

Great Keppel Island Environmental Impact Statement



Flora and Fauna Technical Report



Prepared for Tower Holdings





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Executive Summary

The existing flora and fauna of Great Keppel Island were investigated as part of an Environmental Impact Statement (EIS) for the proposed revitalization of the former resort. Investigations were undertaken during both a dry season and wet season sampling period (September 2010 and February 2011) to allow for any seasonal differences.

A review of the flora related literature, existing databases and consultation with agencies, experts and the community identified vegetation communities/ regional ecosystems and threatened species currently occurring on the Island. Previous studies on the Island identified that historical land use had altered the structure and species composition and that there were high feral goat grazing pressures.

Regional ecosystem mapping was completed at a scale of 1: 10, 000 for the Island. Vegetation mapping and flora species information were gathered using methodology developed by the Queensland Herbarium and included quaternary, tertiary and secondary field data. Wetlands were also assessed based on the Department of Environment and Resource Management (DERM) Guidelines.

Three small areas of the nationally 'Critically Endangered' Ecological Community 'Littoral Rainforest and Coastal Vine Thickets of Eastern Australia' were mapped outside of the revitalisation area on the Island. The balance of the Island was mapped as supporting areas of 'Of Concern' and 'Least Concern' regional ecosystems (REs) as well as areas of non-remnant vegetation. DERM mapped 12 RE's and field investigations confirmed that 10 of these were present (RE 8.3.6c and 8.3.13c were not found during ground truthing) and 1 RE not previously mapped on the Island was identified (RE 8.11.8b). Mapping of regional ecosystems at a scale of 1:10,000 identified that a portion of the area previously mapped as remnant vegetation by DERM (2009) includes areas that had been historically cleared and now do not achieve remnant status. Application of the DERM Wetland Mapping Methodology confirmed the presence of wetland associated with drainage lines associated with RE 8.2.7e. All areas mapped as RE 8.1.1 or 8.1.2 also meet the definition of wetlands. All areas of RE 8.2.7b were mapped as potentially supporting palustrine wetlands.

This study confirmed the presence of 7 flora species of local significance, 6 of which were based on Batinoff & Dillewaard's 1988 study. Field investigations also confirmed the presence of 82 weed species of which 7 are declared pests.

A review of the fauna related literature and databases identified that an area surrounding Leeke's Estuary had been mapped as Essential Habitat for the Beach Stone Curlew by DERM. Previous studies on the Island identified that few native marsupials or rodents are known from the area; however feral mammals including goats have altered vegetation communities and caused damage to habitats in the past. Community members, agencies and other experts were also consulted.

Fauna field investigations were undertaken in line with approved permits. Survey techniques used were diurnal/nocturnal bird searches, ground searches, Elliott trapping, pitfall trapping, hair funnel trapping, spotlighting, transect spotlight possum counts, Anabat detection, call playback and habitat assessment.

Field investigations confirmed the presence of 5 native mammal species and 4 native bats, 17 native reptile species, 9 frog species and 67 bird species. In addition 3 non-native mammal and 1 exotic reptile species were identified. Of note, no introduced amphibian species (i.e. Cane Toads) were recorded from the Island. The broad scale investigation into Brushtail Possum population density on the Island confirmed that densities well exceed commonly observed densities of this species and is comparable to densities found in New Zealand where this species is an introduced pest. Of the fauna recorded, 15 significant bird species, 1 significant reptile species and 1 mammal of cultural significance were confirmed on the Island. Nesting, resting, breeding, foraging and seasonal influences on these significant species are reviewed.

Habitat assessments identified Leeke's Estuary as the most important habitat on the Island. No specific fauna movement corridors were identified and the Island is currently free of significant anthropogenic barriers.

Acronyms

BPA Biodiversity Planning Assessment

CQC Central Queensland Coast

DERM Department of Environment and Resource Management

DEWHA Department of Environment, Water, Heritage and the Arts (now SEWPAC)

EPA Environmental Protection Agency (now DERM)

EPBC Act Environmental Protection and Biodiversity Conservation Act 1999

GBR Great Barrier Reef

GBRWHA Great Barrier Reef World Heritage Area

GKI Great Keppel Island

LPA Land Protection (Pest & Stock Route Management) Act 2002

NC(W)R Nature Conservation (Wildlife) Regulation 2006

NCA Nature Conservation Act 1992

NES National Environmental Significance

QLD Queensland

RE Regional Ecosystem

REDD Regional Ecosystem Description Database

SEWPAC Department of Sustainability, Environment, Water, Population and

Communities

VMA Vegetation Management Act 1999

1. INTRODUCTION

1.1 STUDY AREA

Great Keppel Island is part of a chain of Islands (the Keppel Group) located approximately 12km off shore from Yeppoon on the Central Queensland Coast. The 1,478ha Great Keppel Island is located within the Great Barrier Reef World Heritage Area.

The Study area for the purpose of this report is defined as the proposed disturbance footprint on Great Keppel Island and a minor area located at Emu Park where an undersea cable is to make landfall (Figure 1). For the purpose of understanding the Island from a holistic viewpoint additional data has been attained from areas located outside of the proposed revitilisation footprint.

The proposed development footprint includes:

- 750 eco-tourism villas;
- 300 eco-tourism apartments;
- A 250 suite hotel facility at Fisherman's Beach;
- New Marina at Putney Beach comprising 250 berths;
- Retail area around the marina;
- An 18 hole golf course and golf club;
- Sporting oval/park;
- Relocation of the existing airstrip runway;
- Associated service facilities and utilities (waste collection area, fire-fighting);
- Wastewater treatment plant and constructed wetlands;
- Scientific research centre;
- Installation of a sub-marine connection of power, water, telecommunications between the Island and mainland;
- Restoration work to the Leeke's homestead; and
- Creation of 545 ha of environmental protection areas, including marked walking tracks, compost toilets and picnic facilities.

In the interest of maintaining consistency amongst technical reports, references to the proposed revitilisation has been described with reference to three main precincts (illustrated in Figure 1) including the:

- Marine Services Precinct:
- Fisherman's Beach Resort Precinct; and
- Clam Bay Resort Precinct.

1.2 STUDY AIMS AND OBJECTIVES

The aim of this study is to identify and describe the existing terrestrial environment (flora and fauna) of GKI. Secondly to determine the elements of these values that may be affected by the project. The significance of environmental values at a local, regional and national level is discussed.

Specifically, the study aims to address the specific information requirements of the State of Queensland's Terms of Reference and the Australian Government Guidelines for an Environmental Impact Statement as they relate to the existing terrestrial environment (flora and fauna).

2. TERRESTRIAL FLORA

2.1 REGULATORY FRAMEWORK

Major legislation pertaining to the protection and management of terrestrial vegetation are listed below in Table 1.

Table 1 – Major legislation pertaining to the protection and management of terrestrial vegetation

Туре	Title	
Commonwealth Acts/Regulations	Environment Protection and Biodiversity Conservation Act 1999 (Cwth)	The Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) prescribes the Commonwealth's role in environmental assessment, biodiversity conservation and the management of protected areas. Under the environmental provisions of the EPBC Act, actions that are likely to have a significant impact on a matter of National Environmental Significance (NES) are identified as "controlled actions" and cannot be undertaken without approval under the EPBC Act. The matters of NES that are relevant to the terrestrial flora component
	Great Barrier Reef Marine Park Act 1975, Great Barrier Reef Marine Park Regulations 1983, and the Great Barrier Reef Marine Park Zoning Plan 2003	of the Project are listed threatened species and communities (of flora). The Great Barrier Reef Marine Park Act 1975 main object is to provide for the long term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region.
State Acts/Regulations	Fisheries Act 1994 and Fisheries Regulation 2008 (Also FHMOP 001 'Management and protection of marine plants and other tidal fish habitats' and FHG003 'Fisheries Guidelines for Fish Habitat Buffer Zones'). Forestry Act 1959	 The disturbance of marine plants or tidal habitats for: Reclamation or use of tidal lands for non-marine oriented purposes, including residential and commercial development; Alteration of natural waterways for drainage purposes; Revetment works where there is no substantial bank erosion or slumping threatening buildings or existing infrastructure; Development where alternatives of lesser impact exist; Development where rights cannot be demonstrated (i.e. commercial development on Unallocated State Land (USL) or tidal lands); and For aesthetic or view purposes. Is contrary to the requirements of FHMOP 001. The Forestry Act 1959 provides for forest reservations, the management, silvicultural treatment and protection of State forests, and the sale and disposal of forest products and quarry material, the
	Land Protection (Pest and Stock Route Management) Act 2002 and Land Protection (Pest and Stock Route Management) Regulation 2003 Nature Conservation Act 1992 and Nature	property of the Crown on State forests, timber reserves and on other lands. The Land Protection (Stock and Pest Route Management) Act 2002 (LPA) and the Land Protection (Pest and Stock Route Management) Regulation 2003 provides for management of declared pests in Queensland. Landholders have an obligation to control declared pests that are known to occur on their property. The Nature Conservation Act 1992 (Qld) (NCA) provides for the conservation and management of Queensland's native wildlife,
	Vegetation Management Act 1999 and Vegetation Management Regulation 2000	amongst other things. The Act prohibits the taking or destruction, without authorisation, of certain listed species. The Nature Conservation (Wildlife) Regulation 2006 (NC Regulation) lists the wildlife considered extinct in the wild, endangered, vulnerable, near threatened, least concern, international and prohibited. It states the declared management intent and the principles to be observed in any taking of or destruction for each group. The Vegetation Management Act 1999 (VMA) regulates clearing of vegetation in order to: conserve remnant endangered, of concern and not of concern regional ecosystems;

Туре	Title	
	(Also the Regional Vegetation Management Codes for Coastal Regions; and Policy for vegetation management offsets)	 conserve vegetation in declared areas; ensure clearing does not cause land degradation, prevent the loss of biodiversity; maintain ecological process; manage the environmental effects of clearing; and reduce greenhouse gas emissions. The VMA also regulates particular regrowth vegetation. Under the VMA 'regulated regrowth' is vegetation identified on the regrowth vegetation map as high value regrowth vegetation or located within 50m of a watercourse identified on the regrowth map as a regrowth watercourse or contained in a category C area shown on a Property Map of Assessable Vegetation.
	Water Act 2000 and Water Regulation 2002	The Water Act 2000 protects vegetation within watercourses.

2.2 METHODOLOGY

2.2.1 Desktop Assessment and Literature Review

To assist in identifying likely regional ecosystems and flora species that could be encountered and those that would need to be targeted during field work, a search of relevant literature and databases was undertaken prior to undertaking field investigations.

The following databases and assessments were assessed to provide a basis for assessment of flora community and species distribution:

- Commonwealth's EPBC Online Protected Matters Search Tool (SEWPAC, 2010)
 (Appendix A);
- Queensland Herbarium's Herbrecs (Queensland Herbarium, 2010a) & Corveg database (Queensland Herbarium, 2010b);
- Regional Ecosystem mapping ver. 6.0 (DERM, 2009b);
- DERM's WildNet database (EPA, 2010);
- Creighton, 1984;
- Melzer and Plumb, 2007; and
- Batianoff and Dillewaard, 1988.

The literature and databases identified a number of species of conservation significance that may occur within the study area. The study area for this purpose is defined according to Figure 1 and includes the Marine services precinct, Fisherman's Beach Resort Precinct and Clam Bay Resort Precinct. Based on a review of the habitat requirements of species, the likelihood that a species or community is present was categorised according to the following definitions:

- **Known** species positively recorded by this survey or other survey by qualified ecologists during past 30 years;
- **Likely** based on the presence of suitable habitat and proximate records;
- Possible suitable habitat present for the species, but no recent records from the study area or proximate areas; and

Unlikely - based on a lack of suitable habitat and lack of proximate records.

2.2.2 Vegetation Mapping

2.2.2.1 Scale

The TOR for the Great Keppel Island EIS indicates 1:10,000 scale vegetation mapping as a data requirement. In vegetation survey, scale is determined by sampling intensity, influenced by vegetation complexity and the areal extent of remnant vegetation.

Neldner *et al.*, (2005) recommends 25 ground observations/km2 for a 1:10,000 scale map. The frequency of secondary site observations is dependant on the vegetation complexity, the amount of remnant vegetation present and the quantum of existing data for nearby areas.

The mapping scale for the current study is based on the combined extent of mapped remnant vegetation and non remnant vegetation within the investigation area rather than the total study area, which contains large tracts of cleared land. The entire Island covers 14.78 km² which contains approximately 13.22 km² of remnant and non-remnant woody vegetation. This necessitates approximately 370 observations to map the entire island at a 1:10,000 scale. The footprint is approximately 3 km² which necessitates 75 observations.

2.2.2.2 Regional Ecosystems

The mapping of vegetation categories across the entire study area was based on the regional ecosystem framework (Sattler & Williams, 1999). Regional ecosystems are coded with a three-part number:

- The first number is the bioregion in which the site occurs. In some instances the combination of vegetation and geology typical of a certain bioregion may occur outside the bioregional boundary. In this instance the Regional Ecosystem is assigned to the Bioregion in which it typically occurs, rather than the Bioregion in which the site is located. The site vegetation in this case is within the Central Queensland Coast and is therefore numbered "8".
- The second number is the geomorphic category or "Land Zone" that the ecosystem falls within (e.g. all Regional Ecosystems occurring on "Hills and lowlands on metamorphosed sedimentary rocks are Land Zone '11').
- The third number is the ecosystem number, and relates to the dominant vegetation.

2.2.2.3 Land Zones

Regional Ecosystem mapping ver. 6.0 (DERM, 2009) indicated the presence of 5 land zones on Great Keppel:

- 1 deposits subject to periodic tidal inundation;
- 2 Quaternary coastal sand deposits;

- 3 Quaternary alluvial systems;
- 11 hills and lowlands on metamorphosed sedimentary rocks; and
- 12 hills and lowlands on granitic and other pre Cainozoic igneous rocks.

The latter relates to a particular regional ecosystem (RE 8.12.14x2c) which in its description notes "Occurs on metamorphic rocks on islands and headlands". Therefore, the presence of this regional ecosystem does not denote the actual presence of land zone 12 on GKI.

Review of 1:100,000 Geological Series Sheet 9051 "Rockhampton" (DNRW, 2006) indicates that large portions of the island include "Quartzose sandstone, mudstone; local quarts-muscovite- biotite schist" of the Shoal water formation and small area of Quaternary alluvium.

Observations made during the dry season survey found the land zones ascribed in Regional Ecosystem mapping ver. 6.0 and geology described in (DNRW, 2006) to be in part in error. As such, land zones were remapped using a combination of resources including:

- On ground observations (quaternary sites);
- Aerial photographic review (see 2.2.2.4 following);
- Review of contour information (Schlencker Surveying Pty Ltd, 2006);
- Review of bore hole information prepared by Douglas and Partners Pty Ltd (2011);
 and
- Consultation with project geologists (Douglas and Partners).

2.2.2.4 Aerial Photograph Analysis and Site Location

Interpretation of orthorectified aerial photography (Schlencker Surveyin Pty Ltd, 2006) allowed the establishment of preliminary vegetation line work and polygon attribution directly in a GIS application (MapInfo). Review of imagery also facilitated the delineation of land zones. The line work was completed initially with reference to the available remnant regional ecosystem mapping to assign anticipated regional ecosystems.

Historical aerial photography from 1961, 1973, 1984, 1988, 1995 and 1999 were reviewed to ascertain areas that had been historically cleared (see Figure 2). Imagery from 1961 and 1973 illustrated broad areas that had been historically cleared or thinned. Whilst this imagery could be registered in GIS, it was not orthorectified and as such could only be used as a tool to assist in identifying where clearing had occurred.

Polygons of both remnant and regrowth vegetation were identified through aerial photographic review. To verify this mapping it was necessary to undertake intensive field survey. Prior to field investigations, a number of target locations were identified including:

- a representative range of habitats within the study area;
- communities that could not be adequately categorised through air photo interpretation;
- some areas of non-remnant to assess species composition & structure (to ascertain whether the vegetation meets remnant status); and
- areas that were considered highly likely to provide habitat for threatened plant species.

Additional opportunistic sites were added during the field survey.

2.2.2.5 Vegetation Mapping

Vegetation was mapped at a scale of 1:10,000 as per methodology developed by the Queensland Herbarium (Neldner *et al.*, 2005). The methods prescribed include a combination of secondary, tertiary and quaternary level sampling procedures. Additional informal site observations were also made but not documented. In some untraversed areas outside of the development footprint, there was insufficient information to make a judgment, and as such Regional Ecosystem mapping ver 6.0 (DERM, 2009b) was utilised as a default. In these areas mapping scale may not achieve a scale of 1:10,000.

Secondary sites consisted of a 50m x 10m plot located along the contour (or rarely across the contour in an endeavor to avoid areas where there was a change in ecosystem) within vegetation communities that displayed homogeneity in terms of floristics, structure and age. Canopy cover was determined by extending the plot a further 50m to generate a 100m transect. A Mobile Mapper GPS was used to record the coordinates of the beginning and end of the 50m Secondary plot and at the end of the 100m transect. Data collected in Secondary sites was in accordance with Nelder *et. al.*, 2005 and broadly included:

- Representative sample of species present;
- Canopy height using a hypsometer;
- Canopy cover was recorded in using measured crown intercept over the 100m transects:
- Bitterlich measurements, as described in Grosenbaugh (1952), were used to record community basal area at the 25m point within the plots; and
- The abundance of all woody species within the 50m x 10m plot was recorded by stem counts; and
- All ground cover species, vines, epiphytes and mistletoes within the 50m x 10m plot were recorded.

For Secondary and Tertiary site field data was captured according to pro formas included in Neldner *et al.*, (2005). In order to adequately capture structural data from 100m transects information was recorded on additional field sheets.

Tertiary sites were conducted in a similar manner, but did not incorporate the full 50m x 10m plot or necessitate a full species list. In some instances, such as in grasslands or saltmarsh, Bitterlich measurements were not recorded due to the absence of trees.

Quaternary data primarily involved the recoding of dominant canopy elements for locations recorded by GPS. Frequently canopy median heights was also recorded in addition to species in other strata, particularly where these species had not been encountered previously during the survey.

Wherever a vegetation community was considered to be potential habitat for a threatened species scheduled under the EPBC Act or the *Nature Conservation (Wildlife) Regulation 2006* (NCWR), the search area was broadened. Frequently this involved broad searches of broad areas on foot to establish the range of a species if encountered in the field. In the instance of one suspected new species where identification was not possible owing to the absence of fertile material the collection site was re-assessed during the subsequent wet season survey.

