both soil and water.

GPS and GIS Mapping: A *Garmin E-Mapper™* GPS was used during the survey. Readings obtained were within an accuracy of 4.5 to 10 metres during the survey. Elevations were also obtained and these varied by a few metres between repeat visits although they usually matched within one to five metres of survey data on the geological map. Waypoints or eastings/northings were noted at each survey site or interest point. Other AMG coordinates were obtained from the 'breadcrumb trail' produced by the GPS unit.

Stream flow direction was determined from one metre contour maps provided by Arafura Resources and from 1:100,000 topographic maps with contour interval of 20 metres produced by National Mapping, Geoscience Australia.

Survey Conditions: Climatic conditions during the survey were warm and relatively humid. There was no rainfall during the survey. The maximum temperature was 36°C, which occurred on 19 and 20 April 2005. There was an average Relative Humidity of 65% (at 9am) and 30% (at 3pm) during the survey period. The winds were generally easterlies and ranged between two and nine kilometres per hour (Bureau of Meteorology 2005).

The survey was conducted at the end of a slightly below average wet season of 1019.6 millimetres of rain at Pine Creek (annual average is approximately 1200 millimetres). Most creek lines were dry, however, several waterholes still contained water. The water level in these areas fluctuated during the day (~200mm), with mornings (8am) having significantly higher water levels than afternoons (5pm).

Criteria used in identifying notable species: This report draws attention to species of conservation significance inhabiting or potentially inhabiting the Mt Porter Project area. The Commonwealth *EPBC Act* (amended 2004) and species listed in the *TPWC Act* (2000) have been used to identify species of conservation significance. The status and conservation value for any notable species identified from Mt Porter has been confirmed through consultation with relevant experts.

- The *EPBC Act* (1999) species lists can be found on the Department of the Environment and Heritage (DEH) website: <http://www.deh.gov.au/index.html>
- The *TPWC Act* (2000) can be found on the Parks and Wildlife Commission Northern Territory (PWCNT) website: <http://www.nt.gov.au/ipe/pwcnt>. The list was updated in 2006.

Survey Two: A bird survey specifically aimed to determine the presence or absence of Gouldian Finches within the Mt Porter Gold Project area was conducted on 21st June 2006. The survey was based around the mine pit, office complex and waste dump area and consisted of both ground and air searches and identifications of birds in the area by their respective calls. The survey was conducted for approximately 4 hours.

6 RESULTS

6.1 Landscape

The landforms within Mt Porter project area (362.6ha) consist of steep ridges with several rocky cliff faces, steep to low foothills, low convex hills, narrow alluvial flats, watercourses and a small zone vegetated with plants typical of a tropical rainforest habitat. Soils consisted of mostly shallow, skeletal sandy loams with some depositional areas of clay or loamy clays. The vegetation is described as *Eucalyptus* Woodland with small patches of Low *Eucalyptus* Forest associated with creeks and drainage depressions. The site has not been burned for several years. Figure 6.1 shows the distribution of land units in the Mt Porter project area.

6.2 Land Units Descriptions: Vegetation and Landscape

Five distinct land units were identified within the proposed boundary of the Mt Porter project area (Table 6.1). All land units were widespread throughout the lease area. Figure 6.1 defines the boundaries for each land unit. Appendix 11.10 provides a list of plant species recorded at each site during the survey.

Table 6.1: Lands Units of the Mt Porter project area, with proportions (%) and representative trap site.

Land Unit	Representative Trap Site	Proportion of the project area (%)	Plate Number(s)
1. Ridge Crests and Slopes	1, 2	15 %	1, 2, 3, 4, 5
2. Low Hills	3, 4	30 %	6, 7
3. Riparian	4, 5	5 %	10, 11, 12
4. Low Undulating Plains	4, 5	45 %	8, 9
5. Granite Hills	Not trapped *	5 %	13, 14

* Granite Hills were surveyed by foot to identify landscape, dominant flora species and animal sign.

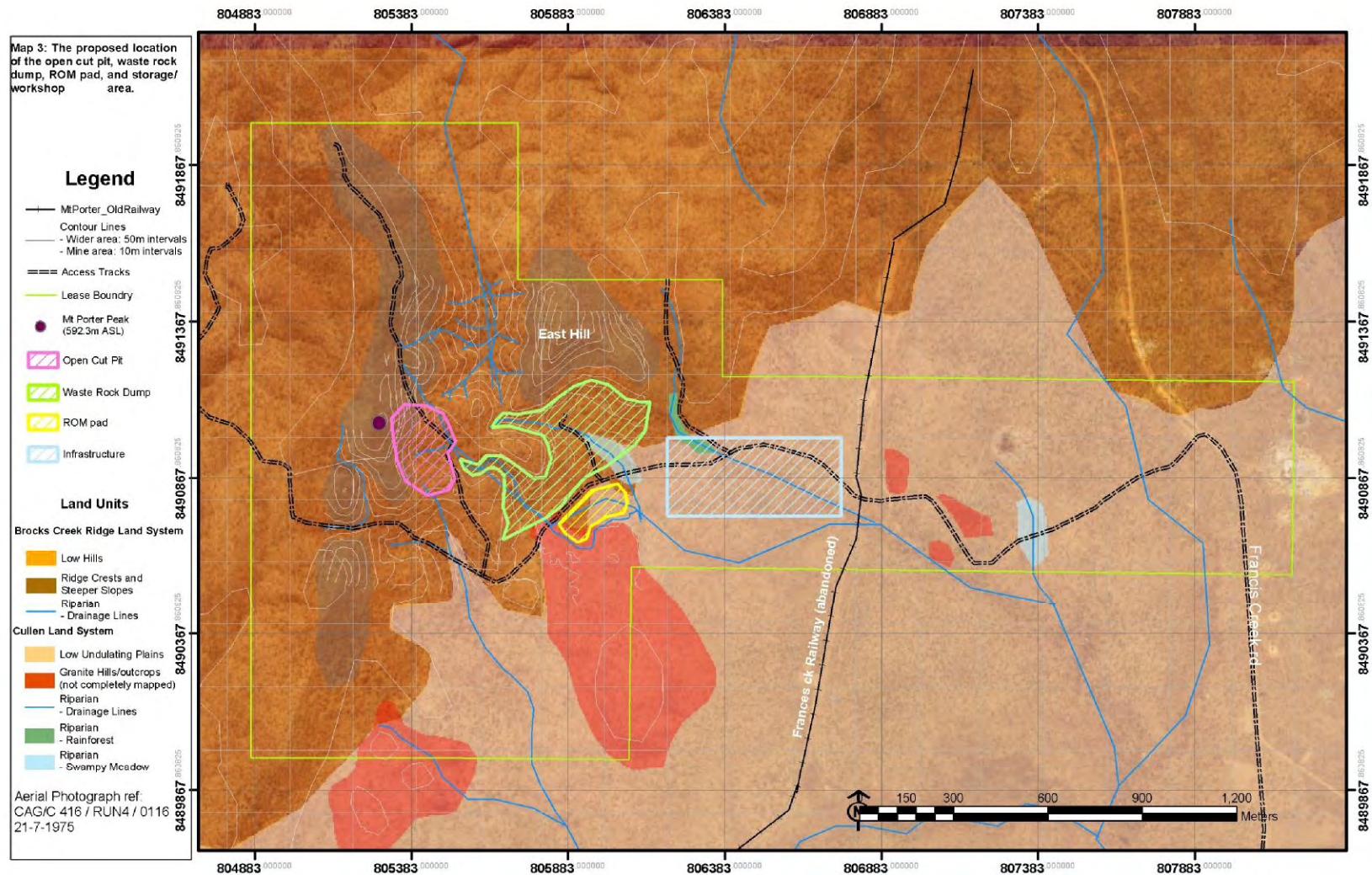


Figure 6.1: Land units of the Mt. Porter area showing location of infrastructure.

6.2.1 Land Unit 1: Ridge Crests and Slopes

Ridge crests and slopes are present over about 15% of the lease area. The land units consist of rocky hill crests reaching 592.3 metres ASL and crest width of approximately 30 metres (Mt Porter), steep rocky slopes (e.g. incline up to 60°) associated with cliff faces and several incised gullies. Soils within the land unit are very shallow and skeletal with sandy loams in gully floors and other depressions. Surface rocks on the ridge crests took up approximately 90% of the bare ground, and contained a mixture of metasiltstones, greywacke and quartzite pebbles. Several rock outcrops were exposed, particularly on the high end of the ridge slopes.

The vegetation community associated with this land unit is defined as **Low Open Woodland** dominated by mid to tall Eucalypts (approximately 10 metres high) over mid to tall grasses (less than one metre high) and scattered forbs. There is also a shrub/sub-tree layer present within the vegetation community (approximately 2 to 4 metres high). There are general differences in species and abundances between the slopes and ridge crests, therefore separate descriptions of these areas are provided.

Ridge Slopes: This survey site (trap site 1) comprised of a moderate to steep incline leading to the ridge crest with a significant erosion gully that has formed in the rehabilitated area on the lower section of the slope (Plate 1). This particular site was rehabilitated in 1993 and has now returned to a well vegetated area, which sustains similar species to other ridge slopes and gullies in the local area but with additional introduced species for rehabilitation. The fauna survey also indicated that local native animals have re-established in the rehabilitated zone. The ridge slopes tended to comprise of denser and taller vegetation than the ridge crests.

The lower slope has very dense vegetation (95% ground cover) and is largely dominated by the introduced weedy shrub *Hyptis suaveolens* and (to a lesser extent) mission grass *Pennisetum polystachyon* (Plate 19). The mid and upper slopes are more open forest community with a higher diversity of species than the lower slopes (Plates 1, 4 and 5).

The upper canopy is dominated by *Eucalyptus miniata* and *Erythrophleum chlorostachys*. Other trees present include *Eucalyptus tintinans*, *E. phoenicea*, *E. tectifica*, *E. setosa* and *Acacia aulacocarpa*. Several of the Eucalypts were in early fruiting stages, and *Eucalyptus miniata* was the only species in flower during the survey period. The shrub layer distinctly changes further up the slope with thickets of *Hyptis suaveolens* dominating the gully floor interlinked with the weedy vine *Passiflora foetida*, which changes to a more dispersed and a diverse scattering of grasses, forbs and shrubs on the mid to upper slopes (steeper slope, more rock outcrop and scree). Commonly encountered species included *Acacia difficilis*, *Brachykiton diversifolius*, *B. megaphyllus*, *Sorghum plumosum*, Mission Grass, *Hyptis suaveolens*, *Themeda triandra*.

Ridge Crests: Vegetation covered approximately 70% of the ridge crests, and leaf litter was common. The upper canopy proportion of the vegetation was approximately 40%, tall shrubs were 10%, small shrubs >10% and scattered grasses being about 40% (Plates 2 and 3).

The upper canopy on the ridge crests is dominated by *Eucalyptus tintinans*, *Corymbia dichromophloia* and *Erythrophleum chlorostachys*. Other subdominant trees include: *Eucalyptus clavigera*, *E. miniata*, *E. setosa*, *Owenia vernicosa*, *Buchania obovata*, *Xanthostemon paradoxus*, *Erythrina variegata*. Several of the Eucalypts were in early fruiting stages, and *Eucalyptus miniata* was the only species in flower during the survey period.

The shrub layer was evenly mixed with *Grevillea decurrens*, *Gardenia megasperma*, *Petalostigma quadriloculare*, *Acacia aulacocarpa* and *Tephrosia polyzyga*. *Eucalyptus*, *Corymbia* and *Erythrophleum* seedlings were also common within the shrub layer.

The understorey consists of locally common grass species, namely *Eriachne* sp. (likely *E. armitii*), *Panicum* sp., *Cymbopogon bombycinus*, *Themeda triandra*, *Scleria sphacelata*, *Eulalia mackinlayi*, *Sorghum plumosum*, and *Chrysopogon fallax*. Herbs consisted of *Glycine* sp. (most common herb), *Pachynema sphenandrum*, *Rostellularia adscendens*, *Buchnera linearis*, and the introduced *Passiona foetida*.

6.2.2 Land Unit 2: Low Hills

Low Hills are distinguished from *Ridge Crests and Slopes* on the basis of topography and erosional characteristics, other features such as soils and vegetation are similar to those described in the *Ridge Crests and Slopes* land unit. The hills of this land unit are described as low gently rounded hills associated with alluvial washouts and channels that occasionally become inundated during the wet season. The hills have a local relief of less than 20m and an incline of less than 10°. Soils are dominated by compacted sandy loams with clayey loams commonly appearing in depressions. The vegetation and landscape of Trap Site 3 and Trap Site 4 were surveyed to represent this land unit.

Low Hills within the lease can be described as an Open Eucalypt Woodland with a sparse understorey of grasses and forbs. *Eucalyptus tectifica*, *E. dichromophloia* and *E. tinitinans* were the common trees in the area with *E. tectifica* being the more dominant species (approximately 10 metres high). *Eucalyptus latifolia* and *Owenia* sp. were present but not common. Eucalyptus seedling were also commonly encountered. Shrubs were not common in the area, scattered *Brachychiton megaphyllus* appeared to be the main shrub (approximately 2 metres high). Grasses and herbs to 1½ metres were widespread and dispersed, but became thicker along disturbed areas and watercourses. Species included *Themeda triandra* (widespread grass), *Sorghum plumosum* (minor grass), *Glycine* sp. and *Ludwigia* sp. An epiphyte *Cymbidium canaliculatum* was present growing in a hollow of a *Corymbia dichromophloia*.

6.2.3 Land Unit 3: Riparian

This land unit is restricted through the project area to watercourses and drainage gullies in the ridge/hill slopes and the low undulating plains. Soils are clayey loams with loamy clays in larger depressions, and coarse to fine sands in dry creek beds. Vegetation can be described as Low Open Eucalypt Forest (Wilson *et al.* 1990), which consists of Eucalypts (approximately 10m high), vines, and a dense groundcover of shrubs, grasses and forbs. Stream flow direction is predominantly to the south and southeast in the southern majority of the project area where drainage is to Nellie Ck to the Mary River. In the northeast of the proposed open pit the watercourse flows in a northerly direction. The northward flowing watercourse is linked with a number of smaller tributaries from the Mt Porter ridge and East Hill ridge and drains via Watts Creek and McKinlay River to the Mary River.

The riparian zones are sharply differentiated from the surrounding vegetation communities in the project area. They feature a near closed canopy and a higher degree of structural complexity and species diversity. There are species found in this land unit that are not found in the other land units, such as *Pandanus spiralis*, *Bambusa arnhemica*, *Ficus virens*. During the wet season relatively large volumes of water flow through the creeks and drainage gullies, but tend to dry

out during dry periods. However, many seasonal and some semi-permanent waterholes persist within the lease area (marked by sample points on Figure 5.1).

There is also a distinct difference between riparian plant communities between some watercourses within the Mt Porter lease area. The most significant of these is the approximately 200 metre long section of vegetation at AMG 806262E 8491003N southeast of East Hill that is described as a remnant rainforest community. This site contains species such as *Ficus virens* and *Bambusa arnhemica*, which create a thick upper canopy cover. There is a tall shrub layer including *Acacias*, *Pandanus spiralis* and *Grevillea decurrens* that cover around 60% of the area, however, these species are also common in most other watercourses in the area. Grasses were not common under the canopy cover, but covered about 80% of ground in most open areas along the banks and upper gully slopes. This remnant rainforest community appears to have permanent water in several areas along the watercourse, which supports the stunning habitat that exist there. In open areas away from the rainforest vegetation, the common grass species included *Themeda triandra* (dominant), *Sorghum plumosum* and *Scleria sphacelata*. Other riparian zones in the lease are relatively consistent, and only show major differences in species abundance rather than type of species.

Another type of habitat in association with the Riparian land unit is a drainage depression that is described as a contained swampy meadow (approximately one hectare) at AMG 806054E 8490909N with dark and moist cracking clays (Trap Site 4). Tall grasses covered the meadow with trees and shrubs being very widely scattered (Plates 8 and 9). The dominant grass was *Scleria sphacelata*, a very tall grass (up to two metres high) that covered the majority of the meadow. Other grasses such as *Sorghum plumosum* and *Themeda triandra* were under 10% of the total vegetation composition. *Melaleuca* sp and a few *Pandanus spirilis* were the only two tree species present in the meadow (*Melaleuca* sp. were approximately 10 metres high). *Passiflora foetida* intertwined between the tall grasses and trees.

6.2.4 Land Unit 4: Low Undulating Plains

The *Low Undulating Plains* land unit predominantly lies in the southern and eastern parts of the Mt Porter mineral lease, and is most likely associated with the *Cullen Land System* rather than the *Brocks Creek Ridge Land System*. The vegetation community is an Open Eucalyptus Woodland with a sparse understorey of medium grasses. Vegetation composition is not significantly different to the *Low Hills* land unit that dominates the western and northern sectors of the lease. The undulating country is dominated by *Eucalyptus* and *Corymbia* species, mainly *Eucalyptus tectifica*, *E. tintinans*, *Corymbia dichromophloia* and *C. latifolia* (approximately 8 to 10 metres high) The understorey varies in species dominance from *Sorghum plumosum* to *Themeda australis/triandra* (up to 1½ metres).

6.2.5 Land Unit 5: Granite Hills

The *Granite Hills* are located on the southern edge of the mineral lease (Figure 6.1) and contain similar flora species to the surrounding landscape (Plates 13 and 14). The Granite Hills are characteristic of the *Cullen Land System*. The hills are scattered with boulders and fragments of granite. The vegetation community is a Low Open Woodland that is dominated by *Corymbia dichromophloia* and *Eucalyptus tintinans*, with a relatively high density of *Sorghum intrans* (1 to 1½ metres high grass). The tall shrubs *Brachychiton megaphyllus*, *Coclospermum fraseri*, *Gardenia megasperma* and *Owenia vernicosa* are common plants on the granite hill tops and slopes. *Ficus platypoda* occurs in sheltered areas.

6.3 Flora: Notable Species and Weeds

The plant species present are generally widely spread across most of the landscape within the proposed lease area, and the surrounding region. No plant species identified during survey one were listed as being endangered, threatened or endemic within the Mt Porter project area according to *TPWC Act* (2000) and *EPBC Act* (1999, amended 2004) lists. The species recorded during the survey and their associated vegetation communities are common in the region with the exception of a few species within the restricted rainforest riparian habitat. The species and vegetation communities are described in Section 6.2 and a full list of species and their location is provided in Appendix 11.10.