Where species could not be readily identified in the field or where a specimen was known to be a threatened species, botanical voucher specimens were collected. Specimens of a sufficient size and quality (where possible) was pressed and labeled for future identification by the author or by the Queensland Herbarium.

The field survey was completed in a number of phases to capture seasonal variation in floristics. Field surveys were undertaken in dry season (20 - 24 September, 2010), and wet season (12 - 17 February, 2011).

Broad portions of the Island have been mapped as supporting a heterogeneous polygon of REs 8.11.10/8.12.14x2c. Whilst aerial photographic review and ground observations were useful in delineating a boundary between these ecosystems, the continuity of canopy in some locations hindered the task. This was resolved within the resort footprint by utilising a combination of quaternary observations and modeling of habitat of wind-sheared RE 8.11.10 based on the prevailing winds. The program Vertical Mapper was used to model the location of 'shrubland' vegetation by utilising contour (Schlencker Surveying Pty Ltd, 2006), aspect and prevailing winds as inputs. Given reduced number of quaternary sites outside of the proposed resort footprint, the splitting of these ecosystems could not always be achieved. However, the model proved useful in refining the boundary of heterogeneous polygons.

2.2.2.6 Conservation Significance of Mapped Vegetation

Under the *Vegetation Management Act 1999* (VMA), three levels of conservation status are defined for regional ecosystems:

- "Least concern regional ecosystem" means a regional ecosystem that is prescribed under a regulation and has either more than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is more than 10,000 ha;
- "Of Concern regional ecosystem" means a regional ecosystem that is prescribed under a regulation and has either:
 - (a) 10% to 30% of its pre-clearing extent remaining; or
 - (b) more than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000 ha.
- "Endangered regional ecosystem" means a regional ecosystem that is prescribed under a regulation and has either:
 - (a) less than 10% of its pre-clearing extent remaining; or
 - (b) 10% to 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000 ha.

For this study the current conservation status (Queensland Herbarium, 2009) was applied to remnant polygons.

In addition to remnant patches of Littoral Rainforest and Coastal Vine Thickets of Eastern Australia, areas of regrowth also require further consideration under the EPBC Act as a Threatened Ecological Community. Advice prepared for SEWPAC (Threatened Species Scientific Committee, 2008) identifies the following in relation to this community:

The listed Littoral Rainforest and Coastal Vine Thickets of Eastern Australia ecological community comprises those patches that meet the key diagnostic characteristics and the condition thresholds must be:

Small patches can be resilient and viable, but the minimum size of a patch needs to be 0.1 ha;

AND

AND

The cover of transformer weed species (as identified in Threatened Species Scientific Committee, 2008) is 70% or less. Transformer weeds are highly invasive taxa with the potential to seriously alter the structure and function of the ecological community. This threshold recognises the relative resilience and recoverability of the ecological community to invasion by weed species;

The patch must have:

at least 25% of the native plant species diversity characteristic of this ecological community in that bioregion (Threatened Species Scientific Committee, 2008); *OR*

at least 30% canopy cover of one rainforest canopy (either tree or shrub) species (found on the indicative bioregional plant species list), excluding Banksia and Eucalyptus species that may be part of the ecological community.

Littoral Rainforest and Coastal Vine Thickets of Eastern Australia occur as a series of naturally disjunct and localised stands. Vegetation is generally structurally diverse (SEWPAC, 2009). This community generally occurs within 2km of the coast or large salt water body and can occur on a variety of geological strata (SEWPAC, 2008). Where remnant areas of these communities were encountered they were also attributed with their status under the EPBC Act.

2.2.2.7 Reference Sites

Reference sites are established in undisturbed or lightly disturbed vegetation communities within the vicinity of the Project area. Data collected from secondary plots at reference sites allow an assessment of the remnant/non-remnant status of a specific regional ecosystem against vegetation height, cover and floristics. The data also provides a reference point for the assessment of vegetation community condition.

The location of Reference sites was determined through review of existing and working regional ecosystem mapping and where aerial photography displayed an intact canopy pattern in current and historical aerial photography.

The value of an area as a Reference site could sometimes only be determined through field assessment. The presence of remnant canopy trees were used as indicators of original canopy composition and structure and the presence of significant disturbance employed to discount the value of an area as a Reference site.

In some instances, where variability was observed in a regional ecosystem owing to topographical variability (e.g. toe of slope versus crest), a number of Reference sites for the one regional ecosystem were attained.

2.2.2.8 Remnant / Non remnant vegetation

A regional ecosystem can only be regarded as 'remnant' provided it meets the following criteria as defined by the DERM (2011e):

"Woody vegetation is mapped as remnant where the dominant canopy has greater than 70% of the height and greater than 50% of the cover relative to the undisturbed height and cover of that stratum and is dominated by species characteristic of the vegetation's undisturbed canopy".

Therefore to adequately classify areas as remnant or non-remnant it is necessary to have a thorough understanding of the structural and floristic elements of Reference sites. These sites must be established in communities or locations where disturbance has been minimal and are representative of environmental conditions of the community being assessed. Reference sites can be utilised to provide a transparent and repeatable method of comparing relative canopy height and canopy cover data of target sites with a remnant condition.

The classification of remnant vegetation is based solely on the nature and floristic composition of the original canopy layer (T1). Sub-canopy and shrub layers (T2, S1 etc) are not considered in the assessment of non-remnant vegetation communities in this exercise.

Non-remnant areas were initially delineated utilising aerial photographic interpretation (current and historic) in addition to historical text (e.g. Ganter, 1985) to delineate areas that demonstrate past disturbance. These areas were then ground truthed using a combination of secondary and quaternary sites to ascertain canopy composition, height and cover.

Some areas were mapped as non-remnant because they do not meet necessary height or cover thresholds. Only areas that are likely to achieve remnant status within the next 20 years on the basis of floristics, cover and height were mapped as non-remnant vegetation polygons. Each non-remnant polygon has been assigned with the regional ecosystem they would achieve if they were managed toward achieving remnant status.

2.2.2.9 Wetland Assessment and Mapping

A broad area of RE 8.2.7e mapped (DERM, 2009) in the vicinity of the existing resort has been mapped as a palustrine system (DERM, 2009b). Other areas on GKI were mapped as estuarine systems. Preliminary observations of vegetation type and soils in these areas during the dry season indicated that this broad delineation may be incorrect.

Methods described in Part B of the draft Queensland Wetland Definition and Delineation Guideline (DERM, 2010) were subsequently employed during the wet season survey to refine the boundary of wetlands. The guideline uses criteria for hydrology, biota and substrate factors to test if the feature is a wetland or not (DERM, 2010). The pro formas for 'Wetland Hydrology Assessment' and 'Wetland Vegetation Assessment – Quantitative' were used in the field to gather data.

The sampling intensity required at a property level to map wetlands minimum size of 0.25-0.5ha is a site every 1-4 hectares with at least one site per feature (DERM, 2010). The method indicates that the best approach when undertaking an investigation is to collect as much evidence from as many different reliable sources about as many of the attributes as

possible (DERM, 2010). For this study 2 transects were undertaken in addition to 11 quaternary points within the western most patch of RE 8.2.7e.

In order to map all palustrine and estuarine systems of GKI, additional sites were assessed. Whilst this resulted in an area of wetland being mapped associated with RE 8.2.7e in the centre of GKI, it is likely that further comprehensive assessment would result in a contraction of the mapped outer boundary.

2.2.3 Assessment of Floristics

Secondary site selection was based on surveying representative vegetation communities within the study area. Floristic data was initially recorded on secondary site pro formas (Neldner *et al.*, 2005) and subsequently transferred to excel spreadsheets to compile a consolidated species list giving a representative sample of species for GKI. As previously noted, where new species were encountered a quaternary site noted its presence. The conservation status and vegetation community in which the species had been recorded is also tabulated for each species. Nomenclature follows Bostock & Holland (2010).

Reference to lists derived from Herbrecs, Corveg, Batianoff & Dillewaard (1988) and Creighton (1984) were assessed to assist in predictive analysis of species distribution.

State significant species are defined as those listed as Endangered, Vulnerable or Near Threatened under the NC(W)R and nationally significant species are those listed as Endangered or Vulnerable under the EPBC Act. Species were regarded as otherwise significant based on species at their range limit in Batianoff & Dillewaard (1988) or species listed in DERM's Back on Track (2010c) (excluding threatened species).

Species were targeted on the basis of review of preferred habitat types and correlation of this with habitats mapped and encountered in the field.

2.2.4 Species of Cultural, Commercial and Recreational Significance

2.2.4.1 Species of Cultural and Recreational Significance

Species that may have been used for food, medicine or materials historically are listed based on the author's knowledge and Creighton (1984).

2.2.4.2 Commercial significance - Cropping

Areas of cropping were identified from aerial photographic interpretation and historic records (i.e. reports including Creighton, 1984). This included land that is cleared and were historically grazed.

2.2.4.3 Commercial significance – Timber Resource Assessment

The assessment of commercial timber resource is based the presence/absence and dominance of species regarded as commercially valuable. Species were regarded as suitable timber species if identified as such in Lazarides & Hince (1993).

No quantitative assessment of volume of timber resource was made, a qualitative assessment based on mapped regional ecosystems and presence/absence and dominance of suitable timber species is given.

2.3 DESCRIPTION OF ENVIRONMENTAL VALUES FLORA

2.3.1 Literature Review

To establish the extent of existing information and determine information gaps a number of studies, reports, maps and databases relevant to the project area were reviewed.

These studies are summarised in Table 2 along with ranking indicating their relevance to the project, where:

Rank 1 = High. These studies have generally been completed within the project area or were a directly relevant regional study and therefore includes data specific to the project area. The methodology included in the study is robust and may be applied to the terrestrial flora study process.

Rank 2 = Moderate. These studies have generally been completed within the same bioregional area however they may not be specific to the project area. The data may be provided in a way that limits the basis of interpretation (e.g. Herbrecs records may include a level of precision that is relatively coarse).

Rank 3 = Low. Although the study was not directly relevant to the area of proposed impact because it was completed outside of the project area the broad interpretations and methods can be applied to the current investigation.

Table 2: Relevance ranking of Literature Reviewed

Title	Author (s)	Relevance Rank
Project Specific Studies		
Keppel Islands Environmental Survey A Baseline for Archaeological Reconstructions and Resource Management,	Creighton, C. (1984)	1
Rapid Assessment of Terrestrial Regional Ecosystems in relation to the proposed resort development on Great Keppel Island	CQ Environmental (2009)	1
Biodiversity Planning Assessment Central Queensland Coast Flora, Fauna and Landscape Expert Panel Report	EPA (2006)	3
Anthropogenic Modification of Vegetation on Continental Islands: Southern Section Great Barrier Reef	Brennan (1986)	1
Floristic Analysis of the Great Barrier Reef continental islands, Queensland	Batianoff, G.N. and H.A. Dillewaard (1997)	1
Port Curtis District Flora and Early Botanists	Batianoff, G.N. and H.A. Dillewaard (1988)	1
The History and Development of the Keppel Islands	Ganter, R.J. (1985)	1
Plants of Capricornia	Melzer, R. and Plumb, J. (2007)	1
The Effect of Airborne Salt Deposition on Acacia Regeneration North Keppel Island	Underhill (1987)	2
Databases		
Protected Matters Database Environmental Reporting Tool - 23.14788, 150.92548; -23.19957, 150.92548; -23.19957, 150.99574; -23.14788, 150.99574	SEWPAC (2010)	1
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia - EPBC Act policy statement 3.9 - Nationally threatened species and ecological communities	SEWPAC (2009)	3
Wildlife Online Extract for 23.1478 – 23.199; 150.9274 – 150.9969	EPA and QPWS (2010)	2
Regional Ecosystem Map ver 6.0	DERM (2011b)	1
HERBRECS	Queensland Herbarium (2010a)	1
CORVEG	Queensland Herbarium (2010b)	1
Biodiversity Planning Assessment Map ver 3.0 & associated Expert Panel Report "Central Queensland Coast Flora, Fauna and Landscape Expert Panel Report November 2006)"	EPA (2006)	1
Queensland Wetland Map	DERM (2009b)	1

2.3.1.1 Creighton (1984)

Creighton (1984) was prepared for the specific purpose of establishing data on environmental features of the Keppel Group in order to assist in the interpretation of spatial patterning, content and management of archaeological sites on the islands.

An important component of the study was the mapping of land units described in terms of its geology, landform, soils, hydrology and vegetation. Table 3 below summarises vegetation types mapped by Creighton (1984) along with addition notes relating to disturbance in these areas.

Table 3: Creighton (1984) Land Units

Code	Description	Notes relating to disturbance
CS-1 ₉	Foredune Landforms (Siliceous Sands – Holocene) – Putneys Beach Foredune	"The unit has been disturbed (camping area and tourist resort)"
CS-1 ₁₀	Foredune Landforms (Siliceous Sands – Holocene) – Leeke's Beach Foredune	
CS-1 ₁₁	Foredune Landforms (Siliceous Sands – Holocene) – Little Svedsons Beach Foredune	

Code	Description	Notes relating to disturbance	
CS-1 ₁₂	Foredune Landforms (Siliceous Sands – Holocene) – Svedsons Beach Foredune		
CS-1 ₁₃	Foredune Landforms (Siliceous Sands – Holocene) – Big Sandhills Beach Foredune		
CS-1 ₁₄	Foredune Landforms (Siliceous Sands – Holocene) – Wreck Beach Foredune	"grazing by feral goats has resulted in land degradation."	
CS-1 ₁₅	Foredune Landforms (Siliceous Sands – Holocene) – Little Wreck Beach Foredune	"degradation of the land areas as a result of grazing by feral goats is obvious."	
CS-1 ₁₆	Foredune Landforms (Siliceous Sands – Holocene) – Long Beach - Monkey Beach Foredune		
CS-2 ₂	Foredune Landforms (Calcarious Sands) – Clam Bay Beach Foredune	"The unit has been grossly disturbed by feral goats."	
CS-3 ₂	Hindune Landforms (Siliceous Sands – Holocene) – Hindune Landforms, Putneys Beach "Portions of this unit have disturbed. Infrastructural development includes the Area and the Tourist reson		
CS-4 ₃	Intertidal and Supratidal Wetlands – Leeke's Creek Wetland		
CS-4 ₄	Intertidal and Supratidal Wetlands – Putneys Creek Wetland	"The unit has been subject to disturbance with sediments from upstream smothering the benthos. These sediments have originated from the garbage dump and associated roads."	
CS-4 ₅	Intertidal and Supratidal Wetlands – Wreck Beach Creek Wetland		
CS-6	Long Beach Creek and Associated Landforms		
CS-7	Red Beach Pleistocene Landforms		
CS-8	Pleistocene – Aged High Dunes	"The unit has been disturbed by the construction of the airstrip."	
CS-9	Wreck Beach Pleistocene Remnants	"As with adjacent land units, the area has been denuded of vegetation by goats."	
SF-10 ₃	Xanthorrhoea Heathlands and Low Closed Woodlands – Great Keppel Complex	"Large areas of this unit have been grossly disturbed by goats."	
SF-12 ₁	Great Keppel Eucalypt – Dominated Open Woodland to Forest – Shelving Beach Headland and Hinterland		
SF-12 ₂	Great Keppel Eucalypt – Dominated Open Woodland to Forest – Putneys Beach Headland and Hinterland		
SF-12 ₃	Great Keppel Eucalypt – Dominated Open Woodland to Forest – Svedsons Beach Headland and Hinterland		
SF-13	Leeke's Creek Melaleuca – Dominated Seasonal Wetland (Freshwater)	"The unit is dominated by <i>M. quinquenervia</i> . This appears to have been selectively cleared."	

Code	Description	Notes relating to disturbance
SF-14	Clam Bay Ridgelands – Low Closed Woodland	"Significant portions of this unit have been previously cleared and are presently exhibiting a regrowth pattern. Recent fires have led to further complexities in the structure and composition. It is suggested that the unit was probably a low closed woodland dominated by <i>C.littoralis</i> , <i>Acacia spp.</i> , <i>B. integrifolia</i> and <i>Melaleuca spp</i> . With a bracken (<i>P.esculentum</i>) understorey."; "The unit, having been grossly disturbed in the past, supports a number of weeds."
SF-15₁	Creek – Associated Flats – Eucalypt Dominated Open Forest – Leeke's Creek Flat	
SF-15 ₂	Creek – Associated Flats – Eucalypt Dominated Open Forest – Feeder Creeks, Leeke's Tidal Wetland Flats	
SF-15 ₃	Creek – Associated Flats – Eucalypt Dominated Open Forest – Little Svedsons Beach Creek Flats	
SF-15 ₄	Creek – Associated Flats – Eucalypt Dominated Open Forest – Svedsons Beach Creek Flats	
SF-15₅	Creek – Associated Flats – Eucalypt Dominated Open Forest – Putneys Creek Flats	"The unit is disturbed by roads and the dump."
SF-15 ₆	Creek – Associated Flats – Eucalypt Dominated Open Forest – Wreck Beach Creek Flats	"The unit and surrounding sand areas have been grossly disturbed by feral goats."

The study included field work, but it is unclear how extensive this work was. Creighton notes in the report there was "...limited time available for field work...". The land unit map is of value; however it does not appear to be exhaustive. For instance the area of vine forest mapped by DERM (2011b) at the northern end of Long Beach is absent from the mapping.

Creighton notes "Land use has altered the structure and species composition of significant areas of the islands particularly Great Keppel. For example, land clearing on Great Keppel has altered the structure and composition of what were previously Eucalypt - dominated open forests..." and the fire regime has "...resulted in changes to the vegetative communities – at least structurally if not also with respect to composition."

Creighton also records several plant species within the individual descriptions of Land Units. Whilst for the most part these are a useful resource, it is unclear whether all the species recorded represent accurate records for the island. For instance *Elaeocarpus grandis* was identified as occurring along the Wreck Beach creek flats and Long Beach Creek, but had not recorded in Herbrecs (DERM, 2010) for the island or in Batianoff and Dilleward (1988) for any of the Keppel Group. Furthermore, *Corymbia dichromophloia* (then *Eucalyptus*) was recorded as an element of some of the eucalypt associations. This species has not been recorded elsewhere in Queensland (Bostock and Holland, 2010). He

makes the observation that "Livistona decipiens is limited to North Keppel (apart from a small stand on Corroboree Island)".

In remarking about the limitations of his study, Creighton notes that a freshwater wetland once occurred behind Fisherman's Beach and that it was a component of the Putney Creek system "holding fresh water for extended, possibly permanent periods". It was known that this wetland contained waterlilies that he presumed to be *Nymphaea capensis*.

2.3.1.2 CQ Environmental (2009)

A rapid assessment of terrestrial regional ecosystems was undertaken in December 2009. A two day field trip was undertaken to identify 'no-go' areas on the Island. The outcomes included identification of possible discrepancies between mapped regional ecosystems and on ground communities. A more detailed vegetation assessment was recommended in order to support this observation. Regrowth mapping by DERM is also recommended to be investigated in further detail.

As part of the assessment three declared weeds were identified (*Opuntia stricta*, *Cryptostegia grandiflora*, *Lantana camara*) in addition to one environmental weed (*Megathyrsus maximus*).

2.3.1.3 Brennan (1986)

The study constitutes a thesis undertaken though the University of Queensland on the impacts of grazing on Keppel Islands. Great Keppel Island was identified as under the highest grazing pressure mainly by feral goats. It was determined that the feral goats were not responsible for the patterns of grassland on the islands. The goats were however responsible for significant damage to vegetation and the landscape. Brennan does caution the removal of goats without weed control as evidence from Brampton and South Percy Islands showed an increase in *Lantana camara* following goat eradication. He recommends exclosure experiments to monitor vegetation with the exclusion of goats.

Brennan (1986) notes "Total fire bans on some of the islands would enable the vegetation to revert to a completely natural state." Although it appears this comment was made mainly in relation to islands supporting Hoop Pine communities.

2.3.1.4 Batianoff and Dillewaard (1988)

The report provides a synopsis of the flora of the Port Curtis region along with discussion of the botanists who had made early contributions to the region's flora. The report includes a number of lists including "endemic, rare and endangered species" of the region and those species at the limit of their range. A complete catalogue of species of the region is included based on herbarium records, some recordings by the authors and NR Gibson

collections. The catalogue identifies which species had been recorded in the Keppel Bay Continental Islands.

2.3.1.5 Batianoff and Dillewaard (1995)

The document represents a paper presented at the State of the Great Barrier Reef World Heritage Area Workshop in Townsville, 1995 that reviews the floristics of continental islands within the Great Barrier Reef, Queensland.

Batianoff and Dillewaard note that the relationship between species richness and island area is determined mainly by increasing size of the island. Great Keppel Island was known to support 386 species of plant over the island area of 1,454ha at the time. The Keppel Bay Islands contained approximately 65% of open forest species. The relatively low rainforest representation was, in the author's view, owing to an ongoing recolonisation process with an anticipated increase in rainforest with time.

The paper reports that the flora of islands sometime differ to the mainland vegetation communities owing to restricted island dispersal mechanisms; such as in species of Acacia and Eucalypt. Great Keppel Island supported one such example of a local contraction of widely dispersed taxa, *Eucalyptus robusta* which is limited to six or seven trees.

The authors state that amongst the GBR continental islands, the most widespread invasive exotic is *Lantana camara*. As a strategy to decrease the possibility of establishment and/or further spread of exotics like Lantana, the authors recommend that where unavoidable, disturbance of native island vegetation must be kept to a minimum.

2.3.1.6 Melzer and Plumb (2007)

The document is a guide to the flora of the Capricornia region. The primary value of the report is identification of some of the flora species likely to be encountered on GKI.

2.3.1.7 Ganter (1985)

Ganter's 1985 thesis explored the history of development of the Keppel Islands. Whilst not discussing biodiversity issues directly she makes a number of references that assist in interpreting the natural environment of GKI. Some points of note include:

- Prickly Pear has been present on the Island since 1911. It was reported that eradication attempts were made using bushfires, cactoblastis moth and cochineal;
- Owing to the airstrip being built over a semi-permanent waterholes and lagoons the natural drainage was blocked. Thus when the resort was flooded in the 1970 cyclone the owners successfully managed to claim damages from TAA; and
- John Nott had tenure of the Island between 1968 and 1971, during this time a large area of the grazing lease land was cleared with a bulldozer and then reseeded using

aerial seeding and fertilising (Ganter, 1985). It was noted that all John managed to achieve was "a crop of wattle".

2.3.1.8 Underhill (1987)

Identifies the impact of salt spray on vegetation establishment on North Keppel Island. The thesis has relevance in that it provides lists of species from nearby island and background regarding the structure of some vegetation communities.

2.3.1.9 Regional Ecosystem Mapping

The Queensland Herbarium, as part of the Environmental Protection Agency (EPA), has mapped the Regional Ecosystems (RE) of the project area at a scale of 1:100,000. This mapping underpins the VMA. The VMA defines a "Regional Ecosystem" as a vegetation community in a bioregion that is consistently associated with a particular combination of geology, landform and soil.

A total of 12 regional ecosystems were mapped within the study area by DERM. These are listed below in Table 4 and mapped in Figure 3.

Table 4: DERM Mapped Regional Ecosystems within the study area.

Regional Ecosystem	Status	Area on GKI (ha)	Long Description (Queensland Herbarium, 2009)
8.1.1	Least	27.48	Closed-forest to open-shrubland of mangrove species forming a variety of associations, depending on their position in relation to tidal channels and the amount of freshwater input they receive. The seaward edge and fringe of waterways is often dominated by <i>Rhizophora spp</i> . Landward of the <i>Rhizophora spp</i> . zone a variety of species occur together or in a mosaic and include <i>Avicennia marina</i> , <i>Bruguiera spp.</i> , <i>Rhizophora spp.</i> , <i>Excoecaria agallocha</i> , <i>Xylocarpus moluccensis</i> , <i>Lumnitzera racemosa</i> , <i>Ceriops spp. and Osbornia octodonta</i> (pure stands of <i>Avicennia marina</i> often occur within this). Higher tide and spring tide areas adjacent to saltpans often support pure stands of <i>Ceriops spp</i> . The mistletoe <i>Lysiana maritima</i> is common throughout the mangrove associations, and occasional epiphytes include <i>Dendrobium discolor</i> , <i>Drynaria rigidula</i> , <i>and Platycerium bifurcatum</i> . The ground layer includes <i>Sporobolus virginicus</i> , <i>Acrostichum speciosum</i> , <i>and Crinum pedunculatum</i> . Occurs on intertidal flats which are often dissected by tidal streams. Includes communities on the seaward edge of the tidal flats as a pioneer, and on the landward edge in areas bordering saltpans and that are inundated by the highest spring tides.
8.1.2	Least concern	22.08	Saltpans and mudflats with clumps of saltbush including one or several of the following species; Sesuvium portulacastrum, Halosarcia indica subsp. julacea, H. indica subsp. leiostachya, H. halocnemoides subsp. tenuis, H. pergranulata subsp. queenslandica, Sarcocornia quinqueflora subsp. quinqueflora, Suaeda australis, S. arbusculoides, Tecticornia australasica and Sporobolus virginicus and sedges including Cyperus polystachyos var. polystachyos, C. scariosus, Fimbristylis ferruginea, F. polytrichoides. Occurs on plains adjacent to mangroves with soils consisting of marine sediments. There is salt accumulation at the soil surface from evaporation of sea water which inundates these areas during the higher tides.

8.2.1	Of concern	131.94	Casuarina equisetifolia open-forest, to woodland, to isolated clumps of trees, with a secondary tree layer of Thespesia populnea, Sophora tomentosa, Pandanus tectorius, Hibiscus tiliaceus, Terminalia muelleri, Alphitonia excelsa, and Caesalpinia bonduc, and shrub layer of Vitex trifolia, Clerodendron inerme, Cupaniopsis anacardioides and Argusia argentea. The ground layer usually includes Thuarea involuta, Ipomoea pes-caprae, Spinifex sericeus, Canavalia rosea and Cyperus pedunculatus. Includes the upper beach zone which consists of a low herbland of Ipomoea pes-caprae, Spinifex sericeus, and Canavalia rosea. In subregions 4 and 5 this unit includes small areas of wind-sheared heathland (Casuarina equisetifolia, Pandanus tectorius, Petalostigma pubescens, Phebalium woombye, and shrublands dominated by Acacia aulacocarpa). Occurs on Quaternary coastal foredunes and beaches.
8.2.2	Of concern	3.35	Microphyll vine forest (beach scrub). Characteristic species include Mimusops elengi, Ganophyllum falcatum, Diospyros geminata, D. compacta, Pouteria sericea, Pleiogynium timorense, Drypetes deplanchei, Eugenia reinwardtiana, Cupaniopsis anacardioides. Includes small patches of Pisonia grandis shrubland, woodland and open forest on coral rubble on some islands. Occurs on coastal dunes.
8.2.7e	Of concern	22.14	Complex of dune swales and low lying sandy/swampy wetlands which include pure stands of Melaleuca leucadendra in swamps adjacent to parabolic dunes, parabolic dune swales with M. leucadendra and other Melaleuca spp., broad swampy areas on sand with M. leucadendra, Corymbia tessellaris, C. intermedia, Eucalyptus tereticornis and Livistona decora, and buried swales with Melaleuca leucadendra. Also includes areas dominated by Lophostemon suaveolens. Also includes small perched wetlands. Occurs on parabolic dunes, low lying undulating areas with sandy soil consisting of mixtures of beach sand and alluvial material. Major vegetation communities include:
8.2.8a	Least	97.1	parabolic dunes (all coastal subregions). Corymbia spp. and/or Eucalyptus spp. open-forest to low woodland (3-22m tall). Dominants usually include one or several of the following eucalypts; Corymbia intermedia, Eucalyptus portuensis, E. exserta, E. drepanophylla, C. tessellaris, Syncarpia glomulifera, E. latisinensis and C. clarksoniana, and there is sometimes a co-dominance or subdominance of other species such as Acacia disparrima subsp. disparrima, Banksia integrifolia subsp. compar, Allocasuarina littoralis and Lophostemon suaveolens. On South Percy Island the canopy dominants are usually E. exserta and E. drepanophylla, or C. clarksoniana, and sometimes C. xanthope. Lower tree layers are very sparse to absent. The shrub layers range from sparse to mid-dense and are typically dominated by heath species such as Lithomyrtus obtusa, Acacia julifera subsp. curvinervia, A. flavescens, Xanthorrhoea latifolia subsp. latifolia, Persoonia virgata, Leucopogon leptospermoides, Leptospermum neglectum and Grevillea banksii. The ground layer is usually sparse, and dominated by species such as Themeda triandra, Pteridium esculentum, Xanthorrhoea latifolia subsp. latifolia, Dianella caerulea, Imperata cylindrica, Eriachne pallescens and Trachystylis stradbrokensis. Occurs on high parabolic dunes, mainly of Pleistocene age (subregions 4 and 5). Geology is Qpd (Pleistocene high parabolic quartz sand dunes). Soils are dune sands, mainly podzols and rudimentary podzols.
8.3.6c	Of concern	7.1	Eucalyptus tereticornis, Corymbia intermedia (or C. clarksoniana) and Lophostemon suaveolens open-forest, or sometimes dominated by C. tessellaris. A sparse secondary tree layer of Albizia procera and sometimes Melaleuca spp. and Livistona decora is often present. Rainforest species are occasionally present and include Cupaniopsis anacardioides, Jagera pseudorhus, Acronychia laevis, Litsea glutinosa and Mallotus philippensis. There is a sparse shrub layer of Planchonia careya and Timonius timon. The ground layer is commonly composed of Imperata cylindrica, Sorghum nitidum forma aristatum, Heteropogon triticeus, H. contortus, Lomandra longifolia and Oplismenus burmannii. Occurs on very fertile alluvial levees and lower terraces. Major vegetation communities include:
8.3.13c	Of	35.19	8.3.6c: Floodplain (other than floodplain wetlands). Eucalyptus tereticornis and/or Corymbia tessellaris and/or Lophostemon suaveolens and/or E. platyphylla +/- rainforest spp. open-woodland to open-forest. Occurs on alluvial terraces (subregions 4 and 5). Vary variable community, usually adjacent to estuarine communities.
	concern	230	Ranges from open-woodland to closed-forest. Includes open-woodlands with Melaleuca viridiflora and/or M. leucadendra over Imperata cylindrica,

			Ischaemum spp. and Leersia hexandra. Also includes woodland and openforest of Corymbia tessellaris and/or Eucalyptus tereticornis (and frequently E. tereticornis and E. platyphylla hybrids) often with Melaleuca dealbata (sometimes pure stands of M. dealbata), over a dense grassy layer of Sorghum nitidum forma aristatum, Ischaemum spp, Chrysopogon filipes and Leersia hexandra. Occurs on marine and alluvial plains adjacent to estuarine areas. Major vegetation communities include:
8.11.3a	Least	430.74	Open-forest to woodland with a variable species dominance. Species usually include a number of the following species; <i>Corymbia intermedia</i> , <i>C. intermedia x clarksoniana</i> (intermediates), <i>C. clarksoniana</i> , <i>Eucalyptus portuensis</i> , <i>E. platyphylla</i> , <i>E. drepanophylla</i> , <i>E. tereticornis</i> , <i>C. tessellaris</i> , <i>E. exserta and Lophostemon suaveolens</i> . A sparse secondary tree layer of Lophostemon suaveolens, Planchonia careya and <i>Banksia integrifolia subsp. compar</i> is sometimes present, or there may be a relatively dense layer of <i>Lophostemon confertus</i> . There is often a sparse to dense shrub layer of <i>Cycas media</i> , <i>Xanthorrhoea latifolia subsp. latifolia</i> , <i>Acacia leptocarpa and Hibiscus heterophyllus</i> . The ground layer usually includes <i>Imperata cylindrica</i> , <i>Themeda triandra</i> , <i>Heteropogon triticeus</i> , <i>Mnesithea rottboellioides</i> , <i>Eragrostis brownii</i> , <i>Alloteropsis semialata and Aristida queenslandica var. queenslandica</i> . Occurs on low to medium hills formed from metamorphosed sediments. Major vegetation communities include: 8.11.3a: <i>Corymbia intermedia and/or Eucalyptus portuensis and/or C. clarksoniana and/or E. platyphylla and/or E. drepanophylla</i> open-forest to woodland. Occurs on low hills on metamorphosed sediments (subregion 2)
8.11.9a	Of concern	50.47	Themeda triandra +/- Imperata cylindrica grassland, or Heteropogon contortus, Imperata cylindrica and Heteropogon triticeus grassland, or Xanthorrhoea latifolia subsp. latifolia shrubland/heathland with Themeda triandra. Small clumps of wind sheared vine thicket and sclerophyllous species may be present, including shrubby species such as Acacia leiocalyx or Acacia flavescens, Allocasuarina littoralis, Banksia integrifolia subsp. compar, Dodonaea lanceolata, Jacksonia scoparia and Wikstroemia indica. Other ground-stratum species may include Dichanthium sericeum, Aristida spp., Cassytha pubescens, Oxalis perennans, Glycine tomentosa, Scleria mackaviensis, Crotalaria montana and Phyllanthus spp. Occurs on coastal exposed rocky headlands on metamorphosed sediments and Cretaceous quartzose sediments, subject to strong sea-breezes and salt-laden winds. Major vegetation communities include: 8.11.9a: Themeda triandra +/- Imperata cylindrica grassland, or Heteropogon contortus, Imperata cylindrica and Heteropogon triticeus grassland, or Xanthorrhoea latifolia subsp. latifolia shrubland/heathland with Themeda triandra. Small clumps of wind sheared vine thicket and sclerophyllous species may be present, including shrubby species such as Acacia leiocalyx or Acacia flavescens, Allocasuarina littoralis, Banksia integrifolia subsp. compar, Dodonaea lanceolata, Jacksonia scoparia and Wikstroemia indica. Occurs on coastal exposed rocky headlands on metamorphosed sediments, subject to strong sea-breezes and salt-laden winds.
8.11.10	Of concern	325.55	Lophostemon confertus and/or Acacia leptostachya and/or Acacia leiocalyx and/or Acacia aulacocarpa and/or Allocasuarina littoralis +/- Acacia flavescens +/- Corymbia dallachiana +/- Eucalyptus drepanophylla +/- E. exserta +/- Melaleuca viridiflora low woodland to low open-forest. More open communities may have a moderately dense shrub layer with species such as Acacia leptostachya, Xanthorrhoea latifolia subsp. latifolia, Dodonaea lanceolata and Melaleuca viridiflora. The ground layer usually includes Xanthorrhoea latifolia subsp. latifolia, Eriachne glauca var. glauca, Eriachne pallescens, Themeda triandra, Eragrostis brownii, Aristida holathera, Gahnia aspera and Abildgaardia ovata. Occurs on exposed hill slopes of islands and headlands usually with rock at surface, on metamorphosed sediments. Headlands in the Emu Park-Yeppon area, Keppel Island Group, and also other offshore islands.
8.12.14x2c	Least concern	120.51	Complex of eucalypt woodland to closed-forest communities. Includes woodland to open-forest of Eucalyptus drepanophylla (or E. crebra in southern areas), Lophostemon confertus, E. exserta, Acacia spirorbis subsp. solandri Corymbia clarksoniana and Corymbia intermedia (some areas with E. moluccana), OR closed-forest of Acacia spirorbis often with E. drepanophylla, and E. tereticornis, OR closed-forest of Lophostemon

confertus. There is often a secondary tree to shrub layer of <i>Drypetes deplanchei, Euroschinus falcatus Pouteria sericea, and Dodonaea lanceolata var. subsessilifolia</i> , and a low shrub of <i>Xanthorrhoea latifolia subsp. latifolia</i> . The ground layer is typically dominated by <i>Gahnia aspera, Themeda triandra, Oplismenus spp., and Dianella caerulea</i> . Occurs on islands and rocky headlands on Mesozoic to Proterozoic igneous rocks and Tertiary acid to intermediate volcanics (land zone 8). Major vegetation communities include:
clarksoniana and/or C. dallachyana and/or Lophostemon confertus and/or Lophostemon suaveolens open-forest to woodland with Acacia spp. +/-rainforest species. Occurs on metamorphic rocks on islands and headlands.

GKI was mapped as supporting areas of 'Of Concern' and 'Least concern' regional ecosystems, as indicated in Table 4 above, in addition to areas mapped as non-remnant. The total area of RE categorised by status is listed in the Table 5 below.