Introduced species recorded during survey one included exotic weeds and introduced species not presently considered to be pests. Introduced weeds found at Mt Porter included *Hyptis suaveolens* and Mission Grass *Pennisetum polystachyon*. *H. suaveolens* was found throughout the project area, especially in Pit Gully beneath the rehabilitation site and on the southern flank of Mt Porter (Trap Site 1; Plate 2 & 3). *Pennisetum polystachyon* was found in the same locations as *H. suaveolens* but was not as prolific. Both species tended to be confined to areas where previous disturbance has occurred, such as access tracks and the erosion gully beneath the rehabilitation site. *Passiflora foetida* (Stinking Passion Flower), an introduced creeper, was found through most disturbed areas. *Euphorbia heterophylla* (Painted Spurge) and *Crotalaria goreensis* (Gamba Pea) are two weed species that were identified in low numbers within the rehabilitation site at Mt Porter (southern end of Trap Site 1). *Crotalaria goreensis* was also detected in the creekline adjacent to an access track at Trap Site 5.

The Mt Porter project area is similar in many regards to the nearby Frances Creek area (where flora and fauna surveys were undertaken by Low Ecological Services in the dry season in November 2005 and at the end of the wet season in May 2006). The vegetation cover is similarly dominated by *Eucalyptus* woodland with *Sorghum* but not so much of the fire increaser *Heteropogon* grasses. The site is higher in the landscape but still contains numerous ephemeral watercourses with infrequent waterholes are present throughout the landscape, which support a range of water loving species such as *Pandanus spiralis*, *Melaleuca sp.*, *Lophostemon grandiflorus* and aquatic species. Like the flora in the Frances Creek area, the Mt Porter area does not represent an area of significant endemism, and is typical of the widespread landscape and biota occurring within the Wet-Dry Tropics of the Pine Creek Region.

6.4 Fauna

Fauna species identified during the Mt Porter environmental survey are listed in Appendix 11.3. There were 87 animal species identified, including 41 birds, 26 mammals, 17 reptiles, three amphibians and one fish. No Gouldian Finches were observed in the Mt Porter project area during Survey 2 nor within the Francis Creek survey. Two species of bats listed under *EPBC Act* (1999) or *TPWC Act* (2000) legislation for conservation significance as it was in 2005 were recorded during the survey, these were Orange Horseshoe-bat *Rhinonicterus aurantius* and White-striped Sheath-tail bat *Taphozous kapalgensis*. However, only one of these species is in the current list of conservation significance, the Arnhem Sheath-tail bat (*Taphozous kapalgensis*). This species is listed as near threatened under the *Territory Parks and Wildlife Conservation Act* (2000) (*TPWC Act* (2000)). Only the Pilbara form of the Orange Horseshoe-bat (*Rhinonicterus aurantius*) (Pilbara Leaf-nosed bat) is listed under the *Environment Protection and Biodiversity Conservation Act* (1999) (*EPBC Act* 1999).

Only a small proportion of the animal species expected to inhabit the Mt Porter project area were actually observed during the surveys. This was probably a reflection of the short survey period, long grasses impeding opportunistic sighting of ground dwelling animals, seasonal variation in species composition and abundance, inappropriate habitat and possibly disappearance of carnivorous species due to arrival of the poisonous Cane Toad in 2003. The short survey period mainly resulted in identification of species common to the region during the late wet season with occasional opportunistic identification of uncommon species. Thus, species lists have been supplemented with potential inhabitants based on records from nearby locations (including surveys from Francis Creek), and species habitat preference and range (Appendices 11.6, 11.7, 11.8 and 11.9).

Trap Success: Elliott trap captures were relatively high during survey one, with the overall trap success being 31.7% due to large numbers and breeding of *Rattus tunneyi*. Trap Site 5 (rainforest/creekline) finished off with the highest success rate (44%), followed by TS 1 (37%), TS 4 (33%), TS 3 (30%) and TS 2 (13%). The lowest trap success was observed at Trap Site 2, which occurred along the Mt Porter ridgeline where the open cut pit is proposed for development. Pitfall traps were installed at four locations for the survey (i.e. TS1, TS3, TS4 and TS5). Pitfall TS4 (located in a swampy clay depression) caught 10 specimens and was the only pitfall to catch animals on all trapping nights. Other trap sites only caught 1 or 2 animals in pitfalls over the three night trapping program. Trap capture data for both Elliott and Pitfall trapping session is provided in Appendices 11.4 and 11.5.

The native rodent, *Rattus tunneyi*, was the most common animal captured in Elliott and Pitfall traps with 106 captures in total. *Pseudomys nanus* was also relatively common in Elliott traps with 13 individuals being caught in total. Elliott and Pitfall trappings totaled at eight species each. Elliott traps mostly caught small native mammals, including dasyurids and rodents (5 mammals species in total) (Table 6.2). Pitfall traps had a more diverse collection of reptiles with only occasional mammals, with seven species of reptile being captured.

Mammals: Mammal species recorded during the April 2005 survey are listed in Appendix 11.3. Survey results identified a total of 27 native mammal species and two feral species for the lease area.

Two dasyurid species were caught and identified during the survey, Fawn Antechinus (*Antechinus bellus*) and Red-cheeked Dunnart (*Sminthopsis virginiae*). All animals are common in the region. Two *A. bellus* specimens were caught in Elliott traps within a creek line and grassy hill slope habitat. A single *S. virginiae* was caught on the grassy hill slope of Trap Site 3.

Three native rodent species were caught and identified during the survey, Pale Field Rat (*Rattus tunneyi*), Common Rock-rat (*Zyomys argurus*) and Western Chestnut Mouse (*Psuedomys nanus*) was found in several different habitats ranging from creeklines, ridge tops to hill slopes. A single *Z. argurus* was trapped from a rocky section along the rainforest creek line (Trap Site 5). The trapped specimen was in good condition and was a post-lactating adult female.

Two macropod species were observed during the survey, these were the Euro (*Macropus robustus*) and Short-eared Rock Wallaby (*Petrogale brachyotis*). Both species were recorded from the Granite Hills and *P. brachyotis* was also sighted on the ridge slopes at Trap Site 2. An uncertainly identified Black Euro was seen foraging on the Granite Hills, however, high grasses obstructed vision of the animal.

A Sugar Glider (*Petaurus breviceps*) was encountered during spotlighting on the night of 21st of April 2005. It was observed near the south end of Trap Site 3 sheltering in a hollow of a Salmon Gum (*Eucalyptus tintinans*). Disturbance by the spotlight caused *P. breviceps* to glide between several trees until it was out of vision. This species was only observed on one occasion in the project area but is widespread in its appropriate habitat across northern and eastern Australia.

The Northern Brown Bandicoot (*Isodon macrourus*) was not directly observed during the survey, however, several digs found on ridge tops could potentially have been done by this animal. Two cage traps were set up but were unsuccessful. *Isodon macrourus* is considered common throughout the region, especially in areas with tall grasses or dense shrubbery, and has been recorded from nearby locations such as Brocks Creek, Unions Reef and Kakadu National Park (Elderidge and Low 1994; NSR 1993; Woinarski *et al.* 1989).

Scat sign and dig marks confirmed the Short-beaked Echidna (*Tachyglossus aculeatus*) to be present, especially on hill slopes and some ridge tops.

Dingo (*Canis familiaris*) tracks were recorded within the lease boundary, but were rarely encountered during tracking and ground survey work.

Horses (*Equus caballus*) and feral pigs (*Sus scrofa*) were commonly identified by tracks within the lease boundary, mostly along watercourses and flatter areas. Two horses were directly observed during spotlighting on the night of 22 April 2005 and four horses were observed along Trap line 3. These are likely Station horses as they were relatively quiet in the presence of humans.

The ANABAT System (bat detector) was setup for 4 nights and recorded 746 calls that could be identified. Assessment of the calls determined 14 different species with a further two other groups of calls that include at least two other species, but they could not be identified with confidence. The Mt Porter project area has a potential for 17 species of micro bats that could inhabit the area over a full cycle of seasons. ANABAT recordings showed that at least 14 of the species were present during the survey. Considering the short-term nature of the survey (i.e. four nights, four locations) this is a good result and shows that April is a good time to survey for bats at this latitude. No Megachiroptera (Fruit bats and blossom bats) were seen or heard, however, it would be expected they would also use the area at certain times a year for feeding during high flower periods. Many Eucalypts were showing initial stages of fruiting and flowering, therefore, Megachiroptera would likely be present once these trees continue to blossom.

There was one species of bat of conservation significance found in the area: White-Striped or Arnhem Sheath-tail Bat (*Taphozous kapalgensis*): This is an unexpected recording. Recorded on seven sequences on two nights in two habitats. This species is thought to be a tree dweller. The species range is usually considered to be the flood plains to the north of the lease.

Reptiles: Reptiles recorded during survey one are presented in Appendix 11.3. No reptile species of conservation significance were identified. Warm temperatures during the survey (ranging from 20 – 36°C) reflected a relatively high diversity of reptile species (17 species). The most common species observed was the small skink *Carlia amax*, which was commonly seen near watercourses and gullies. *Lophognathus gilberti* was commonly seen in creek lines, gullies and the wet rainforest within the mineral lease (Plate 27).

Small dragons, such as *Typanocryptus sp.*, were quite common on the ridge top of Mt Porter (Trap Site 1) (Plate 29). *Varanus acanthurus* and *V. baritji* were also identified on the ridge top through direct observations and an Elliott trap capture of *V. baritji* (Plate 30).

Long grasses, such as *Sorghum plumosum*, covering much of the landscape (with the exception of ridges) obstructed observation of reptiles during ground searches. However, on two occasions *Ctenotus robustus* was observed amongst high grasses in the swampy meadow at Trap Site 4. A relatively large *C. spaldingii* was also captured in an Elliott trap at Trap Site 3 on a grassy hill slope.

Amphibians: Three amphibian species were identified during survey one, including two native frogs and one introduced toad (Appendix 11.3). The two frogs, identified as *Litoria watjulumensis* and *L. tornieri* (Plates 23 & 24), were uncommonly encountered and confined to moist gullies and creeklines. A higher abundance and diversity of frogs would be expected during the wet season when water levels in the creeklines are higher and more food sources are available (i.e. aquatic insects and nymphs). The introduced Cane Toad (*Bufo marinus*) (Plate 25) was commonly encountered during spotlighting sessions between 8pm and 930pm and was not confined to areas where freestanding water existed. All large adults appeared lean but healthy. The toad first appeared at the mine lease in 2003 (J. Goulevitch, *pers. comm.*, 2005).

Birds: Bird species identified from survey one are listed in Appendix 11.9. The table in Appendix 11.3 also includes species potentially occurring within the Mt Porter project area based on previous studies in the local area. No species listed under the *EPBC Act* (1999) or in Parks and Wildlife significant species lists were found during the Mt Porter survey. No Gouldian Finches were observed in the Mt Porter project area during Survey two (see section 7 for discussions).

Forty-one species were observed during survey one. This includes sedentary, vagrant and migratory species. Many bird species are vagrants and their populations are known to fluctuate with seasonal and temporal variation of resources. Bird species most commonly encountered throughout the lease area included: Red-tailed Back Cockatoos (*Calyptorhynchus magnificus*), Sulfur-crested Cockatoos (*Cacatua galerita*), Red-winged Parrots (*Aprosmictus erythropterus*), Double-barred Finches (*Stizoptera bichenovii*), Grey Butcherbirds (*Cracticus torquatus*), Rainbow Lorikeets (*Trichoglossus haematodus*), Peaceful Doves (*Geopelia striata*) and Little Woodswallows (*Artamus minor*). Most birds observed at Mt Porter were distributed through all the land units, however, the diversity and abundance was greatest in the lowland *Riparian* habitat.

The only water bird observed during the survey was a White-faced Heron (*Ardea novaehollandiae*) flying over the Cullen Land System in the south of the lease. The survey was conducted at a time when freestanding water was not abundant, leaving little attraction for water birds into the area. The ephemeral nature of watercourses at Mt Porter suggests that the area is not an integral part of water bird life cycles and the close access to adjacent water bodies (i.e. Spring Hill, Kakadu NP) act as refuge areas for birds that rely on streams within the Mt Porter project area.

Aquatic Fauna: The aquatic environment within the mineral lease boundaries of the Mt Porter prospect includes creeks, drainages areas and a freshwater spring. The creeks and spring at the time of survey had low to no freestanding water, but there was enough to sustain some aquatic life and attract animals for a drink. Watercourses in the area flow steadily in the wet season,

ceasing in the mid dry season with water remaining in a few pools which act as refuge for freshwater fish, reptiles, amphibians and macroinvertebrates. Spangled grunters (*Leiopotherapon unicolor*), snakes and frogs were observed in a creek line south of Mt Porter 100 metres south of Trap Site 3 (creek line is known as Pandanus waterhole in this report). It is expected that aquatic fauna inhabiting the McKinlay River also occurs in tributaries in surrounding areas (i.e. Mt Porter) during the wet season.

The Spangled Grunter was the only fish species recorded and this was from a brief sighting within the Pandanus Waterhole. An aquatic snake, Macleay's Water Snake (*Enhydryis polylepis*), was observed in the receding water pools on five occasions during the survey. Two frog species, *Litoria watjulumensis* and *L. tornieri* (Plates 23 & 24), were also found in the muddy banks of creeklines.

6.5 Soil Erosion and Disturbances along the Access Road

Existing erosion within the mineral lease is minimal and occurs where soils have been exposed by road construction or rehabilitation of exploration drill pad sites. The rehabilitated gully on the southern slope of Mt Porter is an example. This is indicative that gully erosion can occur in the area and will need to be managed early in development.

Existing areas of disturbance occur at current access tracks, rehabilitation areas, several cleared areas. Some of these sites would be appropriate for mining infrastructure development and storage rather than clearing areas of pristine land.

6.6 Soil and Water Analysis

Data was collected from local watercourses, drainage depressions and surface waters to provide a baseline on which to monitor the degree of impact on suspended sediments and contaminants that mining may impose on the area. The watercourses and drainage depressions in the area naturally have a relatively high sediment load, and there are no abnormally high metals or contaminants present in the water and soils from the samples collected. The chemical composition of these areas was also determined, which will provide useful back ground information for future monitoring in the event that acid-generating rock is mined. Erosion potential for bare ground is high and sediment ponds may be required to reduce impact on local watercourses.

Analytical results from four sample sites at Mt Porter were typical of a natural environment. Results from the analysis are provided in Appendices 11.1 (soils) and 11.2 (water), and ANZECC standard limits are also provided for future reference. Figures 6.2, 6.3 and 6.4 illustrate the measurement of soluble metals and total metals for each sample site. The concentrations of the standard array of elements in the soil and water samples analysed do not exceed ANZECC standards. The samples were all taken from low lying *Riparian* areas that are likely to be depositional areas within runoff zones from the mine site. Water within the existing creeks contain freshwater with electrical conductivities ranging from 262 to 387 uS/cm. The water samples have pH values ranging from 6.6 to 7.6 indicating that the water is relatively neutral in the area. Soils showed a more acidic nature with a range in pH between 5 and 7.

Sulfate is higher in the rainforest creek alluvial samples with 9,400 mg/kg compared to 600, 300 and 300 mg/kg in the Pandanus Waterhole, Swampy Meadow and Pit Gully Spring, respectively. Nitrogen content also appears to be higher within the alluvial samples collected within the rainforest creek.

The three water samples collected from the Pandanus Waterhole, Pit Gully Spring and the Rainforest all showed elevated levels of Aluminium (exception of rainforest), Calcium, Iron, Potassium, Magnesium, Sulfur and Silicon (Figure 6.2). All other metals screened for in the analysis were not detected at comparatively high levels.

The soil samples were analysed for soluble metals (Figure 6.3) and total metals (Figure 6.4), and all results are presented in Appendix 11.1. The dominant soluble metals were Aluminium, Calcium, Iron, Potassium, Magnesium, Sulfur and Silicon (Figure 6.3). The Swampy Meadow soil sample indicated elevated signs of Arsenic, Lithium, Molybdenum, Lead and Selenium (all under ANZECC standards but significantly higher than all other locations).

The principle total metals identified in the soil samples were Iron (dominant), Manganese, Sulfur, Arsenic, Barium, Potassium, Lead and Zinc. The Swampy Meadow showed elevated readings of Manganese, and the Rainforest was significantly higher in Sulfur.

Pit Gully spring is immediately downstream from the location of one area of rehabilitation completed in 1994 and does not show any abnormally high readings of metals. The Rainforest and Swampy Meadow locations may be affected in the future if mining proceeds at Mt Porter and this data will provide a baseline for what to expect in the water and sediment if future monitoring is necessary.

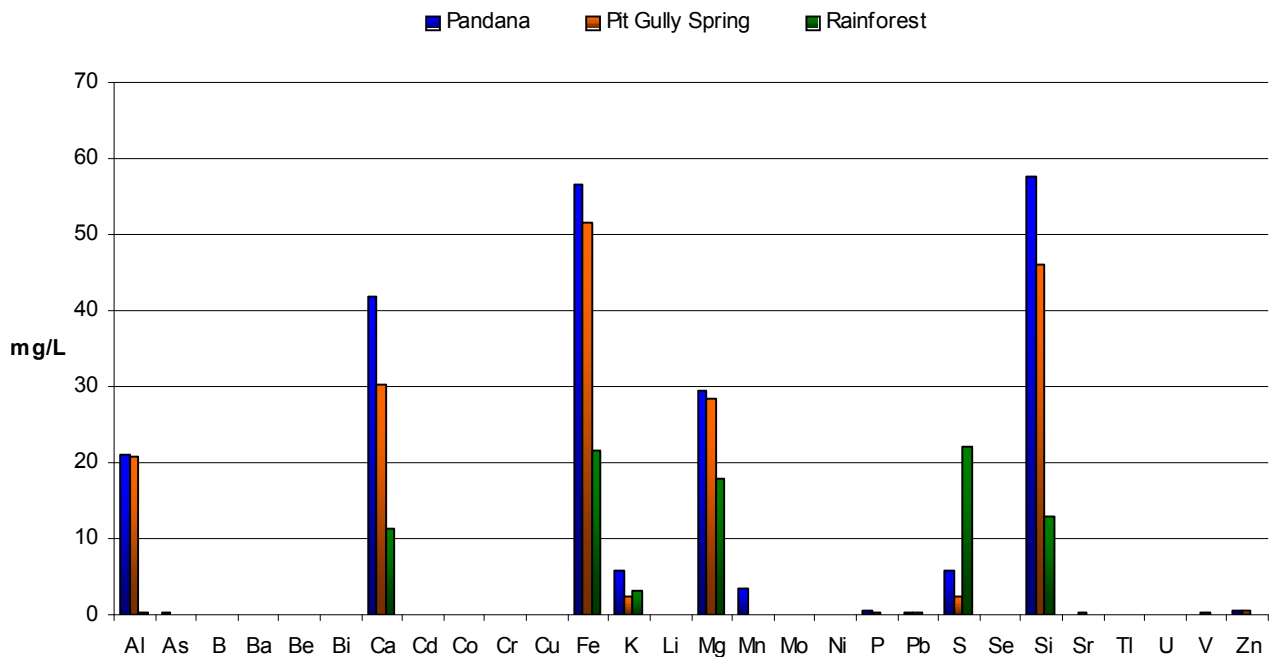


Figure 6.2: Metal analysis from water samples collected from three sites within the Mt Porter mineral lease. Samples locations are provided in Map 1, and analytical data is provided in Appendix 11.2.