Table 5: Area of mapped RE's by Status

Regional Ecosystem Status	Area (ha)	
Of Concern	575.74	
Least concern	697.91	
Non-remnant	48.65	

2.3.1.10 CORVEG

CORVEG is a dataset prepared by the Queensland Herbarium and is utilised to inform regional ecosystem descriptions and mapping. There are no Queensland Herbarium Secondary or Quaternary sites on Great Keppel Island.

2.3.1.11 Protected Matters database

A search of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) Protected Matters database identified one threatened community listed as 'Critically Endangered' located within the Study Area. This is summarised in Table 6 below.

Table 6: EPBC Protected Matters search for Threatened Communities for Great Keppel Island

Community Name	Status	Associated Regional Ecosystems in the Bioregion
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	8.2.2

Note: The search area was bounded by the following coordinates -23.14788,150.92548, -23.19957,150.92548, -23.19957,150.99574, -23.14788,150.99574.

Flora species returned in the search are discussed in Section 2.3.1.14.

2.3.1.12 BPA Mapping (EPA, 2006)

Biodiversity Planning Assessment (BPA) for the Central Queensland Coast (CQC) incorporates continental Islands including Great Keppel Island (Figure 4). The mapping is prepared in a two part process, first involving desktop analysis of existing information ('first cut' mapping) followed by expert panel review.

With regard to flora, the expert panel (EPA, 2006) did not identify any values specific to GKI, they did nominate all remnant areas of low microphyll/notophyll thicket or beach scrub (RE 8.2.2) as State significance on the basis of having a high flora diversity, high concentrations of disjunct populations and a high threat from development.

Parts of Great Keppel Island are also mapped as 'State' and 'Regionally' significant on through the first cut mapping. No areas were identified as 'of significance' on the basis of the presence of threatened flora species. The status of some areas is based on the 'Endangered' Biodiversity Status of 8.2.2, 8.2.7e, 8.3.6c and 8.3.13c; one of the largest example of a RE for the bioregion (being either 8.11.10 or 8.12.14x2c); and because of the presence of 'Of Concern' regional ecosystems.

2.3.1.13 Wetland Mapping

Queensland Wetland Map (DERM, 2009), reproduced herein as Figure 5, shows that there are a number of areas mapped as wetlands include:

- Estuarine wetland systems, associated with regional ecosystem 8.1.1 and 8.1.2 on Putney Creek and a large complex behind Leeke's Beach;
- A Palustrine wetland system associated with 8.2.7e; and
- Several Riverine/Drainage systems associated drainage lines.

2.3.1.14 Summary of databases – threatened flora

Several databases and reports were reviewed to identify species scheduled under either the *Nature Conservation (Wildlife) Regulation 2006* or the *Environment Protection and Biodiversity Conservation Act 1999* that are known to occur within, or within the vicinity, of the project area. Specifically these included:

- Herbrecs (Queensland Herbarium, 2010). This is the state wide Queensland Herbarium database of all specimens held in their collection along with a location. Although some records have a low spatial precision (generally older records predating GPS technology) the dataset for a defined location provides assistance as to species potentially encountered during field work including threatened species;
- Wildnet (EPA, 2010). This database incorporates information from a number of datasets held by the EPA. The reliability of some of the data is variable depending on the original source (e.g. Herbrecs data is more reliable than data collected from community based programs);
- **Corveg** (EPA, 2000). This database includes raw data from Queensland Herbarium field sites. The data provides, amongst other things, an indication of the level of previous survey effort in an area and the species encountered;
- **EPBC Protected Matters Database** (SEWPAC, 2008; SEWPAC, 2010a). The database provides an indication of species likely to occur in an area, in part, based on habitat modeling; and
- Creighton (1984).

Table 7 below summarises threatened species identified in these databases/studies along with the habitat requirements of each species.

Table 7: Potential Threatened Flora based on review of databases/literature

Species Name	Common Name	Status		Reference of Record	Habitat Description and Regional Ecosystems in the vicinity where species might occur	Regional Ecosystems on the Island where the species may occur.
		NCA	EPBC			
Cycas megacarpa		Endangered	Endangered	EPBC database	Occurs in woodland, open woodland and open forests, often in conjunction with a grassy understorey. Usually found in habitat dominated by Eucalyptus crebra and Corymbia citriodora as well as Corymbia erythrophloia, Eucalyptus melanophloia and Lophostemon confertus. May also be found in or on the edge of rainforest Often grows on undulating to hilly terrain at an altitude of 40–680 m on a typically well draining rocky or shallow clay, clay/loam, derived from acid volcanic, ironstone or mudstone (SEWPAC, 2010).	8.2.2, 8.11.10, 8.12.14x2c
Cycas ophiolitica	Marlborough blue	Endangered	Endangered	EPBC database	C. ophiolitica occurs within an altitudinal range of 80-400m, in woodland or open woodland dominated by eucalypts, often on serpentinite substrates (with Corymbia dallachiana, C. erythrophloia, C. xanthope, Eucalyptus fibrosa), but also on mudstone (with Corymbia dallachiana, C. erythrophloia and Eucalyptus crebra) and on alluvial loams (with Corymbia intermedia, Eucalyptus drepanophylla and E. tereticornis). The species may co-occur with either Macrozamia serpentina (serpentinites) or M. miquelii (mudstone or alluvial loams). Other rare and endemic species are associated with the serpentinite communities in which C. ophiolitica occurs. This species occurs in habitats that are subjected to periodic fires of varying intensities (Queensland Herbarium, 2007).	8.11.3a, 8.11.10, 8.12.14x2c
Taeniophyllum muelleri	Minute Orchid, Ribbon-root Orchid	-	Vulnerable	EPBC database	This species is epiphytic, favouring littoral rainforest, subtropical rainforest, wet sclerophyll forests and riparian (stream-side) areas (Logan River Branch SGAP (Qld Region), 2008).	8.2.2, 8.12.14x2c, 8.11.9b, 8.11.9a, 8.3.13c

The specific location of these species records is not known as all were attained from the EPBC Protected Matters Database which does not provide co-ordinates for threatened species records. Threatened species had not previously been recorded in Herbrecs, Corveg or Creighton (1984).

Whilst these databases identify the potential for a few threatened species to occur on GKI, this does not rule out the potential for other species to occur. Batianoff & Dillewaard (1988) and Melzer & Plumb (2007) identify several species of conservation significance occurring in the broader Port Curtis region.

2.3.1.15 Summary of databases - exotic flora

Literature searched to establish a list of known exotic or likely species include Herbrecs (Queensland Herbarium, 2010a), Corveg database (Queensland Herbarium, 2010b), Wildnet, Creighton (1984) and CQ Environmental (2009). The results are presented in Table 8.

Most studies reviewed confirm the presence of exotic on GKI, with a total of 42 species described. Three species are declared Class 3 weeds and three are declared as Class 2 under the *Land Protection (and Stock Route Management) Act 2002* (LPA).

The declared plants are identified according to their status under the LPA:

- Class 1 It is not commonly present or established in the State; and has the potential to cause an adverse economic, environmental or social impact in the State; if established they are subject to eradication; reasonable steps must be taken to keep land free of Class 1 pests;
- **Class 2** Are established in the State and have, or could have, an adverse economic, environmental or social impact; reasonable steps must be taken to keep land free of Class 2 pests. It is a serious offence to introduce, keep or supply a Class 2 pest without a permit issued by Biosecurity Queensland;
- Class 3 Are established in the State and have, or could have, an adverse economic, environmental or social impact; their impact is primarily environmental; control notices can be issued for land that is, or is adjacent to an environmentally significant area. It is a serious offence to introduce, feed or supply a Class 3 pest without a permit issued by Biosecurity Queensland.

Table 8: Exotic Flora Known or Likely to Occur on GKI

Family Name	Status	Botanical Name	Data Source
Asteraceae		Ageratum conyzoides subsp. conyzoides	H, W
Apocynaceae		Asclepias curassavica	H, W
Asparagaceae	Class 3	Asparagus africanus	W
Asteraceae		Aster subulatus	Н
Asteraceae		Bidens pilosa	W, Cr
Crassulaceae	Class 2	Bryophyllum delagoense	W
Apocynaceae		Cascabela thevetia	H, W
Poaceae		Cenchrus echinatus	W
Poaceae		Chloris inflata	H, W
Poaceae		Chloris gayana	W
Asteraceae		Cirsium vulgare	H, W
Apocynaceae	Class 2	Cryptostegia grandiflora	H, W, CQ, Cr
Arecaceae		Cocos nucifera	Cr
Asteraceae		Conyza bonariensis	W
Asteraceae		Conyza canadensis	W
Poaceae		Cynodon dactylon var dactylon	W
Poaceae		Digitaria violascens	H, W
Asteraceae		Emilia sonchifolia var. javanica	H, W
Amaranthaceae		Guilleminea densa	H
Asteraceae		Helianthus argophyllus	H, W
Lamiaceae		Hyptis suaveolens	H, W
Verbenaceae	Class 3	Lantana camara	W, CQ, Cr
Malvaceae		Malvastrum coromandelianum subsp.	H, W
		coromandelianum ,	,
Fabaceae		Macroptilium atropurpureum	W
Poaceae		Melinis minutiflora	H, W
Poaceae		Melinis repens	W
Poaceae		Megathyrsus maximus	W, CQ, Cr
Cactaceae	Class 2	Opuntia stricta	W, CQ, Cr
Passifloraceae		Passiflora foetida	H, W, Cr
Passifloraceae		Passiflora suberosa	W, Cr
Poaceae		Pennisetum ciliare	H, W
Rubiaceae		Richardia brasiliensis	H, W
Caesalpiniaceae		Senna pendula	Cr
Malvaceae		Sida cordifolia	H, W
Solanaceae		Solanum nodiflorum	H, W
Solanaceae		Solanum torvum	H, W
Asteraceae	Class 3	Sphagneticola trilobata	H, W
Verbenaceae		Stachytarpheta jamaicensis	W, Cr
Asteraceae		Xanthium occidentale	H, W
Asteraceae		Xanthium pungens	Cr
Asteraceae		Tridax procumbens	W, Cr
Malvaceae		Urena lobata	W, Cr

Data Source: H = Herbrecs; W = Wildnet; CQ = CQ Environmental (2009); Cr = Creighton (1984). NB Creighton (1984) records species for the entire Keppel Group.

2.3.2 Consultation

Consultation primarily occurred with DERM officers. This included staff at the Queensland Herbarium at Mt Coot-tha and Townsville regarding the existing regional ecosystem mapping, regional ecosystem descriptions and some potential changes this study had identified to regional ecosystem mapping for GKI. Confirmed during discussions was that little work had been conducted on GKI and regional ecosystem mapping had relied on Creighton (1984) to inform mapping outputs.

Discussions with DERM officer John McCabe (pers. comm, 2011) revealed that a small population of locally significant *Eucalyptus resinifera* existed on the Island

prior to the 1960's. These trees were in the vicinity of the existing resort buildings and were likely lost as a result of its construction.

Residents of the island were consulted during the field work to ascertain whether they had previously observed any species of cycad or orchid in order to assist with targeted searches. Whilst no cycads had previously been observed, a confirmed record of the orchid *Cymbidium canaliculatum* was made.

2.3.3 Regional Ecosystems

2.3.3.1 Ground Observations

Flora field surveys were undertaken on 20 Sept – 24 Sept 2010 (dry season) and 12 February – 18 February 2011 (wet season). Table 9 below summarises the total number of observations made on Great Keppel Island during these visits:

Table 9: Number of Ground Observations

Site	Number of Observations		
	Wet Season	Dry Season	
Secondary	16	15	
Tertiaries	2	9	
Quaternaries	147	84	
TOTAL	165	108	
GRAND TOTAL	273		

The location of all sites is illustrated in Figure 6. All Secondary and Tertiary site proformas are presented in Appendix B and a summary of Quaternary sites is presented in Appendix C.

2.3.3.2 Reference Sites

Although transects were established throughout the Island for the purposes of mapping vegetation, condition and floristics only some were regarded as suitable for use as reference sites. The suitability of sites was based largely on the condition of the remnant (i.e. was it clearly remnant and/or subject to little disturbance) and whether they represented the best type example of the regional ecosystem in the immediate vicinity.

Furthermore, where variability was observed within a regional ecosystem additional Reference sites were taken. Perhaps the most striking example of such variability is within RE 8.2.8a where there was variability depending on the location within the dune system. Transects 9 (dry) and 61(wet) were located on the same dune, with 9 capturing vegetation at the peak of the dune and 61 capturing vegetation mid slope. Median height values for the upper canopy (T1) on mid slope achieving 16m whilst that on the ridge achieving only 10m. Given the difference in aspects of dunes in the east of the Island compared with the variability observed in the west (which was mostly northwest), an additional reference transect for 8.2.8a was undertaken in the east.

Tertiary sites were undertaken for REs 8.1.1, 8.1.2 and 8.11.9a in favour of secondary sites owing to their occurrence largely outside of the development footprint and ease to which they could be delineated from aerial photography.

Table 10 below summarises floristic data for each reference site used as indicators for remnant status. The location of reference sites are illustrated in Figure 7.

Table 10: Reference Sites for Regional Ecosystems recorded within the Entire Study Area

Regional Ecosystem	Site Number	Dominant Canopy Species (T1)	Dominant Sub- canopy Species (T2)	Canopy Height (T1)	Canopy Cover (T1)	Sub- canopy Height (T2)	Sub- canopy Cover (T2)	70% Height (T1)	50% Cover (T1)
8.1.1	80 (wet)	Avicenna marina var. eucalyptifolia	n/a	3	n/a	n/a	n/a	2.1	n/a
8.1.2	59 (dry)	Aegiceras corniculatum	n/a	n/a	n/a	n/a	n/a	n/a	n/a
8.2.1	1 (dry)	Casuarina equisetifolia	Allocasuari na littoralis	7	6	4.5	33.5	4.9	3
8.2.7e	2 (dry)	Melaleuca dealbata	Allocasuari na littoralis	15	55.5	7	58.5	10.5	27.75
8.2.7b	71 (wet)	Melaleuca quinquenervia	Alphitonia excelsa	15	68	8	52	10.5	47.6
8.2.8a Lower slope - west	98 (dry)	Eucalyptus tereticornis	Lophostem on confertus	15	54.5	7	66	10.5	27.25
8.2.8a Ridge line - west	9 (dry)	Corymbia clarksoniana	Allocasuari na littoralis	10	53.5	7	53	7	26.75
8.2.8a Mid slope (west)	61(wet)	Corymbia clarksoniana	Banksia integrifolia	16	72.3	7	55.5	11.2	36.15

Regional Ecosystem	Site Number	Dominant Canopy Species (T1)	Dominant Sub- canopy Species (T2)	Canopy Height (T1)	Canopy Cover (T1)	Sub- canopy Height (T2)	Sub- canopy Cover (T2)	70% Height (T1)	50% Cover (T1)
8.2.8a East	31 (dry)	Corymbia clarksoniana	Alphitonia excelsa	10	63.5	7	44	7	31.75
8.11.8a Lower slope	42 (dry)	Corymbia citriodora	Acacia disparrima	18	93	5	12.5	12.6	65.1
8.11.8a Upper slope	61 (dry)	Eucalyptus drepanophylla	n/a	5	72.5	-	-	3.5	36.25
8.11.8b	60 (dry)	Eucalyptus moluccana	Eucalyptus moluccana	14	97	6	-	9.8	48.5
8.11.9a	165 (wet)	Grassland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
8.11.10	52 (wet)	Lophostemon confertus	Diospyros geminata	5	90.5	1.5	n/a	3.5	45.25
8.12.14	142 (wet)	Eucalyptus crebra	Alphitonia excelsa	7	78.5	3	10.5	4.9	39.25

Data for Reference sites is presented in Appendix B.

No reference data was attained for REs 8.11.3a and 8.2.2. Whilst these area have been included on the current mapping, their occurrence was based off Queensland Herbarium (DERM, 2009) mapping only. Access to these areas was not permitted or was not targeted owing to their location outside of the proposed resort footprint. As no quaternary data was collected within these areas, it was assumed the Herbarium mapping was accurate.

2.3.3.3 Mapped Regional Ecosystems

Following ground-truthing, a total of 11 regional ecosystems were mapped for the Island, in addition to 2 subtypes. The conservation significance of vegetation communities was identified according to its status under the VMA. No mapped regional ecosystems are listed as 'Endangered' under the VMA.

Listed below in Table 11 are the regional ecosystems and associated area (in hectares). Figure 8 maps their spatial extent.

Table 11: Regional Ecosystems as mapped at a scale of 1:10,000

Regional Ecosystem	Status	Area (ha)
8.1.1	Least Concern	26.75
8.1.2	Least Concern	32.02
8.2.1	Of Concern	117.89

Regional Ecosystem	Status	Area (ha)
8.2.2	Of Concern	3.94
8.2.7b	Of Concern	14.98
8.2.7e	Of Concern	11.7
8.2.8a	Least Concern	145.33
8.11.3a	Least Concern	101.49
8.11.8a	Least Concern	423.34
8.11.8b	Least Concern	14.03
8.11.9a	Of Concern	71.32
8.11.10	Of Concern	258.69
8.12.14x2c	Least Concern	84.69

Whilst, some of the vegetation in Figure 9 has been mapped as 'Non-remnant' these areas can be attributed with a regional ecosystem type should, if allowed to regenerate, attain remnant status. As some areas contain no regrowth vegetation they are not ascribed with a regional ecosystem and are mapped as non-remnant 'Clear'. Non-remnant areas are mapped according to their potential regional ecosystem in Figure 9 and listed below in Table 12 along with their associated area.

Table 12: Non-remnant associations

Regional Ecosystem	Area (ha)
Non Remnant (8.2.1)	0.44
Non Remnant (8.2.7b)	7.4
Non Remnant (8.2.8a)	50.35
Non Remnant (8.11.8a)	16.11
Non Remnant (8.11.8b)	3.62
Non Remnant Clear	52.04

The following regional ecosystems were mapped by the Queensland Herbarium and not mapped in the current investigation:

- **8.3.6c** bore holes in this area indicated that there was sand to depth. The vegetation was consistent with RE 8.2.7e which occurs elsewhere on the Island; and
- 8.3.13c Ground truthing in this area found the land form and soils were consistent with colluvial fanning and were derived from the upper slopes of land zone 11. As the upper canopy was dominated by Spotted Gum (*Corymbia citriodora*), RE 8.11.8a was assigned to this area.