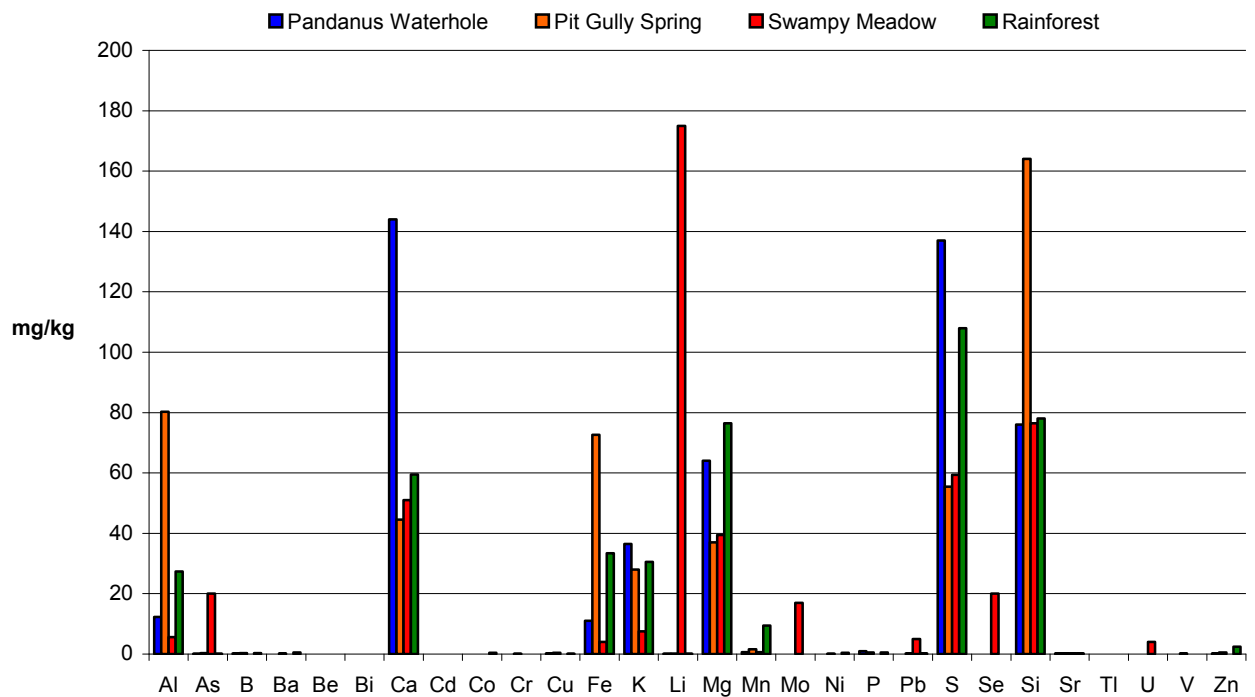


Figure 6.3: Soluble metals in soils collected from four sites within the Mt Porter mineral lease.
Sample locations are provided in Map 1, and presentation of analytical data is provided in 11.1

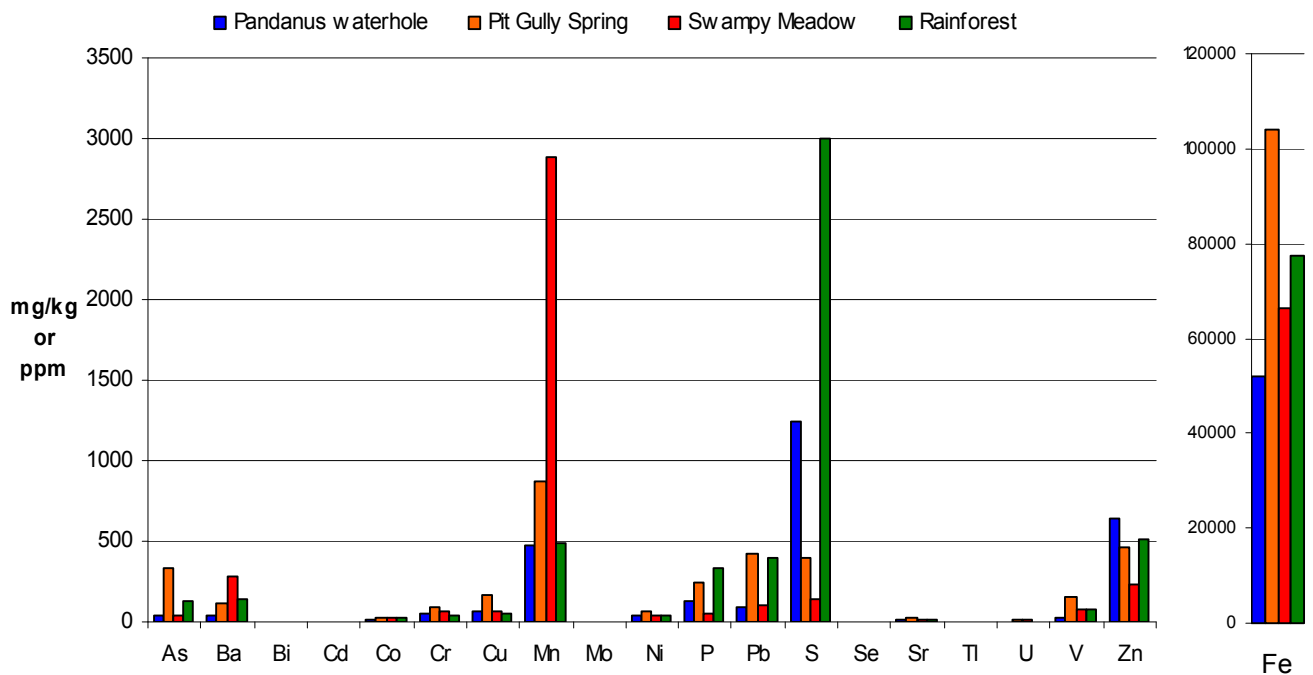


Figure 6.4: Total metals in soils collected from four sites within the Mt Porter mineral lease.
Samples locations are provided in Map 1, and analytical data is provided in Appendix 11.1.

7 CONSERVATION VALUE OF MT PORTER (REGIONAL CONTEXT)

7.1 Habitat

The main vegetation community of the Mt Porter mineral lease is described as *Eucalyptus tectifica* Low Woodland with *Sorghum* understorey, mixed with *E. tintinans*, *E. miniata* and *Corymbia dichromophloia* (Wilson *et al.* 1990). This particular vegetation community covers hundreds of square kilometres in the Northern Territory (Wilson *et al.* 1990), and Mt Porter constitutes approximately 362.6 hectares of this community. On a regional scale the vegetation and landscape of Mt Porter is not considered to be threatened or significant but it is poorly represented in National parks and is subject to widespread exploration and mining development.

The Mt Porter mine development will result in localised loss of habitat and alteration of landscape. Thus on a regional scale the habitat alteration associated with the Mt Porter project is insignificant. However, mining activity in the area is continuously increasing within the Pine Creek region and future studies will need to consider the cumulative disturbance from mining this habitat.

The *Riparian* land unit within the mineral lease area deserves a higher conservation value and should not be disturbed during mining operations where it can be avoided. The local drainage network of the *Riparian* land unit contains ephemeral watercourses that can hold available surface waters throughout the wet and dry seasons. As a consequence, the species diversity of this land unit is relatively high and it provides important refuge for fauna through the dry season. An area of rainforest in the riparian area SE of East Hill was of special note and contained species not found in other parts of the lease. Rainforest locations in the NT are relatively uncommon and are worthy of conservation where possible. There is a potential for mining to have a significant impact on the riparian land unit either directly or indirectly through alteration of catchment areas and increased erosion.

7.2 Flora

The vegetation survey at Mt Porter did not identify any plant species of conservation significance. All plants and associated vegetation communities are common in the region. Similarly, the Frances Creek survey did not reveal any plant species of conservation significance that would warrant any concern or further surveys within the Mt Porter project area.

7.3 Fauna

Vegetation clearing for the Mt Porter mine development will result in habitat loss for the local fauna living in the impacted area, particularly those preferring the *Ridge Crest and Slopes* land unit. Mining will also indirectly impact on the local fauna through increased noise, vibration, dust, lights, roads, increased human activity and possible alteration of the natural drainage patterns. Although these disturbances will reduce localised populations in the impacted parts of the Mt Porter project area, most species are common and widespread throughout their range and their status is unlikely to be affected. However, there are some species of conservation significance that may be adversely affected by the mining operation.

Mammals of conservation concern that were identified during the 2005 Mt Porter survey include *Rhinonicterus aurantius* (Orange Horseshoe-bat), *Taphozous kapalgensis* (White-striped Sheath-tail bat) and *Petrogale brachyotis* (Short-eared Rock Wallaby). Possible signs from

Isoodon macrourus (Northern Brown Bandicoot) on the Ridge Crest along Trap Site 2 were also observed.

Although *R. aurantius* was classified as a Near Threatened species (ICUN 2000) in 2005, the NT population is no longer considered to be threatened. The species is endemic to Australia and its distribution extends from the Pilbara to western Queensland, with most of the populations occurring in the Northern Territory (Churchill 1991). Consequently, only the Pilbara form of *R. aurantius* is considered threatened (EPBC web site, 2006). Churchill (1991) suggests the scarcity of *R. aurantius* is due to highly specialized roost requirements and low numbers of caves and mines with suitable microclimates. In any event, the lack of local roosting habitat implies there will be no significant impact on the population as the animals are likely flying in from nearby areas as indicated by the few recordings.

T. kapalgensis is a data deficient species and has only been recorded from the Kapalga and Kakadu areas of the Northern Territory where it occupies the floodplains. It is a fast and direct flying species that forages in open areas well above treetop height in open woodlands and adjacent grassy plains, but also descends to lower levels where flight paths are not obstructed (McKean and Friend 1979 – from bat book). Potential threats of this species are not known.

Petrogale brachyotis were observed within the *Granite Hills* land unit (i.e. part of the *Cullen* Land System) on the southern extent of the Mt Porter project area. On a national scale *P. brachyotis* is not considered to be threatened within conservation legislation statements such as the *EPBC Act* (1999) or the *TPWC Act* (2000). However, *P. brachyotis* is of some concern as its distribution appears to be contracting northward. Therefore, the Mt Porter project will contribute to habitat loss in the short-term for *P. brachyotis* if rocky ridges are disturbed or removed in mining operations. Numerous rocky ridges in the local area and also granite hills on the southern extent of the mineral lease will act as refuge areas for rock wallabies in the area. Of concern would be the potential attraction of dingoes to the area by the mining operation, thus all care must be taken to minimise the availability of food and water to dingoes.

Other mammals of conservation significance identified in the nearby Frances Creek surveys include the Ghost Bat (*Macroderma gigas*), Calaby's Pebble Mound Mouse (*Pseudomys calabyi*), Western Chestnut Mouse (*Pseudomys nanus*), Pale Field-rat (*Rattus tunneyi*).

Ghost Bats (*Macroderma gigas*) were listed as Near Threatened in the Northern Territory prior to 2006, however they are no longer listed in the NT legislation. They are classed as vulnerable under the Red Species List determined by the IUCN. The current Ghost Bat population in Northern Australia is estimated somewhere between 4,000 and 6,000 (wikipedia website). Roosts can be found in caves, deep rock crevices, rock clefts and old mines. The bats mainly forage at night within 1-2 km of the roost site (IUCN website 2006). Ghost bats move between a number of caves seasonally or as dictated by weather conditions, and these sites are likely to be located within a range of 20 to 30 km (Dennis Matthews *pers. comm.* 2006). Although ghost bats prefer to roost in colonies they currently only roost in small groups. This species is vulnerable to disturbance in its roost sites, however there were no Ghost Bats present during the survey undertaken at Mt Porter, and there are no suitable long term roost sites located within the lease. Pale Field-rats and Western Chestnut Mice were listed as Near Threatened in the Northern Territory (*TPWC Act* 2000) although they have been currently taken off the list and their status has been downgraded. The Field-rats are known to be relatively common in the region. At Francis Ck they were caught in previously mined areas and pristine areas during the survey,

suggesting that populations were not affected by previous iron ore mining at Frances Creek. The Western Chestnut Mouse was also found in previously disturbed and undisturbed areas.

Birds identified during the Mt Porter survey were common and widespread in the surrounding region and are well represented in nearby locations such as Kakadu National Park. No bird species of conservation significance were identified during the survey. However, four bird species of conservation significance were identified within the nearby Frances Creek area and the area has the potential to contain Gouldian Finches. These species are noted and discussed in the following paragraphs.

The Gouldian Finch (*Erythrura gouldiae*) is an endangered species under the *EPBC Act* (1999) and the *TPWC Act* (2000) that could possibly occur within the Mt Porter mineral lease. Open Woodlands of *Eucalyptus tintinans* and *Sorghum* grasses provide a preferred habitat for Gouldian finches. They have experienced considerable decline in numbers over the past 50 years (Woinarski *et al.* 1989). Proposed threats and reasons of decline of populations are trapping, changes in fire regime, grazing cattle and respiratory mites. There are few known breeding areas and few populations occurring in National Parks. No Gouldian Finches were observed during targeted surveys of the Mt Porter or Frances Creek area despite the presence of several other finch species and lengthy bird searches. Other finches identified at Mt Porter included the Long-tailed Finch, Crimson Finch, and Short Tailed finch, but these were not in great numbers. Undulating Open Woodlands of *Eucalyptus* sp. and *Sorghum* grasses with associated creek lines do provide appropriate habitat for Gouldian finches. Habitat selection changes from breeding areas in stony hill woodland in the dry season to adjacent lowlands throughout much of the wet season (Dostine *et al.* 2001). Finches feed on annual grass seeds during the dry season until germination occurs in the wet season at which time they switch to ripening seeds of, particularly, perennial grasses. The species has experienced considerable decline in numbers over the past 50 years (Woinarski *et al.* 1989). Suggested threats and reasons of decline of populations are trapping for captive bird trade, changes in fire regime, grazing cattle and respiratory mites. There are few known breeding areas and few populations occurring in National Parks. Gouldian Finches have been recorded in Kakadu National Park (Woinarski *et al.* 1989), Pine Creek (NSR 1993) and Mt Todd (NSR 1992) (Appendix 13.8), and thus may be found within the Mt Porter area. Hence, identification of the species should be taught to all employees during induction and if Gouldian Finches are detected during mining, a monitoring program should be established to determine movements of this species in order to assess whether populations could be impacted by mine development. It seems likely that if the species is found in the area, it will be along the valley bottoms in areas of high *Sorghum* grasses. Thus vehicle traffic on roads may be the main threat, and vehicle speed limits and sign postage (i.e. picture of Gouldians) where the species may occur along the roads may be an adequate solution if they do appear in the future.

The Partridge Pigeon (subspecies *Geophaps smithii smithii*) observed in June 2006 on the road in the eastern part of the lease is classified as vulnerable (*EPBC Act* 1999) and has experienced considerable reduction in numbers and range in Northern Australia over the last 70 years (RAOU 1993). They can be locally common but are generally scarce (RAOU 1993). The decline of Partridge Pigeons has been attributed to the degradation of small waterholes by exotic animals and altered fire regimes (RAOU 1993). They are represented in a number of regional National Parks and are more commonly observed in Open Woodlands of the *Low Undulating Hills* land unit. However, localised habitat loss within the Mt Porter lease is unlikely to disturb habitat where the Partridge Pigeon may occur.

The White Egret, Rainbow Bee-eater and Magpie Goose are protected under the *EPBC Act* (1999) as listed overfly marine or migratory species (*EPBC Act* generated report, October 2006). These birds are common in the greater region at particular times of the year as they are particularly mobile and commonly migrate to preferred feeding locations. Since habitat on the Mt Porter mining area is not appropriate to these species and there are a number of water bodies in the region that offer a range of habitat for these species, the conservation status will not be affected by Mt Porter operations.

Red Goshawk (*Erythrorhynchus radiatus*) is a vulnerable species according to the *EPBC Act* (1999) and the *Action Plan for Australian Birds* (2000). This bird occupies a range of habitats in northern and eastern Australia, including coastal and subcoastal tall open forests and woodlands. However, within these habitats Red Goshawks are sparsely distributed. Red Goshawks breeding requirements are very specific, for example they will only nest in trees taller than 20 metres and these must be within one kilometre of water (Birds Australia 2005). Most of the range contraction in this species has occurred in New South Wales and southern Queensland where suitable habitat has been cleared. It is estimated that fewer than 1,000 Red Goshawks remain (Birds Australia 2005). No observations of the species have been made in the area and there is likely to be little impact on the species by the mining operation.

Masked Owls (*Tyto novaehollandiae*) are classed as a vulnerable species under the *EPBC Act* (1999). They inhabit forests, woodlands, timbered waterways and open country on the fringe of these areas (Pizzey and Knight 1997). They require tall trees with suitable hollows for nesting and roosting and adjacent areas for foraging. The population range is a broad coastal band around most of mainland Australia and throughout Tasmania (i.e. no more than 300 kilometres from the coast). Population numbers of Masked Owls are low on the mainland. While the loss of several large trees in the pit area will occur, there is no evidence that the species has occurred in the area.

The **reptiles** identified during the Mt Porter environmental survey are common and widespread and mining operations are unlikely to change the status of these species. There are no reptiles listed under the *EPBC Act* (1999) or the *TPWC Act* (2000) for local area of Mt Porter.

All frog species (**amphibian**) listed as occurring or potentially occurring within the Mt Porter mineral lease are considered to be common in the local regions. Localised habitat loss is unlikely to significantly affect the status of any frog species at Mt Porter. The Cane Toad is present within the mineral lease and is a nationally listed pest that needs to be eradicated or controlled. The mining management plan for Mt Porter could include a pest management program such as trapping for this species to ensure that the Cane Toad populations do not increase the threat on native fauna.

None of the **fish** and **macro-invertebrates** identified during the survey are considered to have conservation status under the *EPBC Act* (1999) and *TPWC Act* (2000). Nonetheless, waterways that provide habitat for these species are important and should not be disturbed by mining if possible. Fish and macro-invertebrates provide a good source of prey for birds, reptiles and aquatic species.