2.3.3.4 Regional Ecosystem Descriptions

Regional Ecosystem	8.1.1
Short Description (as per Queensland Herbarium, 2009)	Mangrove vegetation of marine clay plains and estuaries. Estuarine wetland
VMA Status	Least Concern
EPBC Act Status	Not applicable
Number of Secondary sites	nil
Number of Tertiary Sites	1 dry
Number of Quaternary Sites	1 wet
Additional Notes	The floristics of this community was not studies in detail. Technical studies by FRC Environmental include comprehensive description of the community.

Regional Ecosystem	8.1.2
Short Description (as per Queensland Herbarium, 2009)	Samphire open forbland to isolated clumps of forbs on saltpans and plains adjacent to mangroves
VMA Status	Least Concern
EPBC Act Status	Not applicable
Number of Secondary sites	nil
Number of Tertiary Sites	1 dry, 1 wet
Number of Quaternary Sites	1 wet
Additional Notes	The floristics of this community was not studies in detail. Technical studies by FRC Environmental include comprehensive description of the community.

Regional Ecosystem	8.2.1
Short Description (as per Queensland Herbarium, 2009)	Casuarina equisetifolia open forest to woodland with Ipomoea pes-caprae and Spinifex sericeus dominated ground layer on foredunes
VMA Status	Of Concern
EPBC Act Status	Not applicable
Number of Secondary sites	1 dry
Number of Tertiary Sites	nil
Number of Quaternary Sites	2 dry, 1 wet
Additional Notes	The community matched the Queensland herbarium description. The reference site location was disturbed as evident by a camp site being established adjacent to the plot shortly after the site was established. The occurrence of the community in the vicinity of Clam Bay is devoid of trees, and includes several exotic species and was evidently grazed by goats.

Regional Ecosystem	8.2.2
Short Description (as per Queensland Herbarium, 2009)	Microphyll vine forest on coastal dunes.
VMA Status	Of Concern
EPBC Act Status	Critically Endangered

Number of Secondary sites	nil
Number of Tertiary Sites	nil
Number of Quaternary Sites	nil
Additional Notes	Not assessed during the investigation owing to lack of access.

Regional Ecosystem	8.2.7b
Short Description (as per Queensland Herbarium, 2009)	Palustrine wetland (e.g. vegetated swamp). <i>Eucalyptus robusta, Melaleuca quinquenervia</i> open-forest to open-woodland (7-16m tall).
VMA Status	Of Concern
EPBC Act Status	Not applicable
Number of Secondary sites	1 dry, 1 wet, 2 wet (nonrem)
Number of Tertiary Sites	nil
Number of Quaternary Sites	1 dry, 2 dry (nonrem), 4 wet (nonrem)
Additional Notes	The presence of <i>Eucalyptus robusta</i> is a defining element of this major vegetation community. Whilst some areas remain relatively integral in the vicinity of Leeke's and Blackall Creeks, it is evidentthat many areas have either been entirely cleared or thinned. The community appears to have retracted in part over time.

Regional Ecosystem	8.2.7e
Short Description (as per Queensland Herbarium, 2009)	Palustrine wetland (e.g. vegetated swamp). <i>Melaleuca quinquenervia</i> and/or <i>M. leucadendra</i> and/or <i>M. dealbata</i> and/or <i>M. viridiflora var. attenuata</i> open-forest to open-scrub (to closed forest) (5-18m tall).
VMA Status	Of Concern
EPBC Act Status	Not applicable
Number of Secondary sites	1 dry, 1 wet
Number of Tertiary Sites	nil
Number of Quaternary Sites	11 wet
Additional Notes	This major vegetation community is predominantly defined by the presence of <i>Melaleuca dealbata</i> . Assessment of associated vegetation and soil properties in areas where <i>Melaleuca dealbata</i> was the dominant canopy element indicated that the community did not represent a palustrine wetland. Drainage corridors dominated by a canopy of <i>Melaleuca quinquenervia</i> supported wetland soils and hence were regarded as palustrine wetlands. The <i>Melaleuca dealbata</i> dominated element of 8.2.7e often supported a shrub layer of dense <i>Lantana camara</i> or <i>Senna pendula</i> .

Regional Ecosystem	8.2.8a
Short Description (as per Queensland Herbarium, 2009)	Corymbia spp. And/or Eucalyptus spp. Open-forest to low woodland (3-22m tall).
VMA Status	Least Concern
EPBC Act Status	Not applicable
Number of Secondary sites	6 dry, 2 dry (nonrem), 2 wet, 4 wet (nonrem)
Number of Tertiary Sites	1 dry
Number of Quaternary Sites	39 dry, 7 dry (nonrem), 29 wet, 1 wet (nonrem)
Additional Notes	This regional ecosystem occurred over a greater area than previously mapped owing to the identification of a greater extent of land zone 2. It is variable in structure across GKI and frequently supported a taller

canopy at the toe of sand dunes. This community was historically subjected to significant clearing in the
area bound by Clam Bay, the old homestead and Blackall Creek.

Regional Ecosystem	8.11.3a									
Short Description (as per Queensland Herbarium, 2009)	Corymbia intermedia and/or Eucalyptus portuensis and/or C. clarksoniana and/or E. platyphylla and/or E. drepanophylla open-forest to woodland (15-32m tall).									
VMA Status	Least Concern									
EPBC Act Status	Not applicable									
Number of Secondary sites	nil									
Number of Tertiary Sites	nil									
Number of Quaternary Sites	nil									
Additional Notes	As no ground truthing of this area was conducted owing to restricted access, the Queensland Herbarium mapping (v. 6) was taken to be accurate.									

Regional Ecosystem	8.11.8a							
Short Description (as per Queensland Herbarium, 2009) Corymbia citriodora woodland to open-forest (14-28m tall).								
VMA Status	Least Concern							
EPBC Act Status	Not applicable							
Number of Secondary sites	2 dry, 2 wet (nonrem)							
Number of Tertiary Sites	nil							
Number of Quaternary Sites	21 dry, 1 dry (non-rem), 17 wet, 12 wet (nonrem)							
Additional Notes	The location of this community on a slope was a strong influencing factor on the height of this vegetation. Upper slopes on shallow soils were lower in stature than lower slopes and colluvial deposits.							

Regional Ecosystem	8.11.8b
Short Description (as per Queensland Herbarium, 2009)	Eucalyptus moluccana woodland to open-forest (15-28m tail).
VMA Status	Least Concern
EPBC Act Status	Not applicable
Number of Secondary sites	1 dry, 1 wet (non-rem)
Number of Tertiary Sites	nil
Number of Quaternary Sites	2 dry, 3 wet, 5 wet (non-rem)
Additional Notes	This variant of 8.11.8 occurs in a discrete area largely on colluvium on the southern edge of the Leeke's Creek estuarine area.

Regional Ecosystem	8.11.9a
Short Description (as per Queensland Herbarium, 2009)	Themeda triandra and/or Heteropogon contortus tussock grassland (0.3-1.2m tall), or Xanthorrhoea latifolia subsp. latifolia dwarf shrubland to open-heath (0.7- 1.2m tall).
VMA Status	Of Concern
EPBC Act Status	Not applicable
Number of Secondary sites	nil

Number of Tertiary Sites	1 wet
Number of	1 wet
Quaternary Sites	
Additional Notes	Field assessment confirmed the presence of this regional ecosystem and its presence on wind battered
	slopes around Clam Bay.

Regional Ecosystem	8.11.10
Short Description (as per Queensland Herbarium, 2009)	Lophostemon confertus and/or Acacia spp. And/or Allocasuarina littoralis +/- Corymbia spp. +/- Eucalyptus spp. +/- Melaleuca viridiflora open scrub to open forest on exposed hillslopes of islands, on metamorphosed sediments
VMA Status	Of Concern
EPBC Act Status	Not applicable
Number of Secondary sites	1 wet
Number of Tertiary Sites	1 wet
Number of Quaternary Sites	2 dry, 9 wet
Additional Notes	Large portions of GKI had been mapped as supporting a heterogeneous polygon of 8.11.10/8.12.14x2c. The current investigation split this mixed polygon in part, when ground truthing confirmed the presence of 8.11.10 on wind exposed south-east facing slopes. The RE gave way to areas of 8.11.9a in some locations.

Regional Ecosystem	8.12.14x2c
Short Description (as per Queensland Herbarium, 2009)	Eucalyptus crebra and/or E. exserta and/or Corymbia clarksoniana and/or Lophostemon confertus and/or Corymbia trachyphloia low woodland to open-forest (2.5-15m tall).
VMA Status	Least Concern
EPBC Act Status	Generally not applicable. Minor areas of vine scrub occurring in the vicinity of Clam Bay meet the definition of the Critically Endangered community – see Section 2.3.4.
Number of Secondary sites	1 wet, 2 dry
Number of Tertiary Sites	nil
Number of Quaternary Sites	25 wet, 2 dry
Additional Notes	This community was confirmed on the leeward side of hills supporting 8.11.10.

2.3.4 EPBC Listed Communities

The ToR and the Commonwealth's EPBC Online Protected Matters Search Tool (SEWPAC, 2010a) identified the potential presence of 'Littoral Rainforest and Coastal Vine Thickets of Eastern Australia' regarded as a threatened ecological community under the EPBC Act.

Three areas were found to meet SEWPAC's (2008) definition for the threatened ecological community as illustrated in Figure 10. Whilst the patch of regional ecosystem 8.2.2 was not accessible as part of the study, it was generally accepted that its extent was accurate based on aerial photographic interpretation and a quaternary attained from the beach adjacent to the patch.

2.3.5 Local, Regional and National representation of Vegetation Communities

Table 13 below summarises the Local, Regional and National representation of Vegetation Communities.

Table 13: National, State, Regional and Local Representation of the Broad Vegetation Groups of GKI

Regional Ecosystem	Regional Ecosystem Conservation Status	Broad Vegetation Group (BVG)	BVG Description (DERM, 2011)	Area (ha) GKI (as mapped by CEPLA)	Extent of RE within Protected Estate (in QId) (DERM,2009	Remnant representation within State *	Remnant representation in Bioregion (regional) Central Queensland Coast *	Remnant representation within Subregion (local) Byfield *	Representation in Great Barrier Reef Marine Park Islands *	EPBC Communities (National) (Threatened Species Scientific Committee, 2008afi)
8.2.2	Of Concern	3b	Evergreen to semi- deciduous, notophyll to microphyll vine forest/ thicket on beach ridges and coastal dunes, occasionally Araucaria cunninghamii microphyll vine forest on dunes. Pisonia grandis on coral cays. (land zone 2)	3.94	Medium	51,483.35; (0.008%)	2,087.38; (0.19%)	34.05; (11.57%)	1,402.08; (0.3%)	3.94ha on GKI compared with total area in QLD 16,135ha & Total area Australia of 18,000ha.
8.11.3a	Least Concern	9d	Moist to dry open-forest to woodland dominated by Eucalyptus portuensis, Corymbia intermedia or E. reducta +/- Syncarpia glomulifera +/- E. cloeziana on ranges. (Can occur on land zones 2, 3, 8, 11, and 12)	101.49	Medium	51,8432.27; (0.02%)	191,028; (0.05%)	64,404.65; (0.16%)	1,434.07; (7.1%)	N/A
8.12.14x2c	Least Concern	9c	Open-forests of Corymbia clarksoniana (or C. intermedia or C. novoguinensis), C. tessellaris ± Eucalyptus tereticornis predominantly on coastal ranges, Other frequent tree species include Eucalyptus drepanophylla, E. pellita, E. brassiana and Lophostemon suaveolens. (Can occur on land zones 2, 3, 5, 8, 11 and 12).	84.69	High	294,650.9; (0.03%)	65,829.62; (0.13%)	9,807.08; (0.86%)	11,602.52; (0.73%)	A small portion (0.86ha) of the 8.12.14x2c could be regarded as the EPBC community

8.2.8a	Least Concern	9e	Open-forests, woodlands and open-woodlands dominated by Corymbia clarksoniana (or C. novoguinensis or C. intermedia or C. polycarpa) frequently with Erythrophleum chlorostachys or Eucalyptus platyphylla predominantly on coastal sandplains and alluvia. (land zones 2, 3, 5)	145.33	High	1,280,075.21; (0.01%)	66,880.55; (0.22%)	13,169.2; (10.6%)	1,400.33; (10.4%)	N/A
8.11.8a	Least Concern	10b	Moist open-forests to woodlands dominated by Corymbia citriodora. Can occur on land zones 5, 10, 11, and 12.	423.34	Low	1108218.72; (0.04%)	195,137.9; (0.22%)	12603.98; (3.36%)	616.02; (68.72%)	N/A
8.11.8b	Least Concern	13d	Woodlands dominated by Eucalyptus moluccana (or E. microcarpa) on a range of substrates. (land zone 3, 11, 12)	14.03	Low	272,778.47; (0.005%)	4,515.26; (0.31%)	1,255.74; (1.12%)	14.03; (100%)	N/A
8.2.7e	Of Concern	22a	Open-forests and woodlands dominated by <i>Melaleuca</i> quinquenervia in seasonally inundated lowland coastal areas and swamps. (land zones 2, 3)	11.7	High	80,592.91; (0.01%)	3,152.33; (0.37%)	173.41; (6.75%)	101.77; (11.5%)	N/A
8.2.7b	Of Concern	22b	Open-forests and low open- forests dominated by Melaleuca spp. (M. saligna, M. leucadendra, M. clarksonii or M. arcana) in seasonally inundated swamps. (land zones 2, 3)	14.98	High	240,327.13; (0.01%)	5,255.93; (0.29%)	761.81; (2%)	42.43; (35.31%)	N/A
8.2.1	Of Concern	28a	Complex of open-shrubland to closed-shrubland, grassland, low woodland and open-forest, on strand and foredunes. Includes pure stands of Casuarina equisetifolia. (land zone 2)	117.89	High	182,931.56; (0.06%)	771.15; (15.29%)	237.57; (49.6%)	1,465.77; (8%)	N/A

8.11.10	Of Concern	28e	Low open-forest to woodlands dominated by Lophostemon suaveolens (or L. confertus) or Syncarpia glomulifera frequently with Allocasuarina spp. on rocky hill slopes. (land zones 3, 5, 11, 12)	258.69	High	105,594.34; (0.24%)	51,819.15; (0.5%)	2,023.51; (12.78%)	16,477.6; (1.6%)	N/A
8.11.9a	Of Concern	32b	Closed-tussock grasslands and open-woodlands on undulating clay plains and upland areas. Dominant species include Heteropogon triticeus or Themeda arguens or Sarga plumosum or Imperata cylindrica or Mnesithea rottboellioides/Arundinella setosa. With areas of open-woodland dominated by tree species such as Corymbia papuana / Terminalia spp. / Acacia ditricha/ Piliostigma malabaricum. (land zones 3, 5, 8, 9, 12)	71.32	High	54,646.62; (0.13%)	5,224.75; (1.37%)	584.40; (12.2%)	5,308.41; (1.3%)	N/A
8.1.1	Least Concern	35a	Closed-forests and low closed-forests dominated by mangroves. (land zone 1)	26.75	High	476,403.03; (0.006%)	41,113.76; (0.07%)	78.71; (34%)	4,011.83; (0.7%)	N/A
8.1.2	Least Concern	35b	Bare saltpans ± areas of Halosarcia spp. sparse- forbland and/or Xerochloa imberbis or Sporobolus virginicus tussock grassland. (land zone 1)	32.02	High	651,233.99; (0.005%)	14,523.21; (0.22%)	38.02; (84.21%)	661.16; (4.8%)	N/A

2.3.6 Wetlands

Application of the Queensland Wetland Mapping methodology to the area of regional ecosystem 8.2.7e (see Appendix D) mapped in the vicinity of the existing resort confirmed the presence of minor areas of wetland associated with drainage lines (see Figure 11). One line follows the path of Putney Creek whilst two other lines drain southwards.

It is speculated that the semi-permanent waterholes and lagoons impacted in the past, as a result of the airstrip construction (Ganter, 1985), were the same as those described by Creighton (1984) that formed part of the Putney Creek system. If this is the case then it is likely the two southwardly draining areas identified in the current study in part fed this larger semi-permanent system. The connection between this area and the Putney Creek system has been lost as a consequence of past disturbance.

All areas of mapped RE 8.1.1 and 8.1.2 also meet the definition of wetlands.

Whilst the area of regional ecosystem 8.2.7b was not thoroughly assessed for the presence of palustrine wetlands, as a precautionary approach, all areas were mapped as potentially supporting wetlands. Further investigations may reduce their mapped extent.

2.3.7 Floristics

2.3.7.1 General

Floristic data was initially recorded according to standard Queensland Herbarium methods for secondary, tertiary and quaternary sites (Neldner *et al.*, 2005) then compiled along with other reliable data sources (i.e. Herbrecs) to generate a consolidated species list (Appendix E).

Based on species identified as part of the current study and previously by the Queensland Herbarium (2010a), a total of 396 species have been recorded. Whilst species recorded by Creighton (1984) may include some not considered in this list, the errors within Creighton's list have meant it has been disregarded for the purpose of the current study. This said, Creighton did not confirm the presence of any species regarded as threatened under the NCA or the EPBC Act.

2.3.7.2 Significant Species

State significant species are defined as those listed as Endangered, Vulnerable or Rare under the NCWR and nationally significant species are those listed as Endangered or Vulnerable under the EPBC Act. Species were targeted on the basis of review of literature on preferred habitat types and correlation of this with habitats mapped and encountered in the field. Species identified by database searches in Section 2.3.1.14 of this report were targeted during field surveys. Table 14 below presents an analysis of these species representation on the Island.

The likelihood that a species or community is present was determined according to:

- **Known** Remnant vegetation or sites are known to support the species because there are a significant number of individuals present that are self-maintaining.
- **Likely** Remnant vegetation or sites likely to support the species because there is habitat containing essential resources of a size capable of supporting a significant number of individuals. Available habitat which is proximal to and buffering a known occurrence of a population.
- Possible Remnant vegetation may provide suitable habitat which is potentially important however may be known to be suboptimal and there have been no reported records or sightings.
- Unlikely Remnant vegetation is unlikely to support the species because there have been no reported sightings of individuals and/or the habitat is considered unsuitable based on consideration of literature and field knowledge.
- Absence Known or Suspected Absences consistently recorded based on intensive targeted survey and consideration of habitat and distribution from literature.

An index of confidence is applied to the assessment being:

- **High** personal observations or records from other reputable sources (for example, 90% certainty);
- **Medium** information from sources of reasonable/mixed reliability (location accuracy / taxa identification) (for example, 70% certainty); and
- **Low** information from sources of unknown reliability (for example, 50% certainty).

Table 14: Ground-truth analysis of Threatened Species recorded from Databases

Likelihood of Occurrence (Confidence)	Species Name	Common Name	Status		Reference of Record	Likelihood of Occurrence Explanatory Notes
	_					_
			NCA	EPBC		

Absence known or suspected (High)	Cycas megacarpa		Endangered	Endangered	EPBC database	 Batianoff & Dilleward, (1988) did not record this species for any of the Keppel Bay Islands; Cycads had not been recorded on GKI as part of any previous study or were noted during consultation; and Thorough targetted searches did not record any species of cycad.
Absence known or suspected (High)	Cycas ophiolitica	Mariborough blue	Endangered	Endangered	EPBC database	 Batianoff & Dilleward, (1988) did not record this species for any of the Keppel Bay Islands; Cycads had not been recorded on GKI as part of any previous study or were noted during consultation; and Thorough targetted searches did not record any species of cycad.
Absence known or suspected (Medium)	Taeniophyllum muelleri	Minute Orchid, Ribbon-root Orchid	-	Vulnerable	EPBC database	 Batianoff & Dilleward, (1988) did not record this species for any of the Keppel Bay Islands; This orchid had not been recorded on GKI; and Targetted searches of tree trunks and branches in drainage lines for orchids did not record this species.

The study did however confirm the presence of 7 species of local significance based on Batianoff & Dillewaard (1988) including *Acacia leiocalyx subsp. leiocalyx*, *Canavalia sericea*, *Cyperus stradbrokensis*, *Eucalyptus robusta*, *Ficus hispida*, *Hibbertia linearis* var. *floribunda* and *Pouteria sericea*. It should be noted that these are frequently very common species and significance is only attributed owing to the range extent of the species. This said *Eucalyptus robusta* is of local interest given it was previously only known from only 6-7 trees from GKI (Batianoff & Dillewaard, 1995). The current study confirmed the presence of many more trees occurring as a co-dominant canopy element in one location.

The current study also confirmed the presence of the grass *Eriachne stipacea* which represents the southern most occurrence of this species based on the current Queensland Census (Bostock & Holland, 2010).

2.3.7.3 Species of Cultural, Commercial and Recreational Significance

Creigton (1984) lists a number of species that may have been exploited by the local Aboriginal people for food, medicines or material culture.

Table 15 below lists the species (recorded during the current study or Herbrecs) of plant used as food, medicine and material (as described by Creighton, 1984) and timber (as described by Lazarides and Hince, 1993).

Table 15: Species of Cultural, Commercial and Recreational Significance Recorded within the Study Area.

Species	Cultural resource (Creighton, 1984)	Commercial/recreational (Lazarides and Hince, 1993)
Aegiceras corniculatum	Medicine	
Acronychia laevis	Food	
Allocasuarina littoralis		Timber
Alphitonia excelsa	Medicine, Material	Fodder, Timber
Allopteris semialata	Material	
Argusea argentea	Food	
Arundinella nepalensis		Fodder
Avicenna marina var eucalyptifolia	Food	Fodder, Timber
Banksia integrifolia		Timber
Blechnum indicum	Food	
Bulbostylis barbarata		Fodder
Capparis arborea	Food	
Calotis lappulacea		Fodder
Canavalia rosea	Medicine	
Capparis canescens	Food	
Carpobrotus glaucescens	Food	
Casuarina equisitifolia	Food	Fodder, Timber
Cenchrus ciliaris		Fodder
Cereops tagal	Material	
Chrysopogon fallax		Fodder
Clematacissis opaca	Food	
Clerodendrum floribundum		Timber
Clerodendrum inerme	Food, Medicine, Material	
Cordia dichotoma	Food, Medicine, Material	
Corymbia intermedia	Food	Timber
Corymbia citriodora		Timber, Oil
Corymbia tessellaris	Medicine	Timber
Cyclosorrus interruptus	Food	
Dodonaea lanceolata	Medicine	
Dodonaea viscosa	Medicine	Fodder, Timber
Elaeocharis equisetina		Fodder
Eragrostis curvula		Fodder
Eriachne pallescens		Fodder
Eucalyptus camaldulensis		Timber, Oil

Species	Cultural resource (Creighton, 1984)	Commercial/recreational (Lazarides and Hince, 1993)
Eucalyptus crebra	Material	Timber
Eucalyptus drepanophylla		Timber
Eucalyptus exserta		Timber
Eucalyptus fibrosa		Timber
Eucalyptus moluccana		Timber
Eucalyptus robusta		Timber
Eucalyptus tereticornis		Timber, Oil
Excoecaria agallocha	Medicine, Material	
Evolvulus alsinoides		Fodder
Ficus obliqua	Food, Material	Fodder
Ficus opposita	Food, Medicine, Material	
Ficus racemosa	Food, Material	
Ficus platypoda		Fodder
Gahnia aspera	Food	
Geodorum densiflorum	Food	
Hibiscus tiliaceaus	Food, Material	
Ipomoea pes-caprae	Food, Medicine	
Imperata cylindrica	Material	Fodder
Jasminum didymum		Fodder
Lomandra longifolia	Food, Medicine, Material	
Lophosetmon confertus		Timber
Lophostemon suaveolens		Timber
Meleleuca quinquenervia	Medicine, Material	Timber, Oil
Pandanus tectorius	Food, Medicine, Material	
Pandorea pandorana		Fodder
Paspalidium gracile		Fodder
Phragmites australis	Food, Material	
Planchonia careya	Food, Medicine, Material	
Pouteria sericea	Food	
Pteridium esculentum	Food	
Rhizophora stylosa	Food, Material	
Suaeda australis	Food	
Stephania japonica	Medicine, Material	
Themeda triandra		Fodder
Trema tomentosa		Fodder
Typha domingensis	Food	

2.3.7.4 Weed Species

Field investigations identified 81 weed species occurring within the study area, of these 8 were declared pests under the LPA. These species are largely concentrated in areas of current or previous disturbance delineated by non-remnant areas evident in Figure 8. Of particular note is the occurrence of the species *Sporobolus pyramidalis* recorded as a clustering of 4-5 plants in the west of the Island outside of the study

area. Whilst species such as this are currently isolated, they have the potential to spread widely if left unmanaged.

3.0 TERRESTRIAL FAUNA

3.1 REGULATORY FRAMEWORK

Major legislation pertaining to the protection and management of terrestrial fauna are listed below in Table 16.

Table 16 - Major legislation pertaining to the protection and management of terrestrial fauna

Туре	Title	
		The Fording and Budgeton and Birdings to Occasion to Addition
Commonwealth Acts/Regulations	Environment Protection and Biodiversity Conservation Act 1999 (Cwth)	The Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) prescribes the Commonwealth's role in environmental assessment, biodiversity conservation and the management of protected areas. Under the environmental provisions of the EPBC Act, actions that are likely to have a significant impact on a matter of National Environmental Significance (NES) are identified as "controlled actions" and cannot be undertaken without approval under the EPBC Act. The matters of NES that are relevant to the terrestrial fauna
		component of the Project are listed threatened species and migratory species.
	Great Barrier Reef Marine Park Act 1975, Great Barrier Reef Marine Park Regulations 1983, and the Great Barrier Reef Marine Park Zoning Plan 2003	The Great Barrier Reef Marine Park Act 1975 main object is to provide for the long term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region.
State Acts/Regulations	Land Protection (Pest and Stock Route Management) Act 2002 and Land Protection (Pest and Stock Route Management) Regulation 2003	The Land Protection (Stock and Pest Route Management) Act 2002 (LPA) and the Land Protection (Pest and Stock Route Management) Regulation 2003 provides for management of declared pests in Queensland. Landholders have an obligation to control declared pests that are known to occur on their property.
	Nature Conservation Act 1992 and Nature Conservation (Wildlife) Regulation 2006	The Nature Conservation Act 1992 (Qld) (NCA) provides for the conservation and management of Queensland's native wildlife.
	riogaldiish 2000	The Nature Conservation (Wildlife) Regulation 2006 (NC Regulation) lists the wildlife considered extinct in the wild, endangered, vulnerable, near threatened and least concern. It states the declared management intent for each class of wildlife. This also includes management intent for prohibited wildlife.
	Vegetation Management Act 1999 and Vegetation Management Regulation 2000	 The Vegetation Management Act 1999 (VMA) regulates clearing of vegetation in order to: conserve remnant endangered, of concern and not of concern regional ecosystems; conserve vegetation in declared areas; ensure clearing does not cause land degradation, prevent the loss of biodiversity; maintain ecological process; manage the environmental effects of clearing; and reduce greenhouse gas emissions.
		The VMA also regulates particular regrowth vegetation. Under the VMA 'regulated regrowth' is vegetation identified on the regrowth vegetation map as high value regrowth vegetation or located within 50m of a watercourse identified on the regrowth map as a regrowth watercourse or contained in a category C area shown on a Property Map of Assessable Vegetation.

3.2 Nomenclature, Terminology and Species Conservation Status

Fauna refers to all vertebrate fauna (excluding fish and marine mammals). The nomenclature used in this chapter follows Van Dyck and Strahan (2008) for mammals, Readers Digest (1986) for birds and Wilson and Swan (2010) for reptiles and amphibians. The terms shorebirds and waders are generic terms used to describe both resident and Migratory species that commonly feed by wading in shallow water or saturated substrates along shores of lakes, rivers and the ocean (Geering *et. al.*, 2007). These terms refer specifically to birds within 13 families of the order Charadiiformes (Geering *et. al.*, 2007).

The conservation status of fauna refers to species listed under the NC Regulation and the EPBC Act. Species that have a conservation status of Critically Endangered, Endangered, Vulnerable or Near Threatened are listed as species of conservation significance under the NC Regulation and the EPBC Act.

Species of "State" or "Regional" significance are those identified by DERM (EPA, 2008d) as threatened priority taxa for the Central Queensland Coast bioregion.

3.3 METHODOLOGY

3.3.1 Desktop Assessment and Literature Review

To assist in identifying likely fauna species and habitat that could be encountered and those that would need to be targeted during field work, a search of relevant literature and databases were undertaken. The following databases were assessed to provide a basis for assessment of fauna species distribution and habitat that should be targeted:

- Commonwealth's EPBC Online Protected Matters Search Tool (SEWPAC, 2010);
- EPA's WildNet database (EPA and QPWS, 2010);
- Queensland Museum (Queensland Museum, 2010); and
- Birds Australia (Birds Australia, 2007).

The literature and databases identified a number of species of conservation significance that may use the study area. The study area for this purpose is defined according to Figure 1 and includes the Marine services precinct, Fisherman's Beach Resort Precinct and Clam Bay Resort Precinct. Figure 1 also illustrates landmarks on the Island that are referred to throughout. Based on a review of the habitat requirements, distribution, movement and breeding patterns of species, the likelihood that a species or community is present was categorised according to the following definitions:

- **Known** species positively recorded by this survey or other survey by qualified ecologists during past 30 years;
- Likely based on the presence of suitable habitat and high precision proximate records;
- Possible suitable habitat present for the species, but no recent or precise GIS based records from the study area or proximate areas; and
- Unlikely based on a lack of suitable habitat and lack of proximate records.

3.3.2 Consultation

CEPLA sought expert advice on issues relating to both scheduled species and general fauna inhabitation of the Island. This was in the form of phone conversations, face-to-face meeting and email communication with DERM officers and other experts. CEPLA also sought residents input when encountered, specifically relating to their knowledge of fauna species identified, photographic records and other observations they had made.

3.3.3 Field Survey

CEPLA undertook the fauna field investigation in line with approved permitting as follows:

- DPI Scientific User Registration 319;
- EPA Queensland Parks and Wildlife Service Scientific Purposes Permit WISP05496608; and
- Animal Ethics Approval CA 2008/07/285.

In order to assess the suite of species present on site the methodology described in the sections below was employed. Over the duration of the survey, vegetation communities within the proposed development footprint and greater environments were assessed for fauna biodiversity. Two survey periods, one in September 2010 (dry season survey) and one in February 2011 (wet season survey) were undertaken to sample across seasons and therefore increase the probability of detecting the range of migratory species identified in database searches. The following survey techniques were used:

- Diurnal/nocturnal bird searches;
- Ground searches;
- Elliott trapping;
- Pitfall trapping;
- Hair funnel trapping;
- Spotlighting;

- Transect spotlight counts (Possum densities);
- Anabat bat detection;
- Call playback; and
- Habitat assessment.

Opportunistic observations (of mammals, birds, reptiles, amphibians and insects) were also recorded as were observations outside of the disturbance footprint while moving between survey locations.

In order to systematically sample the habitats present on the Island, 10 sampling sites were established across the Project footprint. Within each sampling site (referred to as area 1, area 2 etc) a 100m transect was established for Elliott traps and hair funnel traps. The wet season survey sampling sites were slightly modified (area 9 and 10 were added) to respond to refinement of the Project footprint. These areas (1-10) formed the focus points for the survey techniques discussed in detail in the following paragraphs.

3.3.3.1 Diurnal/Nocturnal Bird Survey

Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey (equating to approximately 3 hours each day). During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site (described below).

Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders.

Techniques used to target key threatened and/or migratory species are also detailed in Appendix H. Searches for threatened species followed EPBC Guidelines (SEWPAC, 2010) where the likelihood of occurrence was regarded as 'Possible'-'Known'.

3.3.3.2 Ground Searches

Ground searches were undertaken at each area (Figure 12) as part of morning and afternoon survey activities. This entailed the following:

- Active searches for cryptic fauna (such as reptiles) were undertaken including turning over logs, disturbing woodpiles, lifting loose bark on trees, investigating hollow logs and disturbing leaf litter;
- Tracks, scats, animal remains, movement pathways, feeding signs and any other traces of animal presence were recorded when observed. Where practical, scats and other traces were collected and sent to 'Dead Finish' for further analysis; and
- Trees were closely observed for scratch marks, nests and hollows to determine their value as habitat.

3.3.3.3 Elliott Trapping

18 size A Elliot traps and 2 size B Elliot traps were distributed along 100 metre transects in areas 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 for 4 nights in each season (20 traps per transect). Areas 9 and 10 were only surveyed during the wet season. Traps were positioned approximately 5 metres apart and baited alternately with a peanut butter and oat mixture, sweet potato or salami. Traps were positioned in a secure sheltered position and insulated by piling leaf litter on top of the trap. Traps were checked each morning, closed and then opened each afternoon. Figure 12 indicates the locations of Elliott trap lines.

3.3.3.4 Pitfall Trapping

Pitfall trap lines were positioned in areas 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 (areas 9 and 10 only during the wet season). The pitfalls lines consisted of 3 x 10L buckets or 3x 20L buckets spaced at 7m apart. Cover including sticks, larger pieces of wood (that may act as floating platforms to prevent drowning) and leaf litter were placed in the bottom of each bucket. Pieces of wet sponge were also placed in the bottom of buckets to ensure a source of drinking water was available. Pitfall traps were checked in the morning, midday, early evening and during spotlighting. Traps were closed (i.e. lids placed on buckets) when inclement weather prevented the safe use of the traps. Figure 12 indicates the locations of pitfall trap lines.

3.3.3.5 Hair Funnels

A total of 40 hair funnels were located in trees and on the ground along Elliott trap transects over areas on site (10 funnels per transect line). The hair funnels were baited with peanut butter, honey and oat mix. Hair funnels were left *in situ* over the 5 days / 4 nights of the survey after which they were collected and inspected for animal hairs. Funnels containing hairs were analysed by the specialist consultancy 'Dead Finish'.

3.3.3.6 Spotlighting

Spotlighting was carried out on each night of the survey for 2 hours each night with each survey area covered over the study duration. Over 8 nights in each wet and dry season surveys, 2 observers surveyed areas on site on foot using headtorches and a spotlight. Fauna were detected through direct sightings and via calls.

3.3.3.7 Spotlight Transect (Possum Densities)

Following similar methodology to Cooke *et. al.*(2006), two ecologists undertook walked or driven transects over four nights during the wet season survey (refer to Figure 13 for transect location). The length and width of each transect was measured and the number of possums sighted from the start to end of each transect were counted. Transect length and width was used to calculate transect area in hectares. The number of possums per hectare was then calculated for each transect. Transect length; width and area are presented below in Table 17:

Transect	Transect Distance (m)	Transect width (m)	Count Area (ha)
T1	390	25	0.97
T2	360	15	0.54
T3	320	15	0.48
T4	700	25	1 75

Table 17: Transect length, width and area

3.3.3.8 Anabat Bat Detection

Microchiropteran bat activity on site was surveyed using an ANABAT II Ultrasonic Bat Call detection unit. The ANABAT unit was placed in areas nearby potential flyways and left to record during the night (Figure 12). The unit was retrieved each morning. Recordings were sent to Greg Ford, a Toowoomba based ANABAT echolocation and call analysis specialist, for analysis.

3.3.3.9 Call Playback

Call playback was carried out following spotlighting on 5 nights of the dry season survey and 6 nights of the wet season survey. Over the course of the survey, call playback was undertaken in areas 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 (Figure 12). Calls of the species listed below were played on each night for 3 minutes, followed by a 3 minute listening period to detect any responses elicited.

- Southern Boobook (*Ninox novaeseelandiae*);
- Tawny frogmouth (*Podargus strigoides*)
- White-throated Nightjar (*Eurostopodus mystacalis*);
- Powerful Owl (*Ninox strenua*);
- Barking Owl (Ninox connivens); and
- Grass Owl (*Tyto capensis*) (grassland sites only).

3.3.3.10 Habitat Assessment

Habitat assessments were undertaken throughout the site in each vegetation community and further assessments were carried out where changes in vegetation structure were noted. Habitat mapping was applied across the site using a combination of the field verified RE mapping and habitat assessment proformas.

Habitat Assessments were undertaken at points across the site using a standard proforma (refer Appendix F) to allow a robust and repeatable assessment to gauge habitat values. Information relevant to habitat assessment including integrity, structural diversity, fauna refuge availability (i.e. tree hollows) and waterway types (as shown in the pro-forma in Appendix F) was collected for a 20 metre radius from a central point. Where a waterway was present an additional waterway assessment was also completed to identify additional habitat values. The results of the habitat assessments were applied to database search outputs and the findings of the detailed fauna survey in order to provide informed judgment on the use of the study area by both common and threatened fauna species.

Sites at which habitat assessments were completed are indicated in Figure 14. Habitat assessment site numbers relate to the completed habitat assessment proformas.