Table 7.1: Species of Conservation Significance that occur or could possibly occur within the Mt Porter project area.

Environmental Protection and Biodiversity Conservation Act (1999) (*EPBC Act* (1999)) protected species that could potentially be found within the Mt Porter Project area. *EPBC Act* search consisted of a point search type (13° 38' 19"S, 131° 49' 13"E) with a buffer of 1km.

Species Listed under the *Territory Parks and Wildlife Conservation Act* (2000) (*TPWC Act* (2000)) are also provided.

Species Name and Status	Common Name	Source	Presence during the Survey	Preferred habitat
CRITICALLY ENDANGERED				
Mammals				
<i>Saccolaimus saccolaimus nudicluniatus</i>	Bare-rumped Sheath-tail Bat	<i>EPBC Act</i> (1999)	Not recorded	Woodland communities
ENDANGERED				
Birds				
<i>Erythrura gouldiae</i>	Gouldian Finch	<i>EPBC Act</i> (1999), <i>TPWC Act</i> (2000)	Not recorded	Open woodlands and grasslands
<i>Dasyurus hallucatus</i>	Northern Quoll	<i>EPBC Act</i> (1999), and also listed as vulnerable <i>TPWC Act</i> (2000).	Not recorded	Generalist that dens in tree hollows, rock crevices and caves
VULNERABLE				
Birds				
<i>Erythrotriorchis radiatus</i>	Red Goshawk	<i>EPBC Act</i> (1999)	Not recorded	Open Woodlands
<i>Geophaps smithii smithii</i>	Partridge Pigeon (eastern)	<i>EPBC Act</i> (1999)	Not recorded	Open Woodlands, creeklines
<i>Tyto novaehollandiae kimberli</i>	Masked Owl (northern)	<i>EPBC Act</i> (1999)	Not recorded	Forests and Woodlands
NEAR THREATENED				
Mammals				
<i>Rhinonicterus aurantius</i>	Orange Horseshoe-bat	<i>TPWC Act</i> (2000) The threatened status of this species was	Recorded	Requires warm humid caves near open Eucalypt woodland

Species Name and Status	Common Name	Source	Presence during the Survey	Preferred habitat
		downgraded in the 2006 listing and it is no longer considered threatened.		
<i>Taphozous kapalgensis</i>	White-striped Sheath-tail bat	TPWC Act (2000)	Recorded	Unknown
MIGRATORY				
Migratory Terrestrial Species - Birds				
<i>Coracina tenuirostris melvillensis</i>	Melville Cicadabird	EPBC Act (1999)	Not recorded	Water bodies
<i>Erythrura gouldiae</i>	Gouldian Finch	EPBC Act (1999)	Not recorded	Open woodlands and grasslands
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	EPBC Act (1999)	Not recorded	Water bodies
<i>Poecilodryas superciliosa cerviniventris</i>	White-browed Robin	EPBC Act (1999)	Not recorded	Woodlands, creeklines
<i>Rhipidura rufifrons</i>	Rufous Fantail	EPBC Act (1999)	Not recorded	Water bodies
Migratory Wetland Species - Birds				
<i>Charadrius veredus</i>	Oriental Plover	EPBC Act (1999)	Not recorded	Timbered Habitats
<i>Glareola maldivarum</i>	Oriental Pratincole	EPBC Act (1999)	Not recorded	Creeklines
<i>Numenius minutus</i>	Little Curlew	EPBC Act (1999)	Not recorded	Generalist

7.4 Conservation Value of Mt Porter Project Area

Mt Porter lies within the *Brocks Creek Ridge* and the *Cullen* land systems (Christian *et al.* 1953). The land systems have experienced minimal impact from European development, and land is largely non-arable subsequently creating low stocking capacity. However, mining has occurred in several areas scattered throughout the local area (i.e. Spring Hill, Brocks Creek, Francis Creek, Pone Creek, Mt Todd, Union Reef), including intensive exploration work on Mt Porter during the early 1990s. Consequently, small pockets of land within the Mt Porter mineral lease have modifications of the natural environment, especially the southern slopes of Mt Porter where most of the exploration drilling occurred.

A biogeographical feature of northern Australia is the fauna of the tropical woodlands and open forests being relatively homogenous across an extensive longitudinal arc from the Gulf of Carpentaria region to the southwest of the Kimberly (Woinarski *et al.* 1989).

The biological and landscape survey of Mt Porter suggests it's representative of the widespread landscape, as it contains species commonly found in the northern Wet-Dry tropics. One particular area SE of East Hill (referred to as the rainforest in the report) is a pocket of restricted riparian habitat for the local area that's indicative of permanent water associated with well-sheltered vegetation. This rainforest area is not listed as a significant vegetation community due to its relative abundance in more tropical locations further north and northeast of Mt Porter. However, it is locally rare and adds to the biodiversity of the region surrounding Mt Porter and should be preserved to retain this ecological value. Disturbance from mining activity should be restricted from the area.

Other than the rainforest area, all species recorded during the Mt Porter survey are represented in either Kakadu or nearby National Parks. Thus from an environmental perspective Mt Porter does not represent an area of outstanding conservation significance. However, any development within the area should attempt to minimise disturbance of the local environment.

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10 PLATES

10.1 Trap Sites



Plate 1: Trap Site 1. *Ridge Slope* land unit. Low Eucalyptus Woodland. South facing slope that is dominated by *Eucalyptus miniata* and *Erythrophleum chlorostachys* (photo Dennis Matthews).



Plate 2: Trap line 1. *Ridge Slope and Gully* land unit. Rehabilitation area from 1994/5. The vegetation consists of many species including ones native to the area and also several introduced species. Several species of *Acacia* are present in the rehab zone.



Plate 3: Trap Site 1. *Lower Ridge Slope* land unit. Downstream of rehabilitation area. The dominant plant is *Hyptis suaveolens* (introduced weed species).



Plate 4: Trap Site 2. Southern End. *Rocky Ridge Crest* land unit. Looking towards the peak of Mt Porter. *Eucalyptus tintinans*, *Corymbia dichromophloia* and *Erythrophleum chlorostachys* dominate the upper canopy (photo Dennis Matthews).



Plate 5: Trap Site 2: Northern end. *Ridge Crest* land unit This is close to the site where the Orange Horseshoe bat was identified from its calls. Rocky cliffs on the east and west side of the crest could contain suitable roosting locations for these near threatened species of bat. Several Bowers were found under the shade of native pines along the ridge crest (photo Dennis Matthews).



Plate 6: Trap Site 3. Southern End. *Low Undulating Plains* land unit. The undulating country is dominated by *Eucalyptus* and *Corymbia* species, namely *Eucalyptus tectifica*, *E. tintinans*, *Corymbia dichromophloia* and *C. latifolia*.



Plate 7: Trap Site 3. Northern End. *Low Hills* land unit. *Eucalyptus tectifica*, *E. dichromophloia* and *E. tinianans* were the common trees in the area with *E. tectifica* being the more dominant species.



Plate 8: Trap Site 4. *Riparian - Swampy Meadow*. The dominant grass was *Scleria sphacelata*, a very tall grass (up to 2m high) that covered the majority of the meadow. *Melaleuca* sp and a few *Pandanus spirilis* were the only two tree species present.



Plate 9: Trap Site 4. Drainage Depression. Swampy Meadow. The dominant grass was *Scleria sphacelata*, a very tall grass (up to 2m high) that covered the majority of the meadow. *Melaleuca* sp and a few *Pandanus spirilis* were the only two tree species present.



Plate 10: Trap Site 5. Riparian - Rainforest. A restricted habitat for the local area which should be preserved. We described it as a remnant rainforest community, containing species such as *Ficus virens*, *Bambusa arnhemica*, which creates a thick upper canopy cover.(photo Dennis Matthews)



Plate 11: Trap Site 5. Riparian - Rainforest. Small section of dense overstorey vegetation. Not common in the local area and should not be disturbed by mining operations. This particular plant is known as *Ficus virens*.



Plate 12: Trap Site 5. Riparian – Drainage lines. Common throughout most land units. Contain species such as *Lophostemon grandiflorus*, *Pandanus spiralis*, *Grevillea decurrens*, *Themeda triandra* and *Sorghum plumosum*.



Plate 13: Granite Hills. Description below. Several Short-eared Rock Wallabies were observed within the granite hills on the south extent of the Mt Porter mineral lease.



Plate 14: Granite Hills. The hills are scattered with boulders and fragments of granite. The vegetation community is a Low Open Woodland that is dominated by *Corymbia dichromophloia* and *Eucalyptus tintinans*, with a relatively high density of *Sorghum intrans* (1 to 1.5 metres high grass).



Photo 15: Riparian - Pandanas Creekline. A permanent waterway that contains a high density of *Pandanus spirilis*. A water and sediment sample was collected from this site to determine natural (baseline) levels of elements, salinity and sediment loads.



Plate 16: Riparian - Pandanas Creekline. The permanent water along the creek is heavily used by feral horses and pigs that destroy the shoreline and creek banks. Native snakes, mammals and other reptiles were also common near these waters. A spangled grunter was observed in one of the deeper looking areas of the creek.

10.2 Flora



Plate 17: *Pandanus spirilis* in fruit at the Pandanas Creekline vegetation site.

Plate 18: A Crab Eye Vine (*Abrus precatorius*) in the Open woodlands of Trap Site 3.

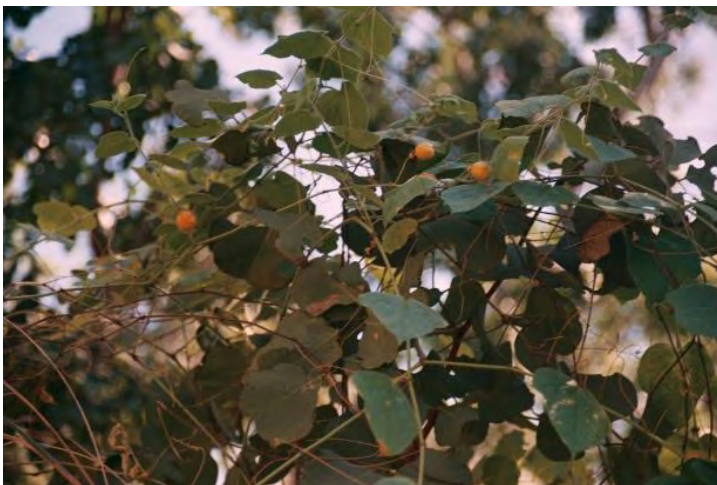


Plate 19: The introduced creeper vine, *Passiflora foetida*, is present over most of the mineral lease area, especially in disturbed areas. Efforts to control or prevent further spread of this species should be considered in the environmental management plan for the mineral lease.

10.3 Fauna



Plate 20: A medium sized *Rattus tunneyi* which was caught in an Elliott trap along Trap Site 1 (*Ridge Crests and Slopes* land unit). Over one hundred *R. tunneyi*'s were caught during the three night trapping program at Mt Porter (photo Tom Reilly).



Plate 21: A mature male *Antechinus bellus* was caught along Trap Site 3 (*Low Undulating Hills* land unit).



Plate 22: A *Zyzomys argurus* (Common Rock Rat) was captured on a rocky ledge along Trap site 5 (*Riparian* land unit) (photo Tom Reilly).



Plate 23: *Litoria watjulumensis* found along the Riparian zone of Trap Site 5 (photo Bill Low).



Plate 24: *Litoria tornieri* found at Pandana Waterhole during the Mt Porter survey (photo Tom Reilly).



Plate 25: The Cane Toad *Bufo marinus* was commonly encountered throughout the environmental survey for the Mt Porter mineral lease (photo Bill Low).



Plate 26: A juvenile *Pseudechis australis* (Mulga Snake) was captured in an Elliott trap on a rocky outcrop on Trap Site 1 (*Ridge Crests and Slopes* land unit) (photo Bill Low).



Plate 27: *Lophognathus gilberti*'s (Gilbert's Water Dragon) were commonly observed along the dry creek beds and gullies throughout the survey. This particular *L. gilberti* was seen along creekline of Trap Site 5 (*Riparian* land unit) (photo Tom Reilly).



Plate 28: The Two-spined Rainbow Skink *Carlia amax* was abundant along gullies and creeklines (photo Tom Reilly).



Plate 29: *Tympanocryptus lineata* caught on the ridge crest along trap line 2 (photo Tom Reilly).



Plate 30: *Varanus baritji* was captured in an Elliott Trap on the ridge of Trap Site 2 (*Ridge Crests and Slopes* land unit) (photo Tom Reilly).



Plate 31: A juvenile *Ctenotus robustus* was caught in the Pitfall Trap within the rehabilitation zone along Trap Site 1 (*Ridge Crests and Slopes* land unit). A mature *C. robustus* was also identified in the Drainage Depression of Trap Site 4 (photo Tom Reilly).



Plate 32: A well-developed bower built by a Greater Bowerbird under a *Petalostigma quadriloculare* (Quinine Bush) within the *Granite Hills* land unit. Greater Bowerbirds appeared to be relatively common within the Mt Porter project area, with ~10 bowers observations during the survey (photo Dennis Matthews).



Plate 33: The collection of items at the entrance of the bower in Plate 32. Snails appeared to be a popular component of the items in most bowers observed within the project area (photo Bill Low)



Plate 34: An Aboriginal cutting tool found at the entrance of the bower shown in Plate 32. Several other Aboriginal artifacts were also observed within the items collected by the Greater Bowerbirds (photo Bill Low).

11 APPENDIX

11.1 Chemical analysis of Soil samples from Mt. Porter area.

ANALYTES		UNITS	PANDANA WATERHOLE	PIT GULLY SPRING	SWAMPY MEADOW	RAINFOREST	ANZECC GUIDELINES
Moisture		%	47.7	43.2	8.4	43.8	
paste EC		µS/cm	359	200	194	264	
paste pH		units	7	5.9	6.3	5	
Cl		mg/kg	5	3	0.04	17.5	
paste F		mg/kg	3	2	<0.02	0.5	
paste NH3_N		mg/kg	4.1	4.4	6.5	21.4	
NO3_N		mg/kg	3.3	0.86	4.3	0.26	
SO4		mg/kg	600	300	300	9400	
SOLUBLE METALS – 15 minute water wash							
Al	Soluble	mg/kg	12.3	80.3	5.6	27.4	n/a
As	Soluble	mg/kg	0.135	0.355	20	0.155	n/a
B	Soluble	mg/kg	0.2	0.3	0.05	0.3	n/a
Ba	Soluble	mg/kg	0.02	0.2	<0.02	0.54	n/a
Be	Soluble	mg/kg	<0.005	<0.005	<5	<0.005	n/a
Bi	Soluble	mg/kg	0.001	0.001	<1	<0.001	n/a
Ca	Soluble	mg/kg	144	44.5	51	59.5	n/a
Cd	Soluble	mg/kg	<0.005	<0.005	<5	<0.005	n/a
Co	Soluble	mg/kg	0.02	0.04	0.02	0.44	n/a
Cr	Soluble	mg/kg	<0.05	0.1	<0.05	<0.05	n/a
Cu	Soluble	mg/kg	0.22	0.42	0.04	0.14	n/a
Fe	Soluble	mg/kg	11	72.6	4	33.4	n/a
K	Soluble	mg/kg	36.5	28	7.5	30.5	n/a
Li	Soluble	mg/kg	0.11	0.09	175	0.125	n/a
Mg	Soluble	mg/kg	64	37	39.5	76.5	n/a
Mn	Soluble	mg/kg	0.64	1.62	0.66	9.44	n/a
Mo	Soluble	mg/kg	0.03	0.014	17	<0.005	n/a
Ni	Soluble	mg/kg	<0.05	0.15	<0.05	0.4	n/a
P	Soluble	mg/kg	1	0.5	<0.5	0.5	n/a
Pb	Soluble	mg/kg	0.047	0.252	5	0.188	n/a
S	Soluble	mg/kg	137	55.5	59.4	108	n/a
Se	Soluble	mg/kg	<0.02	<0.02	20	<0.02	n/a
Si	Soluble	mg/kg	76	164	76.5	78	n/a
Sr	Soluble	mg/kg	0.16	0.22	0.16	0.2	n/a
Tl	Soluble	mg/kg	0.0005	0.002	<0.5	0.0035	n/a
U	Soluble	mg/kg	0.001	0.008	4	0.01	n/a
V	Soluble	mg/kg	<0.05	0.2	<0.05	<0.05	n/a
Zn	Soluble	mg/kg	0.22	0.48	0.02	2.48	n/a
TOTAL METALS – Acid wash solution							
As	Total	mg/kg	33.5	328	43	123	500
Ba	Total	ppm	44	114	284	136	n/a
Bi	Total	mg/kg	3.22	1.5	0.62	0.78	n/a
Cd	Total	mg/kg	1.15	0.75	0.4	1.25	100
Co	Total	ppm	14	22	32	30	n/a
Cr	Total	ppm	50	95	60	40	600,000
Cu	Total	ppm	62	165	64	56	5000

ANALYTES		UNITS	PANDANA WATERHOLE	PIT GULLY SPRING	SWAMPY MEADOW	RAINFOREST	ANZECC GUIDELINES
Fe	Total	ppm	52000	104000	66200	77300	n/a
Mn	Total	ppm	480	872	2890	488	7500
Mo	Total	mg/kg	0.25	2.4	1.85	4.4	n/a
Ni	Total	ppm	34	68	36	40	3000
P	Total	ppm	130	250	50	330	n/a
Pb	Total	mg/kg	89.8	418	102	403	1500
S	Total	ppm	1240	400	140	3000	n/a
Se	Total	mg/kg	2	4	<2	4	n/a
Sr	Total	ppm	14	28	16	18	n/a
Tl	Total	mg/kg	0.56	0.87	0.67	0.74	n/a
U	Total	mg/kg	1.6	7.25	9.43	4.85	n/a
V	Total	ppm	28	152	82	76	n/a
Zn	Total	ppm	644	460	234	512	35000

11.2 Chemical analysis of Water samples from Mt Porter area.

ANALYTE	UNITS	PANDANA WATERHOLE	PIT GULLY SPRING	TS5 RAINFOREST	ANZECC GUIDELINES
EC	µS/cm	387	330	262	
pH	units	7.3	7.6	6.6	
TDS	mg/L	280	240	190	
Cl	mg/L	4.8	2.2	4.7	
F	mg/L	0.6	0.3	0.5	
NH3	mg/L	0.865	<0.005	0.085	
NO3	mg/L	<0.005	0.285	0.06	
SO4	mg/L	14.8	7	66.5	
Al	mg/L	21	20.8	0.16	55
As	mg/L	0.152	0.0885	0.0895	24
B	mg/L	0.04	0.03	<0.01	370
Ba	mg/L	0.1	0.075	0.08	n/a
Be	mg/L	0.0024	0.00125	0.00015	n/a
Bi	mg/L	0.0017	0.0005	<0.0005	n/a
Ca	mg/L	41.9	30.3	11.3	n/a
Cd	mg/L	0.00154	0.0011	0.00012	0.2
Co	mg/L	0.025	0.025	0.01	n/a
Cr	mg/L	0.04	0.06	<0.02	1
Cu	mg/L	0.05	0.09	<0.005	1.4
Fe	mg/L	56.5	51.5	21.5	n/a
K	mg/L	5.7	2.4	3.1	n/a
Li	mg/L	0.041	0.0305	0.0071	n/a
Mg	mg/L	29.4	28.5	18	n/a
Mn	mg/L	3.44	--	--	1900
Mo	mg/L	0.0005	0.00045	0.0005	n/a
Ni	mg/L	0.04	0.05	<0.01	11
P	mg/L	0.4	0.3	0.1	n/a
Pb	mg/L	0.133	0.375	0.00433	3.4
S	mg/L	5.86	2.42	22	n/a
Se	mg/L	0.001	0.0012	0.0004	11
Si	mg/L	57.7	46.1	12.8	n/a
Sr	mg/L	0.085	0.135	0.045	n/a
Tl	mg/L	0.0007	0.00067	0.00006	n/a
U	mg/L	0.00405	0.00281	0.000142	n/a
V	mg/L	0.06	0.18	<0.01	n/a
Zn	mg/L	0.555	0.58	0.105	8

11.3 Fauna identified from the Mt Porter survey, April 2005

Survey Period: April 19th to 23rd, 2005.