Habitat was value ranked according to the following criteria (Table 18) as well as ground truthed vegetation assessment and mapping (i.e. remnant/non-remnant/disturbed) in earlier sections of this report.

Table 18: Habitat Value Rank and Description of Criteria

Habitat Value Ranking	Description
High - Very High	Remnant integral vegetation; and
	 The community is not highly infested by weeds. Desirably, no exotic species are present, however some cover is acceptable as this can sometimes provide habitat values e.g. lantana provides good cover for small birds in the absence of the native shrub layer; and Human disturbance minimal; and
	 Diversity in ground layer components – 3 or more ground layer components (e.g. logs and leaf litter and rocks) present; and 2 or more hollows present in hollow forming species;
	Well connected to other remnants; and
	May contain integral waterway or wetland.
Moderate - High	Regrowth vegetation; or
	Remnant vegetation separated from other remnants by >50metres; and
	 Disturbance to ground layer and understorey (e.g. ground layer mown and all shrubbery cleared).; and
	Exotic species present, in low numbers; and

	Human disturbance present, however not significantly degrading; and
	■ 1 or no hollows present;
	Connected to other remnants; and
	May contain waterway with low levels of disturbance.
Very Low - Low	 Sparse or cleared vegetation (not remnant, not regrowth); or Regrowth vegetation separated from other remnants by >50metres; and
	Significant disturbance evident in ground layer and understorey; and
	 Exotic species present, infestations of some weed species may also be present; and
	■ No hollows present;
	Significant human disturbance; and
	May contain highly modified or degraded waterway.

3.3.4 LIMITATIONS

Limitations that may have prevented the detection of some fauna include:

- Weather constraints (unusually high rainfall events for dry season survey and flooding events at the time of the wet season survey). This in combination with cyclonic events elsewhere may have disrupted the migration patterns of some species;
- Pitfall trapping was limited by rainfall events during both the dry season and the wet season survey resulted in necessary trap closure on a number of nights; and
- Rigorous insect surveys were not undertaken therefore observational records of species are likely to represent only a small portion of those actually utilising the Island.

3.5 DESCRIPTION OF ENVIRONMENTAL VALUES FAUNA

3.5.1 Literature Review

To establish the extent of existing information and determine information gaps a number of studies, reports, maps and databases relevant to the Project area were reviewed.

These studies are summarised in Table 19 along with ranking indicating their relevance to the Project, where:

Rank 1 = High. These studies have generally been completed within the project area or were a directly relevant regional study and therefore includes data specific to the project area. The methodology included in the study is robust and may be applied to the terrestrial flora study process.

Rank 2 = Moderate. These studies have generally been completed within the same bioregional area however they may not be specific to the project area. The

data may be provided in a way that limits the basis of interpretation (e.g. Herbrecs records may include a level of precision that is relatively coarse). **Rank 3** = Low. Although the study was not directly relevant to the area of proposed impact because it was completed outside of the project area the broad interpretations and methods can be applied to the current investigation.

Table 19 - Relevance ranking of Literature Reviewed

Title	Author (s)	Relevance Rank
Project Specific Studies	•	
Keppel Islands Environmental Survey A Baseline for Archaeological Reconstructions and Resource Management	Creighton (1984)	1
Spring Survey of Shorebirds at Great Keppel Island	Black and Houston (2010)	1
Autumn Survey of Shorebirds at Great Keppel Island	Black and Houston (2011)	1
The History and Development of the Keppel Islands, A thesis submitted in partial fulfilment for the Degree of Bachelor of Arts with Honours	Ganter (1985)	1
Community Environment and History Keppel Bay Studies and specifically Chapter 9 Coastal Intruders	Mullins, Danaher and Webster (2006) Danaher (2006) (in Mullins, Danaher and Webster <i>eds</i>)	1
Rapid Assessment of Terrestrial Regional Ecosystems in relation to the proposed resort development on Great Keppel Island	CQ Environmental (2009)	1
A concise field guide to the Birds of Great Keppel Island	Briggs (2006).	1
Regional Fauna Investigations		
Biodiversity Planning Assessment Central Queensland Coast Flora, Fauna and Landscape Expert Panel Report	Environmental Protection Agency (2006)	2
The outstanding universal value of the Great Barrier Reef World Heritage Area	Lucas et al. (1997)	2
Fitzroy Natural Resource Management Region Back on Track Actions for Biodiversity	DERM, 2010c	2
Corridor/Habitat Mapping		
Essential Habitat Mapping Version 3	DERM, 2011c	1
Databases		
Bird List for ten minute square containing point 150.93561, -23.17754	Birds Australia (2007)	1
Wildlife Online Extract for 23.1478 – 23.199; 150.9274 – 150.9969	EPA and QPWS (2010)	1
Queensland Museum Zoological Collections Database Extract	Queensland Museum (2010)	1
Protected Matters Database Environmental Reporting Tool -23.14788, 150.92548; - 23.19957, 150.92548; -23.19957, 150.99574; -23.14788, 150.99574,	SEWPAC (2010)	1

3.5.1.1 Creighton 1984

Creighton (1984) observed that the macropod family has not been recorded previously from any of the Keppel Islands. Brushtail Possums (*Trichosurus vulpecula*) were observed to be common on Great Keppel Island and despite the contention that Possums were introduced, Creighton notes that there is no evidence to support or refute this claim. GKI previously supported a population of Koala's (*Phascolarctos*

cinereus), but was believed to be locally extinct with the last reported sighting in the late 1960's.

Of note, during field work in the 1984 report, no rodents or carnivorous marsupial or Bandicoot were observed, although they were speculated as likely to be present. Common reptiles were recorded including Sand Goanna (*Varanus gouldii*), Common Tree Snake (*Dendrelaphis punctulata*), Blue-tongue Lizard (*Tiliqua scincoides*) and Carpet Python (*Morelia spilota*).

GKI supported populations of Goat, Cattle, Sheep and Pigs both prior to and some also during 1984. Cattle and Pigs were only present prior to 1984. The feral Goat population of GKI in 1984 was difficult to estimate however, it was suggested that the population was in excess of 1,500 Goats. These Goats have altered the natural vegetation communities and caused localised erosion on the eastern and south-eastern to southern headlands and dunes of the Island.

3.5.1.2 Ganter (1985)

Ganter (1985) states that "Opossums were introduced to the Keppel Islands by fishermen during the Depression to supplement their income". Other studies including Creighton (1984), Mullins et al. (2006) and Danaher (2006) also comment on whether possums were native to the Island or were introduced and it appears to be a point of contention.

3.5.1.3 Mullins et al. (2006)

Mullins *et al.* (2006) suggests that possums were introduced and present in higher than sustainable numbers. Mullins *et al.* (2006) states that:

"...these possums have been destroying gum trees on the islands because of their relatively large populations. They eat all of the foliage and regrowth on certain trees and this eventually kills the tree."

Mullins *et al.* (2006) recognises goats as a destructive force on the Keppel Bay Islands and reports that goats caused erosion, localised extinction of flora as well as destruction of habitat for species such as quail.

In Chapter 9 Mullins *et. al.* reports that brush-tail possums were once extinct on the Islands but were reintroduced by fishermen in the 1920's to North Keppel and Great Keppel. According to Mullins *et. al.*, possums became extinct due to hunting by Aborigines and dingoes.

3.5.1.4 Black and Houston 2010

Black and Houston of Central Queensland University undertook a survey of Shorebirds on Great Keppel Island in October 2010. This survey was carried out within the proposed Project footprint. Surveys were taken at the "Leeke's Creek Estuary" at low tide and one high tide as well as a boat survey of the Island. Over the two day survey a total of two Wandering Tattlers, two Grey-tailed Tattlers and three Whimbrels and two Sooty Oystercatchers (near threatened under the NCA).

3.5.1.5 Black and Houston 2011

Black and Houston of Central Queensland University undertook a follow up survey to their October 2010 survey, from 21-23 March 2011 intended to coincide with the northward passage of migrant shorebirds. This involved survey of "Leeke's Creek Estuary" at low tide and high tide as well as Putney Beach at early morning and late afternoon. Surveys were also carried out within the proposed development footprint from "Leekes's Creek estuary to Clam Bay". Over the three day survey very small numbers of migrant shorebirds were recorded. A total of two Whimbrels (migratory shorebird), One Beach Stone-curlew (vulnerable NCA), four Pied Oystercatchers, two eastern Ospreys (migratory EPBC), three Nankeen Kestrels and two species of swifts were identified. A total of 37 bird species were recorded during the three day survey on Great Keppel Island.

3.5.1.6 The outstanding universal value of the Great Barrier Reef World Heritage Area Lucas et al.1997

Appendix 4 of Lucas *et al.* (1997) document outlines a number of natural heritage attributes including birds, butterflies, crocodiles and terrestrial reptiles. The Great Barrier Reef World Heritage Area (GBRWHA) is a globally important area for seabirds particularly important as breeding colonies for 22 species on 25% of GBR Islands. Of particular relevance to GKI, the Beach Stone Curlew (*Esacus neglectus*), classed as Vulnerable, has been recorded from 134 islands in the north and south GBRWHA. Avifauna of the continental islands are comparable to the adjacent mainland (Stokes *et al.*, 1997 in Lucas *et al.*, 1997).

The butterflies of the GBRWHA are reported as the subject of limited study with good potential for future research. Several rare species of butterflies have been recorded from GBR islands and two endemic species (from more northern islands) have been described.

Crocodiles occur in coastal regions north of Rockhampton. At the time of writing, crocodile breeding had not been recorded from GBR Islands. Snakes and lizards of

the GBRWHA Islands recorded at the time of writing included 6 species of geckoes, 1 legless lizard, 2 goannas, 9 snakes, 1 python, 3 colubrids and 4 elapids.

3.5.1.7 CQ Environmental 2009

A rapid assessment of the Island was undertaken over two days. Several fauna values were identified. Feral goats were identified as abundant occurring around the old homestead.

Biodiversity and wildlife corridors were identified. One was identified along Leeke's Estuary and east west corridor and a north south corridor connecting hills to the sand wetland and across sand plains to terrestrial systems. A second corridor was identified "along the esplanade behind Leeke's Beach and encompassing the *Melaleuca* wetlands and associated ecosystems".

3.5.1.8 Birds of Great Keppel Island (Briggs, 2006)

The guide identifies that approximately 90 species of bird have been seen on GKI, however this is qualified by noting many are migratory visiting at a certain time of year or others that arrive when certain foods are available. The offshore islands are also included as habitats of GKI, including Halfway Island, Humpy Island, Middle Island and rocky outcrops such as Passage Rocks, Bald Rocks and Sykes Rocks. This guide (Briggs, 2006) provides a list of bird species by month that they have been sighted.

3.5.1.9 Biodiversity Planning Assessment (EPA, 2006)

With regard to fauna values the BPA maps portions of GKI as regionally significant due to the Beach Stone Curlew record in Leeke's Estuary (see Figure 1 for area identified as Leeke's Estuary) and an associated buffer to this record.

3.5.1.10 Essential Habitat Mapping

Essential habitat mapped by DERM (2011c) is present on the Island, and covers all of the Leeke's Estuary and a large area abutting Leeke's Beach. Figure 15 illustrates the extent of essential habitat. The mapped essential habitat is for Beach Stone Curlew (*Esacus magnirostris*). Essential habitat for this species is defined as "All regional ecosystems along ecotone with beach" (DERM, 2011c). The vegetation community includes undisturbed beaches, littoral habitat, including surf and sheltered areas especially near river mouths and mangrove backed areas.

3.5.1.11 Fitzroy Natural Resource Management Region Back on Track Actions for Biodiversity DERM (2010c) identified Priority Species and Data Deficient species for the Fitzroy Natural Resource Management Region. This region includes GKI. This report

identifies one frog, eighteen reptiles, seven birds and eleven mammals as priority species in the region. Threats and management actions are also identified for priority species. Data Deficient species were those species in the region that were regarded as too poorly known to apply the priority species criteria to. These species are identified as a research priority (DERM, 2010c).

3.5.2 Consultation

Communication with a number of the long term residents of the Island indicate that the island is home to various small mammal species often sighted. The beach stone curlew has been sighted in Leeke's Estuary. The black Whipsnake and Children's Python were mentioned by residents. Residents had observed that although some wader species use the island, their numbers were low.

Consultation with DERM officers indicate that DERM has not undertaken detailed fauna investigations on GKI. The rusty monitor has been recorded by DERM officers in the past in Leeke's Estuary (Mr. John McCabe, Pers. Comm, 10/03/2011). It is known that Great Keppel Island is not used by high numbers of seabirds compared to coastal numbers (Mr. John McCabe, Pers. Comm, 10/03/2011). On the nearby mainland there are a number of areas that have very high numbers of wader bird populations including shoalwater Bay, Corio Bay, Long Beach Streubers South Keppel Sands, Fitzroy Delta and Northern Curtis Island (Mr. John McCabe, Pers. Comm, 10/03/2011).

Consultation with several Island residents during the course of the dry and wet season surveys revealed local knowledge of Island inhabitation by a range of species. Several residents reported Black Rat as occurring on their properties and around the Resort Precinct. Mr C Svendsen and Ms L Malan were able to provide photographs of several fauna species they observed throughout the Island. These included Echidna, Blue-tongue Lizard, a few species of marine turtles, a land turtle that they identified as the Eastern Snake-necked Turtle (recorded from near the homestead), Rusty Monitor and several different species of amphibian. The frogs identified by Mr Svendsen and Ms Malan included the Green Stripe Frog, Green Tree Frog, Striped Rocketfrog, Striped Marsh Frog, Ruddy Tree Frog and Eastern Sedge Frog.

Ms K Christie was also able to provide some photographs of species she has observed on GKI. These included Pink Galahs (which she identified as occasional visitors to GKI), Brown Goshawk, and Rose-crowned Fruit Dove (identified as the only one she had seen on GKI). Ms Christie also identified a number of commonly occurring species on GKI as Lorikeets, Echidna, Kookaburra, Bar-shouldered Dove, Osprey, Bush-stone Curlew, "Fruit-bat" and Long-necked Turtle.

3.5.3 Records of Fauna

Several databases and reports were reviewed to identify species scheduled under either the *Nature Conservation (Wildlife) Regulation 2006* or the *Environment Protection and Biodiversity Conservation Act 1999* that are known to occur within, or within the vicinity, of the project area. Specifically these included:

- Wildnet (EPA, 2010). This database incorporates information from a number of datasets held by the EPA. The reliability of some of the data is variable depending on the original source (e.g. Herbrecs data is more reliable than data collected from community based programs);
- EPBC Protected Matters Database (SEWPAC, 2008; SEWPAC, 2010a). The database provides an indication of species likely to occur in an area, in part, based on habitat modelling;
- Birds Australia (Birds Australia, 2010). The database provides a bird list for a specified coordinate. This is based on Atlas data. Observers undertake repeat surveys at specific points allowing monitoring of bird populations over time; and
- Queensland Museum Zoological Collections Database (Queensland Museum, 2010). This is information based on the museums collection of vertebrates.

The review of existing databases returned a total of 42 species of scheduled fauna. Of these 10 are known to occur, 2 are likely to occur, 25 may possibly occur and 5 are unlikely to occur on Great Keppel Island. Assessment of the existing location information and data relating to the species is given in Table 20 below. Existing habitat requirements and distribution information is tabulated in Appendix H.

An analysis of the specimen-backed data (Queensland Museum) indicates no confirmed threatened species records in the Study Area. This may only be a reflection of the extent of existing surveys or alternatively may represent an accurate indication of a paucity of rare or threatened fauna species.

Table 20: Assessment of Scheduled Fauna Returned in Databases

Species	NCA Status	EPBC Status	Likelihood of Occurrence*
Accipiter novae-hollandiae Grey Goshawk	NT		Possible
Actitis hypoleucos Common Sandpiper		Marine, Migratory	Possible
Apus pacificus Fork-tailed Swift		Marine, Migratory	Known
Ardea ibis Cattle Egret		Marine, Migratory	Possible
Ardea modesta Great Eastern Cattle Egret		Marine, Migratory	Possible
Arenaria interpres Ruddy Turnstone		Marine, Migratory	Possible
Burhinus grallarius Bush Stone Curlew		Migratory	Known
Charadrius bicinctus Double-banded Plover		Marine, Migratory	Likely
Charadrius ruficapillus Red-capped Plover		Marine, Migratory	Possible
Esacus magnirostris Beach-stone Curlew	V	Marine	Known
Falco cenchroides Nankeen Kestrel		Marine, Migratory	Known
Falco peregrinus Peregrine Falcon		Migratory	Possible
Fregata minor Great Frigatebird		Marine, Migratory	Possible
Gallinago hardwickii Japanese Snipe		Marine, Migratory	Possible
Gallinago megala Swinhoe's Snipe		Marine, Migratory	Unlikely
Gallinago stenura Pin-tailed Snipe		Marine, Migratory	Unlikely
Haematopus fuliginosus Sooty Oystercatcher	NT	,	Known
Haliaeetus leucogaster White-bellied Sea-Eagle		Migratory	Known
Heteroscelus brevipes (Tringa brevipes) Grey-tailed tattler		Migratory Marine	Known
Himantopus himantopus Black-winged Stilt		Marine, Migratory	Possible
Hirundapus caudacutus White-throated Needletail		Migratory	Possible
Hirundo rustica Barn Swallow		Marine, Migratory	Possible
Macronectes giganteus Southern Giant Petrel		E Marine,	Unlikely
Merops ornatus		Migratory Migratory	Likely
Rainbow Bee-eater Monarcha melanopsis Plack forced Monarch		Migratory	Possible
Black-faced Monarch Monarcha trivirgatus Spectacled Monarch		Migratory	Possible
Myiagra cyanoleuca Satin Flycatcher		Migratory	Possible
Myiagra inquieta		Migratory	Possible
Restless Flycatcher Myiagra rubecula Leaden Flycatcher		Migratory	Possible
Numenius madagascariensis Eastern curlew	NT	Migratory Marine	Possible
Numenius minutus Little Curlew Little Whimbrel		Marine, Migratory	Unlikely
Numenius phaeopus Whimbrel		Migratory Marine	Known
Phaethon rubricauda	V	Migratory	Possible

Species	NCA Status	EPBC Status	Likelihood of Occurrence*
Red-tailed tropicbird		Marine	
Pluvialis fulva Pacific Golden Plover		Marine, Migratory	Possible
Pluvialis squatarola Grey Plover		Marine, Migratory	Possible
Pterodroma neglecta neglecta Kermadec Petrel		V	Unlikely
Sterna dougallii Roseate Tern		Marine, Migratory	Possible
Sterna hirundo Common Tern		Marine, Migratory	Possible
Sternula albifrons Little Tern	E	Marine, Migratory	Possible
Sula leucogaster Brown Booby		Marine, Migratory	Possible
Thalasseus bengalensis Lesser Crested Tern		Marine, Migratory	Known
Vanellus miles Masked Lapwing		Migratory	Known

^{*}based on review of habitat preferences and species distribution presented in Appendix H and based on records reported in the literature review.