Status: Pest (P), Common (C),

Land Unit: Animals identified were split into the appropriate land unit/habitat they were sighted in.

Observation Type: Fauna were identified on the field trip using Elliott traps, Pitfall traps, animal sign (i.e. tracks, scats) and incidental sightings.

Note: Bat identifications only indicate presence of species and not abundance.

Species Name	Common Name	Status	Land Unit					Observation Type
			Ridge Crests and Slopes	Low Hills	Riparian	Low Undulating Plains	Granite Hills	
AMPHIBIANS								
Bufonidae								
<i>Bufo marinus</i>	Cane Toad	P	>20	8				Incidental
Hylidae								
<i>Litoria watjulumensis</i>	Watjulum Frog				1			Incidental
<i>Litoria tornieri</i>					1			Incidental
FISH								
Terapontidae								
<i>Leipotherapon unicolor</i>	Spangled Grunter	C			2			Incidental
REPTILES								
Agamidae (dragons)								
<i>Chlamydosaurus kingii</i>	Frill-necked Dragon						1	Incidental
<i>Diporiphora</i> sp. (Juv.)					1			
<i>Lophognathus gilberti</i>	Gilbert's Waterdragon		8		15	1		Incidental, Pitfall
<i>Tympanocryptus lineata</i>	Earless Dragon		5					Incidental
Colubridae (snakes)								
<i>Enhydryis polylephus</i>	Macleay's Water Snake				5			Pitfall trap, incidental sighting

Species Name	Common Name	Status	Land Unit					Observation Type
			Ridge Crests and Slopes	Low Hills	Riparian	Low Undulating Plains	Granite Hills	
Elapidae (snakes)								
<i>Pseudechis australis</i>	Mulga, King Brown Snake		1	1				Elliott trap, incidental sighting
<i>Pseudonaja nuchalis</i>	Western Brown Snake				1			Incidental sighting
Species 1	Unidentified Snake				1			
Gekkonidae (Gecko's)								
<i>Diplodactylus ciliaris</i>	Spiny-tailed Gecko			1				Spotlighting
<i>Diplodactylus stenodactylus</i>			1					Spotlighting
<i>Heteronotia binoei</i>	Bynoe's Gecko		6	4				Spotlighting
Pygopodidae (legless lizards)								
<i>Lialis burtonis</i>	Burton's snake-lizard			1				Incidental sighting
Scincidae (skinks)								
<i>Carlia amax</i>	Two-spined Rainbow Skink	C	>20		>20			Incidental
<i>Carlia sp.</i> (juvenile)								Incidental
<i>Ctenotus robustus</i>	Robust Ctenotus	C	1		1			Incidental, Pitfall
<i>Ctenotus spaldingi</i>				1				Elliott trap
Varanidae (monitors)								
<i>Varanas acanthurus insulanicus</i>	Ridge-Tailed Monitor		1		1			Incidental, Pitfall
<i>Varanas baritji</i>			1					Elliott trap
MAMMALS								
Monotremata								
<i>Tachyglossus aculeatus</i>	Echidna, Short-beaked		1	1				Possible digs
Dasyuridae								
<i>Antechinus bellus</i>	Fawn Antechinus			1	1			Elliott trap
<i>Sminthopsis virginiae</i>	Red-cheeked Dunnart	DD		1				Elliott trap

Species Name	Common Name	Status	Land Unit					Observation Type
			Ridge Crests and Slopes	Low Hills	Riparian	Low Undulating Plains	Granite Hills	
Peramelomorpha								
<i>Isoodon macrourus</i>	Bandicoot, Northern Brown		1	1				Possible digs
Phalangerioidea								
<i>Petaurus breviceps</i>	Sugar Glyder			1				Spotlighting
Macropodidea								
<i>Macropus robustus</i>	Euro						2	Incidental sightings, scats
<i>Petrogale brachyotis</i>	Rock Wallaby, Short-eared		2				1	Incidental sightings, scats
Chiroptera (bats)								
<i>Chaerephon jobensis</i>	Northern Mastiff-bat		1	1	1			ANABAT recording
<i>Chalinobulus gouldii</i>	Goulds Wattled Bat		1		1			ANABAT recording
<i>Miniopterus schreibersii orianae</i>	Common Bentwing Bat		1		1			ANABAT recording
<i>Mormopterus beccarii</i>	Beccari's Mastiff-bat		1		1			ANABAT recording
<i>Mormopterus loriae</i>			1		1			ANABAT recording
<i>Myotis macropus</i>			1					ANABAT recording
<i>Nyctophilus sp. **</i>			1	1	1			ANABAT recording
<i>Nyctophilus walkeri</i>			1		1			ANABAT recording
<i>Pipistrellus adamsi</i>			1	1	1			ANABAT recording
<i>Rhinonicterus aurantius</i>	Orange Horseshoe Bat	NT	1					ANABAT recording
<i>Saccolaimus flaviventris</i>			1	1	1			ANABAT recording
<i>Scotorepens greyii / sanborni</i>	Little Broadnosed Bat		1		1			ANABAT recording
<i>Taphozous georgianus</i>	Common Sheath-tail Bat		1	1	1			ANABAT recording
<i>Taphozous kapalgensis</i>		NT	1		1			ANABAT recording
Species 2	Not Certain ID		1	1	1			ANABAT recording
Species 3			1					ANABAT recording
Rodentia (native rodents)								

Species Name	Common Name	Status	Land Unit					Observation Type
			<i>Ridge Crests and Slopes</i>	<i>Low Hills</i>	<i>Riparian</i>	<i>Low Undulating Plains</i>	<i>Granite Hills</i>	
<i>Psuedomys nanus</i>	Western Chestnut Mouse		1	6	6			Elliott trap
<i>Rattus tunneyi</i>	Pale Field Rat		20	47	32			Elliott trap, Pitfall, incidental
<i>Zyzomys argurus</i>	Common Rock-rat				1			Elliott trap
Carnivora								
<i>Canis familiaris</i>	Dingo		1					Tracks
Perissodactyla								
<i>Equus caballus</i>	Horse			6				Incidental sightings, scats
Suidae (pigs)								
<i>Sus scrofa</i>	Feral Pig	P			2			Tracks

Foot Note:

Species 1 - snake Unidentified Snake - likely to be *Pseudonaja nuchalis*
Species 2 - bat *Scotorepens greyii* / *sanborni* or *Chalinolobus nigrogriseus*
Species 3 - bat *Pipistrellus westralis* or *Miniopterus schreibersii orianae*
 ** = *Nyctophilus geoffroyi* or *N. arnhemensis* or *N. bifax*

11.4 Elliott trap captures from 5 trap sites at Mt Porter, April 2005.

The type of animal and its family name and status are provided in the table.

Status: Common (C), Data Deficient (DD)

Species Name	Common Name	Status	Trap Site & Location									Total Count
			1			2	3	4		5		
			Gully	Slope	Ridge	Ridge	Low Hills	Swamp	Low Hills	Creekline	Rainforest	
REPTILES												
Elapidae (snakes)												
<i>Pseudecus australis</i>	Mulga, King Brown Snake	C			1							1
Scincidae (skinks)												
<i>Ctenotus robustus</i>	Robust Ctenotus	C				1						1
Varanidae (monitors)												
<i>Varanas baritji</i>		C				1						1
MAMMALS												
Dasyuridae												
<i>Antechinus bellus</i>	Fawn Antechinus	C		1						1		2
<i>Sminthopsis virginiae</i>	Red-cheeked Dunnart	DD					1					1
Rodentia												
<i>Psuedomys nanus</i>	Western Chestnut Mouse	C	2		1		4	1	2		3	13
<i>Rattus tunneyi</i>	Pale Field Rat	C	11	11	1	8	18	4	18	11	17	99
<i>Zyzomys argurus</i>	Common Rock-rat	C									1	1

11.5 Pitfall captures from trap sites 1, 3, 4 and 5 at Mt Porter, April 2005.

The type of animal and its family name and status are provided in the table.

Status: Common (C), Data Deficient (DD)

Species Name	Common Name	Status	Trap Site & Location				Overall Total
			1	3	4	5	
			Gully	Hillslope	Swamp	Creekline	
REPTILES							
Agamidae (dragons)							
<i>Lophognathus gilberti</i>	Gilbert's Waterdragon	C			1		1
<i>Diporiphera</i> sp. (Juv.)		C				1	1
Colurbidae (snakes)							
<i>Enhydryis polylephis</i>	Macleay's Water Snake	C			1		1
Scincidae (skinks)							
<i>Ctenotus robustus</i>		C	1				1
<i>Carlia amax</i>		C		1		1	2
Varanidae (monitors)							
<i>Varanas acanthurus insulanicus</i>	Ridge-Tailed Monitor	C			1		1
MAMMALS							
Rodentia (native rodents)							
<i>Rattus tunneyi</i>	Pale Field Rat	C			7		7

11.6 Mammals presently or potentially inhabiting the Mt Porter project area.

This table includes species recorded during the environmental survey of the proposed Mt Porter project area ML(A) 23839 (marked in **bold** text) and species recorded from other nearby environmental surveys.

Survey Legend:

¹Brocks Creek (Source: Brocks Creek EIS, Eldridge and Low 1994)

²Unions Reef (Source: Unions Reef DEIS, NSR 1993)

³Cosmo Howley (Source: Cosmo Howley Project Flora and Fauna Survey; Davison 1985)

⁴Kakadu National Park Stage III Wildlife Survey (Source: Woinarski *et al.* 1989)

⁵Pine Creek (Source: Union Reefs DEIS, NSR 1993)

⁶Mt Todd (Source: Union Reefs DEIS, NSR 1993)

⁷Woodcutters (Source: Unions Reefs DEIS, NSR 1993)

⁸PAWCNT (Source: Biological Records bound by 131°30^E – 132°00^W and 13°30^N – 13°55^S)

⁹Spring Hill (Source: Spring Hill EIS, Grattidge and Low)

¹⁰Frances Creek (Source: Reilly *et al.* November 2005)

¹¹Frances Creek (Source: Reilly *et al.* May 2006)

GROUP	SCIENTIFIC NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
Prototheria					
Tachyglossidae	<i>Tachyglossus aculeatus</i> ^{2, 4, 9}	Short-beaked Echidna	Common	Australia wide	Lowlands and drainage depressions
Marsupialia					
Dasyuridae	<i>Antechinus bellus</i> ⁴	Fawn Antechinus	Common, limited distribution	Far Northern Territory	Woodlands and open Forests
	<i>Dasyurus hallucatus</i> ^{2, 3, 4, 8, 9}	Northern Quoll	Common	Northern Aust.	generalist
	<i>Parantechinus bilarni</i> ⁴	Sandstone Antechinus	Restricted distribution	Western Arnhemland	
	<i>Phascogale tapoatafa</i> ⁴	Brush-tailed Phascogale	Common, distribution limited	Coastal Aust	Arboreal, prefers rocky ridges and hills
	<i>Planigale maculata</i> ^{4, 5, 8, 10, 11}	Common Planigale	Common	Far North and east	Various habitat types

GROUP	SCIENTIFIC NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
				coastal Australia	
	<i>Sminthopsis sp.</i> ^{4,6}	Kakadu Dunnart	Unknown range	Western Arnhemland	Woodland on stony hills
	<i>Sminthopsis virginiae</i> ^{2,4}	Red-cheeked Dunnart	Common in limited range	Far Northern Australia	Woodland habitats
Peramelomorpha	<i>Isodon macrourus</i> ^{1,2,4,8,9,10,11}	Northern Brown Bandicoot	Common to abundant	Northern and east coastal Australia	Generalist, anywhere where ground cover is lows
Phalangeroidea	<i>Petaurus breviceps</i> ^{4,6}	Sugar Glider	Common	North and south east Australia	Woodland habitats
	<i>Pseudocheirus dahli</i> ⁴	Rock Ringtail Possum	Common but limited distribution	North NT and WA	<i>Eucalyptus miniata</i> woodland around rocky outcrops
	<i>Trichosurus arnhemensis</i> ^{4,5}	Northern Brushtail Possum	Common over a limited range	Far northern Australia	In frequently burnt Eucalypt woodland (<i>E. miniata</i>).
Macropodaidae	<i>Macropus agilis</i> ^{1,2,4,5,6,8,9}	Agile Wallaby	Abundant	Tropical Coastal Australia	Lowlands and drainage depressions
	<i>Macropus antilopinus</i> ^{3,4,5,6,11}	Antilopine Wallaroo	Common	Far Northern Australia	Eucalypt woodlands with a perennial grass understorey
	<i>Macropus robustus</i> ^{2,4,5,6,9, 10,11}	Euro	Abundant	Australia wide	Rocky hills and escarpments
	<i>Onychogalea unguifera</i> ⁴	Northern Nailtail Wallaby	Common	Northern Australia	Open long-grass woodland and riverine areas
	<i>Peradorcas concinna</i> ⁴	Nabarlek, Little Rock-wallaby	Rare, limited	Far north NT and WA	Rocky slopes
	<i>Petrogale brachyotis</i> ^{4,5}	Shorteared Rock Wallaby	Abundant, but locally rare	Far North-west Australia	Low rocky hills and savannah grassland
Eutheria					
Chiroptera (bats)	<i>Chaerophon jobensis</i> ^{4, 10,11}	Northern Mastiff Bat	Common	Northern Tropical Aust.	Open forest, roosts in hollow trees
	<i>Chalinolobus gouldii</i> ^{1,4, 10,11}	Gould's Wattled Bat	Widespread and common	Aust. wide	Open forests and riverine areas
	<i>Chalinolobus nigrogriseus</i> ⁴	Hoary Bat	Relatively common	Northern Aust.	Wide range of habitats
	<i>Eptesicus causrinus</i> ^{1,4}	Northern Brown Bat	Common	Far north Aust.	Various habitats
	<i>Eptesicus finlaysoni</i> ⁴	Little Cave Eptesicus	Abundant	WA, NT and coastal Qld	Wide range of habitats
	<i>Hipposideros ater</i> ^{4,8}	Dusky Horseshoe bat	Locally common		Caves and disused mine shafts

GROUP	SCIENTIFIC NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
	<i>Hipposideros diadema</i> ⁴	Diadem Horseshoe bat	Limited, sparse to common	Far north NT and Qld	Warm humid climate, roosts in forests
	<i>Hipposideros stenotus</i> ⁴	Lesser Wart-nosed Horseshoe-bat	Rare	Far northern Australia	Caves, disused mine shafts and rock crevices
	<i>Macroderma gigas</i> ^{1, 4,8,11}	Ghost Bat	Rare	Patchy distribution in tropical and arid Australia	Caves and disused mine shafts
	<i>Macroglossus minimus</i> ⁴	Northern Blossom Bat	Common, limited	Far Northern Australia	Woodland, especially <i>Melaleuca</i> woodland
	<i>Miniopterus schreibersii</i> ⁴	Common Bent-wing Bat	Abundant	Coastal Australia	Caves and disused mine adits
	<i>Mormopterus beccarii</i> ^{4,8, 10,11}	Beccari's Freetail-bat	Common, widespread	North-east Australia	Closed forest to woodland
	<i>Mormopterus loriae</i>				
	<i>Myotis macropus</i>				
	<i>Nyctophilus arnhemensis</i> ⁴	Arnhem Land Long-eared Bat	Common	Northern Australia	Open forests and river fringes
	<i>Nyctophilus bifax</i> ⁴	North Queensland Long-eared Bat	Common	Northern Australia	Rainforest, dry sclerophyll woodland and riverine vege.
	<i>Nyctophilus geoffroyi</i> ^{1,4}	Lesser Long-eared Bat	Widespread and common	Northern Tropical Australia	Woodland and riverine areas
	<i>Nyctophilus walkeri</i> ¹¹				
	<i>Pipistrellus adamsi</i>				
	<i>Pteropus alecto</i> ^{7,8}	Black Flying Fox	Common	Coastal Australia	Mangrove forests or similarly dense vegetation
	<i>Pteropus scapulatus</i> ^{4, 10,11}	Little Red Flying Fox	Widespread and common	Coastal Australia	Eucalypt woodland and forest
	<i>Rhinonictus aurantius</i> ^{4,9, 10,11}	Orange Horseshoe-bat	Rare	Far Northern Australia	Requires warm humid caves near open Eucalypt woodland
	<i>Saccolaimus flaviventris</i>				
	<i>Scotorepens balstoni</i> ⁸	Western Broad-nosed bat	Common	Most of Australia	Riverine areas with tree hollows and open water
	<i>*Scotorepens greyii</i> ^{4,8, 10,11}	Little Broad-nosed Bat	Common	Most of Australia	Open woodland and forested areas
	<i>*Scotorepens sanborni</i> ^{10,11}				
	<i>Taphozous georgianus</i> ^{1,3,4,10,11}	Common Sheathtail-bat	Common	Tropical and subtropical Australia	Required deep caves and small fissures in rocks
	<i>Taphozous flaviventris</i> ⁴	Yellow-bellied Sheathtail bat	Widespread and common	North to south-eastern Aust.	Tree hollows, Mallee or Open woodland
	<i>Taphozous kapalgensis</i> ^{10,11}	White-striped Sheathtail bat			
	<i>Taphozous saccolaimus</i> ⁴	Naked-rumped Sheathtail bat	Rare, scattered	Far North Qld	Dry woodland to dense rainforest

GROUP	SCIENTIFIC NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
	<i>Vespadelus caurinus</i> ^{10,11}				
	<i>Vespadelus pumilus</i> ⁸	Eastern Forest bat			
Rodentia	<i>Leggadina foresti</i> ^{4,5,6}	Forrest's Mouse	Sparse	Arid to Semi Arid Central Australia and Kimberly	Tussock grasslands and low shrublands
	<i>Mesembrionys gouldii</i> ^{4,5,6}	Black-footed tree Rat	Common in Arnhemland, rare elsewhere	Far North Qld	Monsoonal woodland and open forest with grass understory
	<i>Mus musculus</i> ⁵	House Mouse	Abundant	Australia wide	Generalist
	<i>Pseudomys nanus</i> ^{3,4,5,6,11}	Western Chestnut Mouse	Abundant	Northern Australia	Variety of habitat, with dense tussock grasses
	<i>Pseudomys deliculatus</i>	Delicate Mouse	Sparsely scattered, seasonal fluctuations	Northern Australia	Patchy distribution in sclerophyll forest and woodland
	<i>Pseudomys sp.</i> ^{4,11}	Calaby's Mouse	Rare	Western Arnhemland	Open forest with stony substrate.
	<i>Rattus colletti</i> ^{4,8}	Dusky Rat	Common	Northern NT	Grassy alluvial floodplains
	<i>Rattus tunneyi</i> ^{1,4,6,11}	Pale Field-rat	Abundant	North-west and eastern Australia	Tall grassland, typically associated with a watercourse
	<i>Zyzomys argurus</i> ^{1,2,4,6,8,9,11}	Common Rock Rat	Common	Northern and Western Aust.	Rocky outcrops and sandstone formations
	<i>Zyzomys woodwardi</i> ⁴	Large Rock Rat	Rare, scattered	Far Northern Territory and Kimberly	Rugged rocky habitat, Eucalypt woodland with thick leaf litter and little understorey
Carnivora	<i>Canis familiaris</i> ^{1,2,3,4,5,6,7,8,9,11}	Dingo	Common	Australia wide	Various
Felidae	<i>Felis Catus</i> ^{1,2,3,4,5,6,7}	Feral Cat	Common	Australia wide	Various
Bovidae	<i>Bos Taurus</i> ^{4,8}	Feral Cattle	Common	Australia wide	Various
	<i>Bubalus bubalis</i> ^{1,3,4,5,6,8}	Water Buffalo	Common	Far Northern Australia	Lowlands, depressions and creeklines
Perissodactyla	<i>Equus asinus</i> ^{2,3,4,5,6,11}	Feral Donkey	Abundant	Most of Aust.	Various
Equidae	<i>Equus caballus</i> ^{1,4,5,6,11}	Feral Horse	Common	Most of Aust.	Various
Suidae	<i>Sus scrofa</i> ^{1,2,4,5,6,11}	Feral Pig	Rare	North and east Australia	Lowlands, depressions and creeklines

11.7 Reptiles presently or potentially inhabiting the Mt Porter project area.

This table includes species recorded during the environmental survey of the proposed Mt Porter project area ML 23839 (marked in **bold text**) and species recorded from other nearby environmental surveys.

Survey Legend:

¹Brocks Creek (Source: Brocks Creek EIS, Eldridge and Low 1994)

²Unions Reef (Source: Unions Reef DEIS, NSR 1993)

³Cosmo Howley (Source: Cosmo Howley Project Flora and Fauna Survey; Davison 1985)

⁴Kakadu National Park Stage III Wildlife Survey (Source: Woinarski *et al.* 1989)

⁵Pine Creek (Source: Union Reefs DEIS, NSR 1993)

⁶Mt Todd (Source: Union Reefs DEIS, NSR 1993)

⁷Woodcutters (Source: Unions Reefs DEIS, NSR 1993)

⁸PAWCNT (Source: Biological Records bound by 131°30^E – 132°00^W and 13°30^N – 13°55^S)

⁹Spring Hill (Source: Spring Hill EIS, Grattidge and Low 1995)

¹⁰Frances Creek (Source: Reilly *et al.* November 2005)

¹¹Frances Creek (Source: Reilly *et al.* May 2006)

FAMILY	SPECIES NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
Agamidae	<i>Amphibolurus gilberti</i> ^{1,2,3,6,8,9,10,11}	Gilbert's Waterdragon	Common	Widely distributed	Arboreal species, savanna woodland and stream and swamp edges
	<i>Chelosania brunnea</i> ^{4,6}	Chameleon Dragon	Rare	Far Northern Qld	Savanna woodland
	<i>Chlamydosaurus kingii</i> ^{2,4,5,6,7,9,10}	Frill-necked Dragon	Common	Northern and Eastern Australia	Dry Sclerophyll forests and woodlands
	<i>Ctenophorus caudicinctus</i> ^{2,4,5,6,7,9,11}	Ring-tailed Dragon	Common	Central and Western Australia	Open, rocky slopes and ridges
	<i>Diporiphora albilabris</i> ^{6,7,10}			Scattered over Northern N.T. and W.A.	Stony hills and escarpments with grass substrate
	<i>Diporiphora bennettii</i> ^{1,3}			Northwestern Aust.	Tropical woodlands associated with ridges

FAMILY	SPECIES NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
	<i>Diporiphora bilineata</i> ^{3,4,5,10}	Two-lined dragon		Northeastern Australia	Terrestrial generalist
	<i>Diporiphora magna</i> ⁴			Northern WA and NT	Eucalypt forest and mixed woodland
	<i>Lophognathus gilberti</i> ^{1,2,3,6,8,9}	Gilbert's Waterdragon		Widely distributed	Arboreal species, savanna woodland and stream and swamp edges
	<i>Lophognathus temporalis</i> ^{5,6,7}			Northern Australia	
	<i>Tympanocryptus lineata</i>	Earless Dragon			
Acrochordus	<i>Acrochordus arafurea</i> ⁴	Arafura File Snake	Common	Coastal north Aust.	Permanent Freshwater
Boidae	<i>Aspidites melanocephalus</i> ^{4,6}	Black-headed Python		Northern Australia	Seasonally dry tropical woodlands
	<i>Dendrelaphis punctulata</i> ^{9,11}	Common Tree Snake		Coastal NW to SE Aust.	
	<i>Liasis stimsoni</i> ^{2,4,5,6,10}	Stimpsons Python		Central and Northern Australia	
	<i>Liasis fuscus</i> ⁵	Water Python		Northern Aust	Margins of waterways
	<i>Liasis olivaceus</i> ^{5,6,8}	Olive Python		Northern Aust	Rocky hills and ranges
	<i>Morelia oenpelliensis</i> ⁴	Oenpelli Python	Common	Western Arnhemland	Seasonally dry tropical woodlands
	<i>Morelia spilota</i> ⁶	Carpet Python		Continental Aust. except arid areas	
Chelidae	<i>Chelodina rugosa</i> ^{7,8}	Northern Snake-necked Turtle		Northern Aust	Swamps, billabongs and waterholes
Colubridae	<i>Boiga irregularis</i> ^{2,4,5,6}	Brown Tree Snake		Northern and Eastern Australia	Generalist
	<i>Enhydryis polylephis</i> ¹⁰	Macleay's Water Snake			
	<i>Stegonotus cucullatus</i> ^{4,5,11}	Slaty-grey Snake		Northern and Eastern Australia	
	<i>Styporhynchus mairii</i> ⁴	Keel Back Snake	Common		
	<i>Tropidonophis mairii</i> ^{5,6,7}	Freshwater Snake		Northern and Eastern Australia	Semi-aquatic, found near creeks or swamps

FAMILY	SPECIES NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
Crocodylidae	<i>Crocodylus johnstoni</i> ¹⁰	Freshwater Crocodile	Common	Northern Australia	Freshwater rivers and billabongs
Elapidae	<i>Acanthopis praelongus</i> ^{4,6}	Northern Death Adder		Northern Australia	Generalist
	<i>Demansia atra</i> ^{4,5,7,8}	Black Whip Snake		Northern and Eastern Australia	Drier Woodlands
	<i>Demansia olivacea</i> ^{4,10}			NW Australia	Savanna woodland
	<i>Demansia papuensis</i> ⁴			Far northern and eastern Australia	
	<i>Denisonia punctata</i> ⁴	Little Spotted Snake		Inland and western parts of north Aust	Nocturnal
	<i>Furina ornata</i> ^{2,4,5,6,8}	Orange-naped Snake		NW and Central Aust	Savanna woodlands and river flood plains
	<i>Oxyuranus scutellatus</i> ^{1,4}	Tiapan		Northern and Eastern Australia	Open savanna woodland
	<i>Pseudechis australis</i> ^{1,4,5,6,7,8,9}	Mulga, King Brown Snake		Aust wide	Generalist
	<i>Pseudonaja nuchalis</i> ^{4,5,6,7,8,9}	Western Brown Snake		Aust wide, except south east	Generalist
	<i>Rhinoplocephalus palliceus</i> ⁴			Northern NT	Nocturnal, cryptic
	<i>Simoselaps semifasciatus</i> ⁴	Half-girdled Snake		WA, NT, west SA and North Qld	Burrowing
	<i>Vermicella multifaciata</i> ^{5,6}	Northern Bandy-bandy		Northwest NT and WA	Seasonally dry tropical woodlands
Gekkonidae	<i>Diplodactylus ciliaris</i> ^{4,5}	Spiny-tailed Gecko		Northwest and central Aust	Generalist
	<i>Diplodactylus stenodactylus</i> ⁴		Common	Northwest and central Aust	Generalist
	<i>Gehyra australis</i> ^{1,2,4,5,6}	Northern Dtella		Northern Aust	Arboreal, woodlands
	<i>Gehyra nana</i> ^{4,5,6}			Northern Aust	Rocky hills and ranges
	<i>Gehyra Pamela</i> ^{4,5}			Far North NT	Rocky escarpments
	<i>Hemidactylis frenatus</i> ^{4,5,7,8}	House Gecko		Far North of NT and Qld	Almost entirely living in human settlements
	<i>Heteronotia binoei</i> ^{2,4,6,10}	Bynoe's Gecko	Widely distributed	Aust. Wide	Terrestrial generalist

FAMILY	SPECIES NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
	<i>Heteronotia spelea</i> ²	Desert Cave Gecko		Central NW Aust	Inhabits caves and mineshafts
	<i>Nephurus amya</i> ⁴		Common	North WA to west Qld	Rocky hills and ranges
	<i>Oedura gemmata</i> ⁴		Common	Western escarpment of Arnhemland	Rocky habitat
	<i>Oedura marmorata</i> ^{4,5,6}	Marbled Velvet Gecko	Widely distributed	Northern and Central Aust	Savanna woodlands
	<i>Oedura rhombifer</i> ^{4,5}			Northern Aust	Tropical woodlands
	<i>Pseudotoecadactylus lindneri</i> ⁴	Giant Cave gecko		Patches north of NT and WA	tropical woodland and closed monsoonal forest
	<i>Rhynchoedura ornate</i> ⁶	Beaked Gecko		Central Australia	Open savanna woodland and grasslands
Pygopodidae	<i>Delma borea</i> ^{4,5}			Northern Aust	Generalist
	<i>Delma tinca</i> ^{3,4}			Northern Aust.	Generalist found in ground debris
	<i>Lialis burtonis</i> ^{2,4,5,6,7}	Burton's snake-lizard	Widely distributed	Aust wide	Terrestrial in low vegetation
Pygopus	<i>Pygopus nigriceps</i> ⁴	Hooded Scaley Foot Legless Lizard		Most of Aust	Generalist]
Scincidae	<i>Carlia amax</i> ^{2,4,5,6,8,10,11}	Two spined Rainbow Skink	Common	Far-northern Aust	Forages in leaf litter, associated with stoney ridges
	<i>Carlia gracilis</i> ^{2,4,6,7,8}	Slender Rainbow Skink	Common	Northern WA and NT	Creek and river margins
	<i>Carlia munda</i> ^{2,4,5,6,10,11}	Striped Rainbow Skink	Common	Northern and Central Aust	Dry woodlands
	<i>Carlia tricantha</i> ⁶	Three Spined Rainbow Skink	Common	NW and Central Aust	Seasonally dry tropical woodlands
	<i>Cryptoblepharus carnabyi</i> ⁸	Carnaby's Snake-eyed Skink	Common	Northern, Western and Central Aust	Sclerophyll forests and woodlands and rocky hills and screes
	<i>Cryptoblepharus megastictus</i> ⁴			North NT and WA	Stony hills and escarpments
	<i>Cryptoblepharus plagiocephalus</i> ^{2,4,5,6}	Aboreal Snake-eyed Skink	Common	North and Western Aust	Arboreal, tropical woodlands and eucalypt forests

FAMILY	SPECIES NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
	<i>Ctenotus coggeri</i> ^{4,6}	Coggers Ctenotus	Moderately Common, restricted range	Far north of NT	Open woodland and sandstone outcrops
	<i>Ctenotus decaneurus</i> ^{2,4,6}	Ten-lined Ctenotus	Locally common	Far north of NT	Stony hills and escarpments
	<i>Ctenotus essingtonii</i> ^{4,6}	Port Essingtons Ctenotus	Common	North Qld and NT	Seasonally dry tropical woodlands
	<i>Ctenotus inornatus</i> ^{2,4,5,6,10}	Plain Ctenotus	Common	Northern Australia	Sandstone hills and grassy flats
	<i>Ctenotus robustus</i> ^{1,2,4,6,7,9,10,11}	Robust Ctenotus	Common, widely distributed	Northern, eastern and southeastern Aust.	Various habitats but prefers dry areas with thick ground cover
	<i>Ctenotus saxatilis</i> ⁴			North WA and west NT	Rocky outcrops
	<i>Ctenotus spaldingi</i> ^{4,11}			North NT and Qld	Sclerophyll forests
	<i>Ctenotus storii</i> ³	Storrs Ctenotus	Common	Northwestern NT	Open forest and woodland with grassy understorey
	<i>Ctenotus vertebralis</i> ⁴			Western edge of Arnhemland	Woodland and rocky outcrops
	<i>Glaphyromorphus darwinensis</i> ⁴			North NT	Seasonally dry woodland and forest
	<i>Glaphyromorphus douglasi</i> ⁴			Far north NT	Seasonally dry woodlands
	<i>Glaphyromorphus isolepis</i> ^{4,10,11}			Coastal NT and WA	Seasonally dry woodlands
	<i>Lerista karlschmidti</i> ⁴			North NT and Qld	Forest and gorge vegetation
	<i>Menetia greyii</i> ^{1,6}	Grey's Menetia	Common	Aust wide	Temperate and tropical woodlands with grassy understorey
	<i>Menetia maini</i> ^{1,2,4,5,6}	Main's Menetia	Moderately Common	Northwestern and Central Australia	Various habitats but prefers rocky areas
	<i>Morethia ruficauda</i> ^{2,4,6,10,11}	Red-tailed Snake-eyed Skink	Common	Northwestern and Central Australia	Rocky outcrops and stony hills
	<i>Morethia storri</i> ⁴			Northern coastal NT and WA	Grassland and woodland of stony hills and scarps

FAMILY	SPECIES NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
	<i>Notoscincus ornatus</i> ^{4,5,8}	Ornate Snake-eyed Skink	Moderately Common	Northern Aust	Various habitats with substantial groundcover
	<i>Proablepharus tenuis</i> ⁴			Northern Aust	Woodland habitats, cryptic
	<i>Tiliqua scincoides</i> ^{2,4,5,6,9}	Eastern Blue-tongued Lizard	Common	Northern and Eastern Australia	Various habitats, prefers a dry climate
Thylopidae	<i>Ramphotylops ligatus</i> ⁴	Blind Snake	Common	Eastern Aust. And patches of Northwest Aust.	Burrowing
	<i>Ramphotylops unguirostris</i> ⁴	Blind Snake	Common	Northeast Aust	Generalist
	<i>Ramphotylops wiedii</i> ⁴	Blind Snake	Common	Scattered north and east Aust.	Generalist
Varanidae	<i>Varanas acanthurus insulanicus</i> ⁵	Ridge-Tailed Monitor		Arid and semi-arid Northern Aust	Rocky outcrops and ridges
	<i>Varanas baritji</i> ⁴			Northern NT	Rocky outcrops
	<i>Varanas glebopalma</i> ⁴	Long-tailed Rock Monitor		North NT and WA	Rocky outcrops
	<i>Varanas gouldii</i> ^{1,4,5,6,8}	Gould's Goanna		Aust wide	Terrestrial generalist
	<i>Varanas mertensi</i> ^{1,2,4,6,7,10,11}	Merten's Water Monitor		Northern Aust	Coastal and Inland lagoons
	<i>Varanas mitchelli</i> ^{2,6,11}	Mitchell's Water Monitor		Northern Aust	Margins of waterways
	<i>Varanas panoptes</i> ^{2,4,6,8}			Northern and Western Aust.	Terrestrial
	<i>Varanas scalaris</i> ^{4,5,6}	Spotted Tree Monitor		Northern Aust	Arboreal
	<i>Varanas tristis</i> ^{4,5,7,8}			Northern and Central Aust	Arboreal but sometimes lives in rocky crevices
	<i>Varanas primordius</i> ^{4,5,6,9}	Pygmy Goanna	Rare	Far Northern NT, Pine Creek region	Rocky places

11.8 Frogs, fish and invertebrates presently or potentially inhabiting Mt Porter

This table includes species recorded during the environmental survey of the proposed Mt Porter project area ML(A) 23839 (marked in **bold** text) and species recorded from other nearby environmental surveys.

Survey Legend:

¹Brocks Creek (Source: Brocks Creek EIS, Eldridge and Low 1994)

²Unions Reef (Source: Unions Reef DEIS, NSR 1993)

³Cosmo Howley (Source: Cosmo Howley Project Flora and Fauna Survey; Davison 1985)

⁴Kakadu National Park Stage III Wildlife Survey (Source: Woinarski *et al.* 1989)

⁵Pine Creek (Source: Union Reefs DEIS, NSR 1993)

⁶Mt Todd (Source: Union Reefs DEIS, NSR 1993)

⁷Woodcutters (Source: Unions Reefs DEIS, NSR 1993)

⁸PAWCNT (Source: Biological Records bound by 131°30^E – 132°00^W and 13°30^N – 13°55^S)

⁹Spring Hill (Source: Spring Hill EIS, Grattidge and Low)

¹⁰Frances Creek (Source: Reilly *et al.* November 2005)

¹¹Frances Creek (Source: Reilly *et al.* May 2006)

FAMILY	SPECIES NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
Bufonidae	<i>Bufo marinus</i> ^{10,11}	Cane Toad	Pest		
Hylidae	<i>Cyclorana australis</i> ^{2,4,5,10,11}			Northwestern Aust	Woodland and open vegetation
	<i>Cyclorana longipes</i> ^{10,11}		Common	Top end of NT	Shallow temporary pools in Woodland and open vegetation
	<i>Litoria bicolor</i> ^{2,4,5,6,7,8}	Northern Dwarf Tree Frog		Northern Aust	Various habitat types
	<i>Litoria caerulea</i> ^{1,4,5,6,9}	Green Tree Frog		Northern and eastern Aust	Human inhabitation and semi-permanent water
	<i>Litoria coplandi</i> ^{4,5,6}	Saxicoline Tree Frog		Northwestern Aust	Rocky hills, gorges and creek beds
	<i>Litoria inermis</i> ^{3,4,5,6,7}	Unarmed Tree Frog		Northern and eastern Aust	Savanna woodlands
	<i>Litoria meiriana</i> ^{4,6}			Northwestern Aust	Creeks and waterholes of rocky gorges and escarpments

FAMILY	SPECIES NAME	COMMON NAME	STATUS	RANGE	PREFERRED HABITAT
	<i>Litoria nasuta</i> ^{4,5,6,8}	Rocket Frog		Northern and eastern Aust	Forested edges of permanent or semi-permanent waterholes
	<i>Litoria pallida</i> ^{4,5,6}	Grey Tree Frog		Northern Aust	Woodlands
	<i>Litoria personata</i> ¹⁰			Only found in eastern edge of the Arnhem land escarp.	
	<i>Litoria rubella</i> ^{2,4,5,6,9,10}	Desert Tree Frog		Northern and eastern Aust	Various habitats close to drainage lines and permanent water
	<i>Litoria rothii</i> ^{1,2,4,5,6,7,8,10,11}	Roths Tree Frog		Northern Aust	Associated with river systems
	<i>Litoria tornieri</i> ^{4,5,6,7}	Torniers Tree Frog		Northern NT and WA	Woodlands
	<i>Litoria watjulumensis</i> ^{4,5,6}	Watjulum Frog		Northern Aust	Dry Sclerophyll
Myobatrachidae	<i>Crinia bilinea</i> ^{5,6}			Northern Aust	Generalist
	<i>Limnodynastes convexiusculus</i> ^{2,4,5}	Marbled Frog		Northern Aust	Savanna woodlands
	<i>Limnodynastes ornatus</i> ^{2,4,6}	Ornate Burrowing Frog		Northern and eastern Aust	Generalist

FAMILY	SPECIES NAME	COMMON NAME	STATUS
FISH			
Ariidae	<i>Neosilurus hyrtlili</i> ¹¹	Black Catfish	Common
Atherinidae	<i>Craterocephalus sp.</i> ¹¹	Hardyhead	Common
Chandidae	<i>Ambassis agrammus</i> ¹¹	Sail-fin Glassfish	Common
Megalopidae	<i>Nematalosa erebi</i> ^{10,11}	Bony Bream	Common
Melanotaeniidae	<i>Melanotaenia expuista</i>	Exquisite Rainbow Fish	Common
	<i>Melanotaenia nigrans</i> ^{10,11}	Black-striped Rainbow fish	Common
Terapontidae	<i>Leipotheron unicolor</i>	Spangled Grunter	Common
	<i>Amniataba percoides</i> ¹¹	Barred Grunter	Common

MACROINVERTEBRATES			
	SPECIES NAME	COMMON NAME	STATUS
	<i>Macrobrachium rosenbergii</i>	Freshwater prawn	Common
	<i>Holthusiana transversa</i> ¹¹	Freshwater crab	Common

11.9 Bird species presently or potentially inhabiting Mt Porter.

This table includes species recorded during the environmental survey of the proposed Mt Porter project area ML (A) 23839 (marked in **bold** text) and species recorded from other nearby environmental surveys.

Survey Legend:

¹Brocks Creek (Source: Brocks Creek EIS, Eldridge and Low 1994)

²Unions Reef (Source: Unions Reef DEIS, NSR 1993)

³Cosmo Howley (Source: Cosmo Howley Project Flora and Fauna Survey; Davison 1985)

⁴Kakadu National Park Stage III Wildlife Survey (Source: Woinarski *et al.* 1989)

⁵Pine Creek (Source: Union Reefs DEIS, NSR 1993)

⁶Mt Todd (Source: Union Reefs DEIS, NSR 1993)

⁷Woodcutters (Source: Unions Reefs DEIS, NSR 1993)

⁸PAWCNT (Source: Biological Records bound by 131°30^E – 132°00^W and 13°30^N – 13°55^S)

⁹Spring Hill (Source: Spring Hill EIS, Grattidge and Low)

¹⁰Frances Creek (Source: Reilly *et al.* November 2005)

¹¹Frances Creek (Source: Reilly *et al.* May 2006)

SPECIES	NATIONAL STATUS	RANGE
Babbler, Grey-crowned ^{1,2,3,4,5,6,10,11}	Widespread nomad	Northern, central and southeast Aust
Baza, Pacific ⁴	Moderately common	North and east coastal Aust
Bee-eater, Rainbow ^{1,2,3,4,5,6,7,8,9,10,11}	Common nomad	
Bittern, Black ^{2,4,6,9}	Uncommon	Coastal Australia
Boobook, Southern ^{2,3,4,5,6,9,10,11}	Common nomad	Australia wide
Bowerbird, Greater ^{2,3,4,5,6,7,8,9,10,11}	Patchily common	
Brolga ^{4,5}	Common nomad	
Bronze-cuckoo, Horsfield's ^{2,5,6}	Relatively Common nomad	
Bronze-cuckoo, Little ^{4,7}	Common nomad	

SPECIES	NATIONAL STATUS	RANGE
Bronzewing, Common ^{1,2,4,5,6}	Common	Aust wide except Cape York
Budgerigar ^{2,4,5,9,10,11}	Common	Inland Australia
Bushlark, Singing ⁴	Common nomad	Australia wide
Bustard, Australia ^{4,5,6}	Common nomad	Arid and Northern Australia
Butcherbird, Grey ^{2,4,5,6,7,10,11}	Moderately common nomad	Northwestern and Southern Australia
Butcherbird, Pied ^{1,2,4,5,6,8,9,10,11}	Moderately common nomad	Australia wide
Button Quail, Buff-banded ^{4,9}	Common, sedentary	Coastal Australia
Button Quail, Chestnut-backed ^{4,5,6}	Uncommon	Two populations; Northwestern Aust, and Cape York Peninsula
Button Quail, Little ⁴	Common, vagrant	Most of Australia
Button Quail, Red-backed ^{4,6}	Widespread in dry season	Northern Australia
Button Quail, Red-chested	Common nomad	
Buzzard, Black-breasted ^{4,5,8}	Common nomad	Northern interior Aust
Cicada Bird ⁴	Common nomad	Coastal Australia
Cisticola, Golden-headed ^{2,4,5,6,9}	Uncommon	North-western, Northern, Eastern and South-eastern Aust.
Cockatiel ^{4,5,6,8,9}	Common	Inland Australia
Cockatoo, Red-tailed Black ^{1,4,5,6,7,8,10,11}	moderately common nomad	Australia wide
Cockatoo, Sulphur-crested ^{1,2,3,4,5,6,7,8,10,11}	moderately common nomad	Northern and Eastern Australia
Coot, Eurasian ⁴	Common nomad	Common, vagrant
Corella, Little ^{2,4,6}	Common nomad	Arid Australia
Cormorant, Little Pied ^{1,4,5,6,7,10,11}	Common resident	
Coucal, Pheasant ^{1,2,4,5,10,11}	Common nomad or resident	Northern and Eastern Australia
Crow, Little	Common	Inland Australia
Crow, Torresian ^{1,2,3,4,5,6,7,8,9}	Uncommon resident	Northern Australia
Cuckoo, Black-eared ^{6,9}	Common, vagrant	Inland Australia
Cuckoo, Brush ^{2,4,5,6,7}	Moderately uncommon resident or nomad	Northern and Eastern Australia

SPECIES	NATIONAL STATUS	RANGE
Cuckoo, Channel-billed ^{4,6}	Moderately common resident	NE Australia
Cuckoo, Horsefields Bronze ^{4,5,6,9}	Common, sedentary ro vargrant	Australia wide
Cuckoo, Little Bronze ^{4,7,9}	Uncommon migrant or sedentary	Northern and Eastern Australia
Cuckoo, Pallid ^{2,3,4,5,6}	Common resident or nomad	Australia wide
Cuckoo-shrike, Black-faced ^{1,2,3,4,5,6,7,8}	Common	Australia wide
Cuckoo-shrike, Little ^{2,5,6,7,8,9,10,11}	Common	Northern and Eastern Australia
Cuckoo-shrike, White-bellied ⁴	Common vagrant	Coastal Aust
Curlew, Little ⁵	Common resident or migrant	Coastal Australia
Darter ^{2,4,5,7,10,11}	Rare	Australia wide
Dollarbird ^{1,2,4,5,6,7,10,11}	Common summer migrant	N and E Aust
Dotterel, Red-kneed ^{1,4}	Common resident or nomad	Inland Australia
Dove, Bar-shouldered ^{1,2,4,5,6,7,8,10,11}	Uncommon resident or nomad	Northern and Eastern Australia
Dove, Collared ^{10,11}		
Dove, Diamond ^{4,5,6,8}	Uncommon resident or nomad	Arid and semi-arid Australia
Dove, Peaceful ^{1,2,3,4,5,6,7,8,10,11}	Common	North-western and eastern Aust.
Dove, Rose-crowned Fruit ^{4,7,9}	Uncommon to rare nomad	
Drongo, Spangled ^{2,4,7,8,10,11}	Common resident	N and E Australia
Duck, Grey Teal ^{4,5,6}	Common, vagrant	Australia wide
Duck, Pacific Black ^{4,5,6,7,9}	Common migrant	Australia wide
Duck, Pink-eared ^{1,4,9}	Common, vagrant	Australia wide
Duck, Plumed Whistling ^{4,8}	Uncommon to rare	Northern and Eastern Australia
Duck, Wandering Whistling ^{4,8,9}	Common, vagrant	Northern and Eastern Australia
Eagle, Little ^{2,4,5,6}	Uncommon	Australia wide
Eagle, Wedge-tailed ^{4,5,7,9,10,11}	Uncommon	
Eagle, White-bellied Sea ^{4,8,9}	Common, sedentary or vagrant	Coastal Aust.
Egret, Cattle ⁴	Uncommon	Northern coastal Aust

SPECIES	NATIONAL STATUS	RANGE
Egret, Great ^{4,5,6,7,10,11}	Common resident	Australia wide
Egret, Intermediate ^{4,6,7}	Moderately uncommon resident	North and eastern Australia
Egret, Little ⁴	Patchy	Coastal Australia
Emu ^{4,5}	Moderately common resident or nomad	Australia wide
Fairy-wren, Red-backed ^{1,2,4,5,6,8}	Generally rare nomad	N and E Australia
Fairy-wren, Varigated ^{10,11}		
Falcon, Black ^{4,5}	Common resident or nomad	Central Australia
Falcon, Brown ^{1,2,4,5,6,10,11}	Common	Australia wide
Falcon, Peregrine ⁴	Uncommon to rare nomad	Australia wide
Fantail, Grey ^{2,4,6,10,11}	Patchily common	Aust wide, except central Aust
Fantail, Northern ^{2,4,5,6,7,8}	Common Summer migrant	Northern Aust
Fantail, Rufous ^{3,4,5,7}	Common	N and E Australia
Figbird ^{7,9}	Common	Northern and Eastern Australia
Finch, Crimson ^{2,4,5,6,7,8,10,11}	Common resident or nomad	Northern Aust
Finch, Double-barred ^{1,2,3,4,5,6,7,8,9,10,11}	Common nomad	Northern and Eastern Australia
Finch, Gouldian ^{4,5,6}	Rare Summer migrant	Northern Australia
Finch, Long-tailed ^{2,4,5,6,7,8,10,11}	Common Summer migrant	Northern Australia
Finch, Masked ^{1,2,3,5,6,8,9}	Common Summer migrant	Northern Australia
Finch, Star ⁴	Common Summer migrant	North Coastal Aust
Finch, Zebra ⁴	Common Summer migrant	Australia wide
Firebird, Painted		
Flycatcher, Leaden ^{1,2,3,4,5,6,7,8,9}	Common nomad	N and E Australia
Flycatcher, Lemon-bellied ^{4,5,6,8}	Uncommon nomad	Far Northern Aust
Flycatcher, Restless ^{4,5,6}	Common nomad	N, E, SW Australia
Flycatcher, Shining ^{3,4,7,8}	Common resident	N and NE Australia
Friarbird, Little ^{1,2,4,5,6,7,8}	Common	Northern and Eastern Australia

SPECIES	NATIONAL STATUS	RANGE
Friarbird, Silver-crowned ^{1,2,3,4,5,6,7,8,10,11}	Common resident	Northern Aust
Friarbird, Helmeted ^{4,6,9,10,11}	Common nomad	N and NE Australia
Frogmouth, Tawny ^{2,3,4,5,6,10,11}	Common resident	Australia wide
Galah ^{1,2,3,4,5,6,7,8,10,11}	Uncommon resident	Australia wide
Gerygone, Large-billed ^{7,9}	Common	Coastal Northern and North-eastern Aust.
Gerygone, White-throated ^{4,9}	Moderately Common	Coastal Australia
Goose, Green Pygmy ^{4,6,7}	Uncommon, vagrant	Northern Australia
Goose, Magpie, ^{10,11}	Common resident	
Goshawk, Brown ^{2,4,5,6,8}	Common sedentary or vagrant	Australia wide
Goshawk, Grey ^{4,5,6,8}	Uncommon, sedentary	Coastal Northern and Eastern Aust
Goshawk, Red ⁴	Rare	North coastal NT and Qld
Grassbird, Tawny ^{4,5,9}	Common	Northern and Eastern Australia
Grebe, Australia ^{2,4,6,7,9}	Common, vagrant	
Grebe, Hoary-headed ^{4,6,7,10,11}	Common	Mostly southern Aust
Greenshank ^{4,5,9}	Common Summer migrant	Coastal Australia
Hardhead ^{6,7,9}	Common, vagrant	Australia wide
Harrier, Marsh ^{4,5,9}	Common, vagrant	Australia wide
Harrier, Spotted ^{4,9}	Common	Australia wide
Heron, Great-billed ^{4,8}	Uncommon	Northern coastal Aust
Heron, Pacific ^{1,2,4,5,6}	Common	Australia wide
Heron, Pied ^{4,5,10,11}	Relatively common, nomad	Northern coastal Aust
Heron, Rufous Night ^{10,11}		
Heron, White-faced ^{2,4,6,8}	Common nomad	Australia wide
Hobby, Australia ^{4,5,10,11}	Relatively common nomad	Australia wide
Honeyeater, Banded ^{1,4,5,6}	Common	Northern Australia
Honeyeater, Bar-breasted ^{4,5,6,8}	Uncommon resident	Northern Australia

SPECIES	NATIONAL STATUS	RANGE
Honeyeater, Black-chinned ⁶	Uncommon resident	N and NE Australia
Honeyeater, Blue-faced ^{1,2,4,5,6,7,8}	Common Summer migrant	N and E Australia
Honeyeater, Brown ^{1,2,4,5,6,8,10,11}	Common resident	Australia wide
Honeyeater, Dusky ^{1,2,3,4,5,6,8}	Common Summer migrant	N and NE Australia
Honeyeater, Grey-fronted ⁶	Common	Inland Australia
Honeyeater, Red-headed ^{10,11}		
Honeyeater, Rufous-throated ^{5,6}	Common	Northern Australia
Honeyeater, Singing ^{4,5,6}	Common nomad or resident	Australia wide
Honeyeater, Striated Pardalote	Uncommon migrant or resident	
Honeyeater, White-gaped ^{1,4,5,6,7,8}	Common Summer migrant	N and NE Australia
Honeyeater, White-throated ^{1,2,4,5,6,8}	Rare resident	N and NE Australia
Honeyeater, Yellow-tinted ⁵	Common resident	
Ibis, Glossy ^{4,10,11}	Common resident	Northern Australia
Ibis, Sacred ^{10,11}		
Ibis, Straw-necked ^{4,5,6,10,11}	Uncommon to rare resident	Australia wide
Jabiru (Black-necked Stalk) ^{4,5,7,9}	Common, vagrant	Northern and Eastern Australia
Jacana, Comb-crested ^{4,7,9}	Common	Northern and Eastern Australia
Kestrel, Australia ^{4,5,6}	Uncommon to rare resident	Australia wide
Kingfisher, Azure ^{2,4,6,8}	Common resident	SE, E, and N Aust
Kingfisher, Forest ^{2,4,6,7,8}	Common resident	N and E Australia
Kingfisher, Red-backed ^{2,4,5,6,7}	Common resident	Inland Australia
Kingfisher, Sacred ^{1,2,4,5,6,7,10,11}	Moderately common migrant	Australia wide, not central Aust.
Kite, Black ^{1,2,3,4,5,6,7,8,9}	Common resident	Australia wide
Kite, Black-shouldered ⁴	Common migrant	Australia wide
Kite, Square-tailed ⁴	Common resident	Mainly coastal Aust
Kite, Whistling ^{1,2,4,5,6,7,8}	Uncommon resident	Australia wide

SPECIES	NATIONAL STATUS	RANGE
Koel, Common ^{1,2,4,5,6,7}	Common resident or migrant	Northern and Eastern Australia
Kookaburra, Blue-winged ^{1,2,4,5,6,7,8,10,11}	Common, migratory	Northern Australia
Lapwing, Masked ^{4,10,11}	Common Summer migrant	Mainly coastal Aust but extending inland
Little Eagle	Patchy migrant, nomad or resident	
Lorikeet, Red-collared ^{1,2,3,4,5,6,7,8}	Common nomad or migrant	North Western Australia
Lorikeet, Varied ^{1,2,4,5,6,7,8,10,11}	Moderately common partial migrant	Northern Australia
Magpie, Australian ^{3,8}	Common	Australia wide
Magpie Goose	Common resident	
Magpie-Lark, Australian ^{1,2,3,4,5,6,10,11}	Common nomad or resident	Australia wide
Mannikin, Chestnut-breasted ^{4,5,6}	Common Summer migrant	Northern Australia
Mannikin, Pictorella	Common resident	
Mannikin, Yellow-rumped ^{4,6}	Common resident	Northern Australia
Martin, Fairy ^{4,5}	Uncommon nomad	Australia wide
Martin, Tree ^{4,5,8}	Common resident	Australia wide
Miner, Yellow-throated ^{1,2,3,4,5,10,11}	Uncommon	Western and Central Australia
Mistletoe Bird ^{2,4,5,6,8}	Common resident	Australia wide
Night-heron, Rufous ^{4,6,7,8}	Common resident	Australia wide
Nightjar, Australia Owlet ^{1,4,5,6}	Common resident	Australia wide
Nightjar, Large-tailed ^{4,6,9}	Common	Coastal Northern Australia and North-eastern Aust.
Nightjar, Spotted ^{4,5,6}	Moderately common resident	Inland Australia
Oriole, Olive-backed ^{2,4,5,6,7,8}	Common	N and E Australia
Oriole, Yellow ^{4,6,7,8,10,11}	Locally Common resident	Northern Australia
Owl, Barking ^{2,4,5,6,7}	Uncommon resident or nomad	Eastern, Northern and South western Aust.
Owl, Barn ^{1,4,5,6}	Common Summer migrant	Australia wide
Owl, Masked	Common migrant, nomad or resident	
Owl, Rufous ^{4,6}	Common resident	Northern Aust, and NE and central Qld

SPECIES	NATIONAL STATUS	RANGE
Pardalote, Red-browed ^{6,9}	Common	Arid mainland Australia
Pardalote, Striated ^{1,2,4,5,6,7,8,9}	Common, sedentary	Australia wide
Parrot, Hooded ^{2,4,5,6,8}	Common resident	North-eastern NT
Parrot, Red-winged ^{1,2,3,4,5,6,8,10,11}	Common resident	NW Australia
Pelican, Australia ⁴	Moderately common resident	Australia wide
Pigeon, Crested ^{2,4,5,9}	Common	Inland Australia
Pigeon, Flock	Common	
Pigeon, Partridge ^{2,4,5}	Uncommon	Far Northern Australia
Pigeon, Torresian Imperial ^{4,7,9,10,11}	Common migrant	Northern Australia
Pink-eared Duck	Common nomad	
Pipit, Richard's ²	Common resident or nomad	Australia wide
Plover, Black-fronted	Common	
Plover, Large Sand ^{5,9}	Uncommon migrant	Coastal Australia
Plover, Oriental ⁵	Common summer migrant	Northern Australia
Pratincole, Australia	Locall common resident	
Pratincole, Oriental	Moderately common	
Quail, Brown ^{1,2,3,4,5,6,7}	Common resident	Coastal Australia
Quail, King ^{4,9}	Common, probably sedentary	Coastal Australia
Rail, Buff-banded	Common resident or nomad	
Robin, Hooded ^{4,6,9}	Common, but scattered	Australia wide
Robin, Mangrove ^{6,9}	Common	Coastal Northern Australia
Robin, White-browed ⁴	Common nomad or migrant	Northern coastal Australia
Rosella, Northern ^{1,2,3,4,5,6,8,10,11}	Common nomad	North-western Aust
Sandpiper, Common ^{2,4,5}	Common summer migrant	Coastal Australia
Sandpiper, Marsh	Common resident	
Sandpiper, Sharp-tailed	Uncommon nomad or resident	

SPECIES	NATIONAL STATUS	RANGE
Sandpiper, Wood ^{4,5,9}	Patchy summer migrant	Patchy throughout Aust.
Shelduck, Rajah ^{4,10,11}	Common resident	North NT and Qld
Shrike-thrush, Grey ^{1,2,4,5,6,7,10,11}	Common nomad	Australia wide
Shrike-thrush, Little ⁹	Moderately common, sedentary	Northern coastal Aust.
Shrike-thrush, Sandstone ^{4,9}	Relatively common	North-western Aust.
Sittella, Varied ^{2,4,5,6}	Common resident	Australia wide
Snipe, Painted	Relatively common resident	
Sparrowhawk, Collared ^{1,2,4,5,6,9,10,11}	Common resident	Australia wide
Spoonbill, Royal ^{1,4,5,6,10,11}	Common resident	Australia wide
Spoonbill, Yellow-billed ^{4,5}	Locally common	Australia wide
Stilt, Black-winged ⁴	Common resident or nomad	Australia wide
Stilt, Pied ^{10,11}	Common resident or nomad	Australia wide
Swamphen, Purple	Common resident	
Swift, Fork-tailed ^{4,6}	Common nomad	Australia wide
Teal, Grey	Locally common nomad	
Tern, Gull-billed	Common resident or nomad	
Tern, Whiskered	Scarce nomad	
Thick-knee, Bush ^{2,4,5,6,9, 10,11}	Uncommon nomad	Australia wide
Treecreeper, Black-tailed ^{2,4,5,6, 10,11}	Common nomad	NW and W Australia
Triller, Varied ^{4,6,7,8}	Common resident, nomad or migrant	N and NE Australia
Triller, White-winged ^{2,3,4,5,6,8}	Relatively common resident	Australia wide
Wagtail, Willie ^{1,2,3,4,5,6,7,8, 10,11}	Common resident	Australia wide
Warbler, White-throated ^{5,6}	Common resident	N and E Australia
Weebill ^{2,3,4,5,6,7,9, 10,11}	Common	Australia wide
Whistler, Rufous ^{2,3,4,5,6,8, 10,11}	Uncommon resident, nomad or migrant	Australia wide
Winter, Jacky ^{4,5,6}	Common nomad	N, E, and S Australia

SPECIES	NATIONAL STATUS	RANGE
Woodswallow, Black-faced ^{1,2,4,5,6,8, 10,11}	Common nomad	Australia wide
Woodswallow, Little ^{2,4,5,6,8, 10,11}	Common resident	Northern and Central Australia
Woodswallow, Masked ^{1,4, 10,11}	Common resident	Australia wide
Woodswallow, White-breasted^{5, 10,11}	Moderately common	Australia wide
Woodswallow, White-browed ^{1,4,6}	Common resident	Australia wide

11.10 Vegetation Records from the Mt Porter flora survey.

Survey Sites: *Ridge Crests and Slopes* (Trap sites 1 and 2), *Low Undulating Hills* (Trap Site 3), *Riparian* (Trap Site 5 and Pandana Waterhole), *Drainage Depression* (Trap Site 4), *Granite Hills* (Granite country), *Rehabilitation Site* (Trap Site 1).

The digit “1” denotes the presence of a plant species at a particular site. Black “1” shows species found in this study by Low Ecological Services (May 2005) and Red “1” shows the species found by ERA Environmental Services during a vegetation survey in December 1993. Shaded area indicates the dominant species for the particular land unit or rehabilitation site.

References: Wheeler *et al.* 1992; Brock 1988; Strong 1987; Petheram and Kok 1983.

Species Status was obtained by Parks and Wildlife Commission Northern Territory and from references listed above.

Species Name	Common Name	Status	Land Unit					Rehab area
			Ridge Crests and Slopes	Low Undulating Hills	Riparian	Drainage Depressions	Granite Hills	
GRASSES & SEDGES								
Adiantaceae								
<i>Cheilanthes sp.</i>					1			
Cyperaceae								
<i>Scleria sphacelata</i>			1, 1	1	1			
Poaceae								
<i>Aristida holothera</i>	Erect Kerosene Grass						1	
<i>Arundinella nepalensis</i>	Reed Grass					1		
<i>Chrysopogon fallax</i>	Goldern Beardgrass		1	1	1			
<i>Cymbopogon bombycinus</i>	Silky Oilgrass		1, 1					
<i>Eragrostis speciosa</i>	Handsome Lovegrass			1				
<i>Eragrostis sp.</i>					1	1		
<i>Eriachne armitii</i>	Longawn Wanderrie		1	1				
<i>Eriachne sp.</i>			1					

Species Name	Common Name	Status	Land Unit					Rehab area
			Ridge Crests and Slopes	Low Undulating Hills	Riparian	Drainage Depressions	Granite Hills	
<i>Eulalia mackinlayi</i>			1	1	1			
<i>Heteropogon contortus</i>	Bunch Speargrass		1		1			
<i>Heteropogon triticeus</i>	Giant Speargrass				1			1
<i>Mnesithea rottboellioides</i>			1					
<i>Panicum sp.</i>			1		1			
<i>Pennisetum polystachyon</i>	Mission Grass							1
<i>Schizachyrium fragile</i>	Small Redleaf			1	1		1	
<i>Sorghum plumosum</i>	Plume Grass Sorghum		1	1	1	1	1	
<i>Sorghum intrans</i>	Annual Sorghum		1	1	1			
<i>Themeda australis</i>			1	1	1			
<i>Themeda triandra</i>	Kangaroo Grass		1	1	1	1		
<i>Whiteochloa capillipes</i>				1	1			
HERBS, FORBS, VINES, FERNS & EPIPHYTES								
Acanthaceae								
<i>Rostellularia adscendens</i>			1, 1			1		
Amaranthaceae								
<i>Gomphrena sp.</i>							1	
Apiaceae								
<i>Trachymene didiscoides</i>								
Asteraceae								
<i>Vernonia cinerea</i>	Vernonia					1		
Convolvulaceae								
<i>Evolvulus alsinoides</i>	Tropical Speedwell					1		

Species Name	Common Name	Status	Land Unit					Rehab area
			Ridge Crests and Slopes	Low Undulating Hills	Riparian	Drainage Depressions	Granite Hills	
<i>Jacquemontia sp.</i>								
<i>Merremia aegyptia</i>						1		
<i>Merremia quinata</i>					1			
Dilleniaceae								
<i>Pachynema dilatatum</i>								
<i>Pachynema sphenandrum</i>			1, 1					
Droseraceae								
<i>Drosera petiolaris</i>	Woolly Sundew					1		
Euphorbiaceae								
<i>Euphorbia heterophylla</i>	Painted Spurge	Weed						1
<i>Euphorbia wheeleri</i>	Wheeler's Spurge				1			
Fabaceae								
<i>Galactia muellera</i>			1					
<i>Glycine tomentella</i>			1	1	1		1	
Goodeniaceae								
<i>Goodenia sp.</i>					1			
Haemodoraceae								
<i>Haemodorum sp.</i>								
Lythraceae								
<i>Rotala sp.</i>					1			
Menispermaceae								
<i>Tinospora smilacina</i>	Snake Vine				1			
Orchidaceae								
<i>Cymbidium canaliculatum</i>	Tree Orchid			1				

Species Name	Common Name	Status	Land Unit					Rehab area
			Ridge Crests and Slopes	Low Undulating Hills	Riparian	Drainage Depressions	Granite Hills	
Papilionaceae								
<i>Crotalaria goreensis</i>	Gambia Pea	Weed			1			1
<i>Crotalaria medicaginea</i>	Trefoil Rattlepod		1					
<i>Crotalaria montana</i>			1		1			
Passifloraceae								
<i>Passiflora foetida</i>	Stinking Passion Vine	Weed	1		1	1		1
Polygalaceae								
<i>Polygala sp.</i>					1			
Rubiaceae								
<i>Spermacoce leptoloba</i>							1	
<i>Spermacoce occultisefa</i>			1	1				
Scrophulariaceae								
<i>Buchnera linearis</i>			1		1			
Sinopteridaceae								
<i>Cheilanthes tenuifolia</i>	Rock Fern							
Smilacaceae								
<i>Smilax australis</i>	Austral Smilax		1		1			
Stylidiaceae								
<i>Stylidium sp.</i>							1	
Thymelaeaceae								
<i>Thecanthes punicea</i>					1			
Vitaceae								
<i>Ampelocissus acetosa</i>	Wild Grape				1			
<i>Cayralia trifolia</i>						1		

Species Name	Common Name	Status	Land Unit					Rehab area
			Ridge Crests and Slopes	Low Undulating Hills	Riparian	Drainage Depressions	Granite Hills	
TREES & SHRUBS								
Anacardiaceae								
<i>Buchanania obovata</i>	Wild Mango		1, 1					
Apocynaceae								
<i>Alstonia actinophylla</i>	Milkwood							
<i>Wrightia saligna</i>	Milk Bush					1	1	
Arecaceae								
<i>Livistona humilis</i>	Sand Palm			1				
Barringtoniaceae								
<i>Planchonia careya</i>	Cocky Apple			1				
Bignoniaceae								
<i>Dolichandrone filiformis</i>				1	1, 1	1		
Bixaceae								
<i>Cochlospermum fraseri</i>	Yellow Kapok		1		1, 1		1	
Combretaceae								
<i>Terminalia ferdinandiana</i>	Billygoat Plum					1		
<i>Terminalia grandiflora</i>	Nut Tree				1			
<i>Terminalia pterocarya</i>					1	1		
<i>Terminalia sp.</i>				1				
Caesalpiniaceae								
<i>Erythrophleum chlorostachys</i>	Ironwood		1, 1	1	1, 1	1		
Euphorbiaceae								
<i>Bridelia tomentosa</i>								
<i>Flueggea virosa</i>					1	1		

Species Name	Common Name	Status	Land Unit					Rehab area
			Ridge Crests and Slopes	Low Undulating Hills	Riparian	Drainage Depressions	Granite Hills	
<i>Petalostigma pubescens</i>	Downy Cracker Bush				1			
<i>Petalostigma quadriloculare</i>	Qunine Bush		1, 1	1	1, 1		1	
Fabaceae								
<i>Erythrina vespertilio</i>	Batwing Coral Tree				1			
<i>Erythrina variegata</i>	Coral Tree		1, 1					
<i>Flemingia lineata</i>				1				
<i>Tephrosia polzyga</i>			1, 1		1			
Lamiaceae								
<i>Hyptis suaveolens</i>	Hyptis	Weed		1	1, 1			1
Lecythydaceae								
<i>Planchonia careya</i>	Cocky Apple		1					
Lauraceae								
<i>Litsea glutinosa</i>					1			
Leeaceae								
<i>Leea rubra</i>								
Malvaceae								
<i>Abelmoschus moschatus</i>	Native Rosella					1		
Meliaceae								
<i>Owenia vernicosa</i>	Emu Apple		1, 1	1		1	1	
Mimosaceae								
<i>Acacia aulacocarpa</i>	Hickory Wattle		1, 1		1			
<i>Acacia auriculiformis</i>	Earpod Wattle							1
<i>Acacia bidwillii</i>	Corkwood Wattle			1	1, 1	1		
<i>Acacia cowleana</i>	Hall's Creek Wattle		1	1				

Species Name	Common Name	Status	Land Unit					Rehab area
			Ridge Crests and Slopes	Low Undulating Hills	Riparian	Drainage Depressions	Granite Hills	
<i>Acacia difficilis</i>			1					1
<i>Acacia dimidiata</i>	Swamp Wattle							1
<i>Acacia leptocarpa</i>								
<i>Acacia oncinocarpa</i>								1
<i>Acacia pachyphloia</i>								1
<i>Acacia pachyphylla</i>					1			1
<i>Acacia platycarpa</i>	Ghost Wattle							1
<i>Acacia torulosa</i>	Torulosa Wattle							1
Moraceae								
<i>Ficus aculeata</i>				1	1			1
<i>Ficus opposita</i>	Sandpaper Fig			1				1
<i>Ficus platypoda</i>	Native Fig				1, 1			
<i>Ficus scobina</i>								
<i>Ficus virens</i>	Banyan				1			
Myrtaceae								
<i>Calytrix achaeta</i>								
<i>Calytrix existipulata</i>	Kimberly Heather			1				
<i>Corymbia dichromophloia</i>	Variable Barked Bloodwood		1, 1	1	1		1	
<i>Corymbia foelscheana</i>	Fan-leafed Bloodwood							
<i>Corymbia latifolia</i>	Round-leafed Bloodwood		1	1	1, 1	1	1	
<i>Corymbia polysciada</i>								
<i>Corymbia polycarpa</i>	Long-fruited Bloodwood			1				
<i>Corymbia porrecta</i>	Grey Bloodwood		1					

Species Name	Common Name	Status	Land Unit					Rehab area
			Ridge Crests and Slopes	Low Undulating Hills	Riparian	Drainage Depressions	Granite Hills	
<i>Eucalyptus bigalerita</i>	Northern Salmon Gum							1
<i>Eucalyptus clavigera</i>	Apple Gum		1		1			
<i>Eucalyptus confertiflora</i>	Broad-leafed Carbeen		1		1			
<i>Eucalyptus miniata</i>	Darwin Woollybutt		1, 1		1			1
<i>Eucalyptus phoenicea</i>	Scarlet Gum		1		1			1
<i>Eucalyptus setosa</i>	Rough-leafed Bloodwood		1, 1					
<i>Eucalyptus tectifica</i>	Darwin Box			1	1, 1			
<i>Eucalyptus tetradonta</i>	Darwin Stringybark		1		1		1	1
<i>Eucalyptus tintinnans</i>	Salmon Gum		1, 1	1	1		1	
<i>Lophostemon grandiflorus</i>	Northern Swamp Box		1	1	1, 1			1
<i>Melaleuca dealbata</i> (?)	Blue-leafed Paperbark					1, 1		
<i>Xanthostemon paradoxus</i>	Bridal Tree		1, 1					
Onagraceae								
<i>Ludwigia sp. (octovalvis)</i>	Willow Primrose				1	1		
Pandanaceae								
<i>Pandanus spiralis</i>	Screw Palm				1, 1	1, 1		
Pittosporaceae								
<i>Pittosporum melanosperrum</i>	Goldern Pittosporum							
Proteaceae								
<i>Grevillea decurrens</i>			1, 1	1	1, 1			
<i>Grevillea dimidiata</i>			1	1				
<i>Grevillea mimosoides</i>			1		1	1		
<i>Hakea arborescences</i>						1		

Species Name	Common Name	Status	Land Unit					Rehab area
			Ridge Crests and Slopes	Low Undulating Hills	Riparian	Drainage Depressions	Granite Hills	
Rhamnaceae								
<i>Alphitonia excelsa</i>	Red Ash		1		1			
Rhizophoraceae					1			
<i>Carallia brachiata</i>	Carallia Wood							
Rubiaceae								
<i>Gardenia megasperma</i>			1, 1		1, 1		1	1
<i>Ixora sp.</i>				1	1			
Sterculiaceae								
<i>Brachychiton diversifolius</i>	Northern Kurrajong		1				1	
<i>Brachychiton megaphyllus</i>			1, 1	1	1, 1	1		
Tiliaceae								
<i>Grewia retusifolia</i>	Emu Berries			1		1		
Total number of grasses & sedges			11	11	14	4	3	2
Total number of herbs, forbs, vines, ferns & epiphytes			8	3	14	7	4	3
Total number of trees & shrubs			15	25	23	15	10	17