3.5.3 Pest Species

Most studies reviewed identify that feral animals occur on GKI. The only species noted of particular importance as a pest animal is the Goat.

Additional literature searched in order to identify exotic species known or likely to occur in the study area identified using Wildnet data (EPA, 2010) and consultation. The results are tabulated in Table 21.

The declared pest species are identified according to their status under the *Land Protection* and *Stock Route Management Act 2002* (LPA):

- Class 1 It is not commonly present or established in the State; and has the potential to cause an adverse economic, environmental or social impact in the State; if established they are subject to eradication; reasonable steps must be taken to keep land free of Class 1 pests;
- Class 2 Are established in the State and have, or could have, an adverse economic, environmental or social impact; reasonable steps must be taken to keep land free of Class 2 pests. It is a serious offence to introduce, keep or supply a Class 2 pest without a permit issued by Biosecurity Queensland;
- Class 3 Are established in the State and have, or could have, an adverse economic, environmental or social impact; their impact is primarily environmental; control notices can be issued for land that is, or is adjacent to an environmentally significant area. It is a serious offence to introduce, feed or supply a Class 3 pest without a permit issued by Biosecurity Queensland.

Non Declared Animals -

There are 28 animals specifically categorised as non-declared under the LPA. These animals include:

- mammals commonly kept for commercial or social benefit
- non-native mammals, reptiles or amphibians that are widespread but have minimal negative commercial, environmental or social impacts; and/or
- there are no cost-effective, broadscale control measures available.

Table 21: Exotic Fauna Species known from the area

Species Name	Common Name	Pest Status	Source
Gallus gallus	Red Junglefowl	exotic	Wildnet
Pavo cristatus	Indian Peafowl	exotic	Wildnet
Sturnus vulgaris	Common Starling	exotic	Wildnet
Capra hircus	Goat	Class 2	Wildnet
Rattus rattus	Black Rat	Non-declared exotic	Consultation

3.6 RESULTS – FAUNA FIELD ANALYSIS

Fieldwork was undertaken by two fauna ecologists during the dry season conducted between $20 \text{ Sept} - 28 \text{ Sept} \ 2010$ and the wet season conducted between $12 \text{ Feb} - 21 \text{ Feb} \ 2011$.

Weather experienced over the dry season survey was uncharacteristically wet. (see Table 22 for weather from Yeppoon The Esplanade (station 033294) (Bureau of Meteorology, 2011a). Weather experienced in the wet season survey was hot with periods of both wet and dry (Table 23). The wet season survey was undertaken closely following extreme flooding of the Rockhampton area as well as a category 5 cyclone – Cyclone Yasi making landfall near Mission Beach on 3 Feb 2011 (Bureau of Meteorology, 2011b).

Table 22: Dry Season Weather

		Ter	nps		Max wind gust		st
		Min	Max	Rain	Dir	Spd	Time
Date	Day	°C	°C	mm	km	n/h	local
20/09/2010	Мо	20	21.6	20.2	SSW	26	9:48
21/09/2010	Tu	20	22.4	47	SE	22	0:57
22/09/2010	We	21	23.1	24	ESE	43	17:52
23/09/2010	Th	19	22	8.6	SSW	28	6:45
24/09/2010	Fr	19	24.2	6	ESE	26	14:22
25/09/2010	Sa	21	22.5	0.6	NE	35	17:04
26/09/2010	Su	17	23.9	17	Е	28	15:19

27/09/2010	Мо	19	24.9	0	ENE	24	16:32
28/09/2010	Tu	22	26.6	0	NE	28	15:48

Table 23: Wet Season Weather

		Ten	nps		Max wind gust		st
		Min	Max	Rain	Dir	Spd	Time
Date	Day	°C	°C	mm	km	n/h	local
12/02/2011	Sa	21.5	29.4	0	ESE	35	12:27
13/02/2011	Su	23.7	29.8	2.2	ESE	31	23:50
14/02/2011	Мо	24.2	28.8	0	Е	48	12:40
15/02/2011	Tu	23.5	28.2	31	Е	54	12:34
16/02/2011	We	22.8	29.8	51.2	ESE	39	0:37
17/02/2011	Th	22.8	30.3	1	ESE	43	21:13
18/02/2011	Fr	23.5	29.5	9	Е	50	22:38
19/02/2011	Sa	24.7	29.8	5.8	ESE	41	1:47
20/02/2011	Su	25.6	30	2.2	ESE	30	2:23
21/02/2011	Мо	23.8	31.1	0	S	59	20:47

3.6.1 FAUNA SPECIES

The sections below describe the fauna encountered during terrestrial fieldwork undertaken in this study and the value of the study area to particular fauna groups. It includes reference to records made previously as part of other surveys and consultation (identified in the Literature Review). The full list of fauna species recorded in the study area is provided in Appendix G. The fauna identified as present or likely to be present on the island include migratory birds, mammals, reptiles and amphibians. Higher numbers of birds are recorded compared to mammalian assemblages. Both reptile and amphibian groups were well represented.

3.5.1.1 Mammals

Large Mammals

No large or small macropods were recorded from the island. No previous reports of macropod have been identified either in database searches or historic studies. The most common large mammal on the island was the declared pest, Goats. Goats were recorded from Areas 8, 5, 6 and 7. A Sheep was also recorded from the Island; however it is now kept by residents (after being removed from the homestead). No other sheep were observed during the study. Dogs were recorded on the Island; however these are domestic pets. No feral dogs were observed.

Small, Ground Dwelling Mammals

Elliott size A and B and pitfall trapping captured only three species of small ground dwelling mammal species over the duration of the survey, these being the Fawn-footed Melomys (*Melomys cervinipes*), Black Rat (*Rattus rattus**) and Common Planigale

(*Planigale maculata*). The Water Rat (*Hydromys chrysogaster*) was recorded during spotlight surveys. This outcome of low mammal diversity is comparable to mammal diversity on Magnetic Island where only five native mammals are known to occur (Isaac, 2005).

Whilst Echidnas were only recorded from area 3 – the airstrip, habitat for this species occurs throughout GKI and it is likely to be more widely distributed.

The high densities (see Arboreal Mammals) of Brushtail Possums observed foraging and moving on the ground may be an explanation for low species diversity of other mammal assemblages.

Arboreal Mammals

The only arboreal mammal recorded in the study area was the Common Brushtail Possum (*Trichosurus vulpecula*). This species was recorded from all types of habitat including the beach front, Eucalypt forest and Melaleuca forests. Observations in the dry season survey indicated the possibility of a high density population, particularly in the areas close to the former resort.

To further investigate this observation, several transect spotlight surveys of between 320 - 700m long and between 15-25m wide were undertaken during the wet season. Results of the possum count transects indicate the initial observations of a possibly higher density of possums around the resort area was confirmed with possum densities calculated up to 6.29 possums per hectare. See Table 24 below for counts per transect and calculated densities. Figure 13 illustrates the transect locations and where highest densities were recorded.

Table 24: Brushtail Possum Densities

Transect	Transect Date		Count	Density (per ha)	
T1	14/02/2011	8-9pm	2	2.06	
T2	16/02/2011	8-9pm	0	0	
T3	17/02/2011	8:15-9pm	3	6.25	
T4	17/02/2011	9:20-9:30pm	11	6.29	

Whilst the investigation provides only a broad estimate of the possum population it is noted that a range of 0-6.29 individuals per hectare well exceeds commonly observed Brushtail densities of between 0.2-4 individuals per hectare (Van Dyck and Strahan, 2008). A study on possums from Magnetic Island found possums occurring in high densities (5 individuals per hectare) comparable to densities found in New Zealand where possums are an introduced pest (Isaac, 2005). This study also found a relatively low diversity of other mammals as well as only few species that might be regarded as possum predators (Isaac, 2005).

The only other arboreal mammal previously reported from GKI is the Koala (Creighton, 1984). This study recorded no signs of Koala activity.

The Wildnet database includes one record of Common Ringtail Possum from GKI. It is likely that this record represents a misidentified Brushtail Possum.

Generally, mammalian species diversity recorded from the island was very similar to that identified on Magnetic Island to the north. Great Keppel Island was found to support 5 native mammal species. The diversity of mammals appears similar to that of Magnetic Island (which is a significantly larger island approximately 5184ha (Isaacs, 2005)). Isaacs (2005) states that Magnetic Island is currently known to support only five species of native mammal (Brushtail Possum, Koala, Echidna, Allied Rock Wallaby and Water Rat). Magnetic Island was also similar to Great Keppel Island as the Brushtail Possum density was found to be much higher then reported in most Australian systems at 5 individuals per hectare (Isaacs, 2005). Isaacs (2005) states the likely factors contributing to such high possum densities are the lack of large predators that affect mainland possums and lack of intraspecific competition with other folivorous species.

3.5.1.2 Bats

Two Flying Fox roosts were recorded on GKI (Figure 16). Only Black Flying Foxes (*Pteropus alecto*) was recorded foraging during the study. A roost recorded at the former resort was small and an approximate count of around 20 individuals was made. A roost recorded in Leeke's Estuary appeared to be larger, but a count of individuals was not possible due to the density of the mangroves in this location.

Three confirmed species of microbat were recorded for the study area through Anabat detection and analysis. A possible three further microbat species were not able to be identified to species level using Anabat.

The Vulnerable (NCA) Coastal Sheath-tail Bat (*Taphozous australis*) was identified as a strong possibility to occur on the Island due to the presence of sea caves and rock fissures which is potential roosting habitat. The Coastal Sheath-tail Bat has been known to roost on coastal Islands and fly to the mainland to forage around Cape York Peninsula (DERM, 2010b). This species was not able to be confirmed using Anabat analysis due to the call similarity to Beccari's Free-tail Bat (*Mormopterus beccarii*).

GKI supports a range of roost types for microbats including coastal caves, tree hollows and buildings. The following species were recorded:

• The Little North-Eastern Free-tailed Bat (*Mormopterus ridei*) which forages in woodlands and mangroves and may utilise many types of roosts but mainly tree hollows;

- The Little Bent-wing Bat (*Miniopterus australis*) which uses mainly caves for roosting and forages in paperbark swamps and wet/dry sclerophyll forests; and
- The Large-footed Myotis (*Myotis macropus*) which may be found in a range of roost environments including caves, tunnels, tree hollows, buildings and dense foliage in the tropical part of its range. This species never occur far from water bodies and often forage for insects and small fish over these water bodies (Van Dyck and Strahan, 2008).

3.5.1.3 Reptiles

The study area provides suitable habitat for a suite of reptiles. A total of 18 species of reptile were recorded over the wet and dry season searches. Of the 18 species one was the exotic Asian House Gecko (*Hemidactylus frenatus*).

All sclerophyll vegetation communities provide habitat for reptiles recorded and generally incorporate ground cover including leaf litter and log habitat. Specialist niches occur in mangrove habitat for the Rusty Monitor (*Varanus semiremex*) and on intertidal areas for the Littoral Skink (*Cryptobletharus littoralis*).

All but one species recorded by the Queensland Museum were identified during field work. The only species not observed was the Zig-zag Gecko (*Oedura rhombifer*). The Zig-zag gecko occurs in woodlands and shelters under bark and in hollows (Wilson and Swan, 2010).

3.5.1.4 Amphibians

Nine species of frogs were recorded during the assessment, all of them common species. The ephemeral ponds and watercourses that appeared during rainfall events were found to be rich in frog numbers.

3.5.1.5 Birds

Sixty-seven species of birds were records across the study area during the survey. Thirteen species are listed as EPBC migratory and ten as EPBC marine. One species, the Beach Stone Curlew (*Esacus neglectus*) is listed as Vulnerable under the NCA and two species, the Sooty Oystercatcher (*Haematopus fuliginosus*) and the Eastern Curlew (*Numenius madagascariensis*) are listed as Near Threatened under the NCA. Observations of these scheduled species are illustrated on Figure 16.

A higher diversity of terrestrial birds were recorded during the dry. It is likely that migration patterns were atypical in the wet season survey due to Cyclone Yasi making landfall to the north nine days prior to the survey.

Very few wader birds were recorded using the beaches or estuaries in both the wet and dry season.

Table 25 below, gives the common bird species recorded on the Wildnet database that potentially utilise GKI as habitat for roosting, feeding and breeding. During field work, only one instance of bird breeding was recorded, being the common White-faced Heron nest with two young (See Figure 16 for location).

Table 25: Common birds likely to occur on GKI

Species Name	Common Name	Wildnet	Recorded breeding Creighton, 1984
Anhinga novaehollandiae	Australasian Darter	Х	
Anous minutus	Black Noddy	х	
Anthus novaeseelandiae	Australasian Pipit	Х	Breeding Keppel group
Ardea pacifica	White-Necked Heron	Х	
Ardenna pacifica	Wedge-Tailed Shearwater	Х	
Artamus cyanopterus	Dusky Woodswallow	Х	
Cacomantus flabelliformis	Fan-Tailed Cuckoo	Х	
Ceyx azureus	Azure Kingfisher	Х	
Chalcited lucidus	Shining Bronze-Cuckoo	Х	
Colluricincla harmonica	Grey Shrike-Thrush	Х	
Coracina novaehollandiae	Black-Faced Cuckoo- Shrike	х	
Coracina papuensis	White-Bellied Cuckoo- Shrike	х	
Corvus coronoides	Australian Raven	Х	
Egretta sacra	Eastern Reef Egret	Х	
Eolophus roseicapillus	Galah	Х	
Falco cenchroides	Nankeen Kestrel	Х	
Geopelia striata	Peaceful Dove	Х	Breeding on GKI
Gerygone albogularis	White-Throated Gerygone	Х	
Gerygone levigaster	Mangrove Gerygone	Х	
Grallina cyanoleuca	Magpie-Lark	Х	
Himantopus himantopus	Black-Winged Stilt	Х	
Lichenostomus fasciogularis	Mangrove Honeyeater	Х	
Lopholaimus antarcticus	Topknot Pigeon	х	
Lichenostomus versicolor	Varied Honeyeater		Breeding Keppel group
Macropygia amboinensis	Brown Cuckoo-Dove	Х	
Megalurus timoriensis	Tawny Grassbird	Х	
Morus serrator	Australasian Gannet	Х	
Myzomela obscura	Dusky Honeyeater	Х	
Nycticorax caledonicus	Nankeen Night Heron	Х	
Oriolus sagittatus	Olive-Backed Oriole	Х	
Pachycephala pectoralis	Golden Whistler	Х	
Petrochelidon nigricans	Tree Martin	Х	
Phalacrocorax sulcirostris	Little Black Cormorant	Х	
Psophodes olivaceus	Eastern Whipbird	Х	
Ptilinopus regina	Rose-Crowned Fruit-Dove	х	
Rhipidura albiscapa	Grey Fantail	х	
Rhipidura leucophrys	Willie Wagtail	х	
Rhipidura rufifrons	Rufous Fantail	Х	
Sphecotheres vieilloti	Australasian Figbird	х	
Strepera graculina	Pied Currawong	х	
Taeniopygia bichenovii	Double-Barred Finch	Х	
Threskiornis molucca	Australian White Ibis	х	
Todiramphus pyrrhopygius	Red-Backed Kingfisher	х	
Todiramphus sanctus	Sacred Kingfisher	х	İ
Trichoglossus chlorolepidotus	Scaly-Breasted Lorikeet	х	

3.7 SIGNIFICANT FAUNA SPECIES

For the purpose of this study, species scheduled under the EPBC or the NCA will be regarded as significant. Otherwise significant species are regarded as those species that are listed as either 'Priority Species' or 'Data Deficient Species' in the Fitzroy Natural Resource Management Region Back on Track Actions for Biodiversity (DERM, 2010c). Otherwise significant species also includes species of cultural significance identified in the NCA or through consultation. The fauna field survey recorded 14 significant bird species in the study area, of which 13 are Nationally listed, 3 are State listed and 1 is regarded as a High Priority Species. One significant reptile regarded as a High Priority Species was also recorded. One species of cultural significance was listed under the NCA. Section 3.7.1, 3.7.2 and 3.7.3 below provide details regarding the habitat requirements for these species, the location of records and conservation values for the Island.

3.7.1 Nationally Significant Species

Of the 13 EPBC scheduled species recorded on Great Keppel Island (Table 26), ten species are listed as Marine and all thirteen are listed as Migratory. No nests or records of breeding were made during this study.

All species scheduled as Migratory under the EPBC Act consists of species that are listed under the following international conventions:

- Japan-Australia Migratory Bird Agreement (JAMBA);
- China-Australia Migratory Bird Agreement (CAMBA);
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention); and
- Republic of Korea Australia Migratory Bird Agreement (ROKAMBA).

Table 26: Nationally significant Fauna species recorded during the Current Study and 'Known' from the Assessment of Scheduled Fauna

Species	Status	Location Recorded	Population/ Abundance on GKI	Importance of Habitat on local, regional, national, international context	Regional and Local representation of the species relative to GKI	Current Level of Protection and Requirements of Recovery/management plans
Burhinus grallarius Bush Stone Curlew	M (EPBC)	Directly sighted: Areas 1, 2, 3, 4, 5, 6, 7, 8 and 10	Abundant.	Given the habitat of this species covers limited area on GKI it is not regarded as significant at a national or state level owing to its wide occurrence.	Has been recorded from four surveys on GKI (Birds, Australia, 2005-2007). In the CQC bioregion surveys across 25 10" cells have on average recorded this species in between 11-40% of the time (Birds Australia, 2005-2007). This species is reported as a common species in northern Australia and on many continental islands; however it has declined in southern Queensland (Birdlife International, 2011). The total Australian population has been estimated at 15,000 individuals (Birdlife International, 2011).	Department of Environment and Conservation NSW, 2006 outlines recovery objectives for New South Wales and those applicable on a wider basis are listed below: Raise the profile of the Bush Stone curlew through publicity activities. Increase the total area of Bush Stone-curlew habitat protected and managed for conservation Identify and map suitable Bush Stone-curlew habitat – foraging, breeding and roosting habitat should be identified. Undertake annual monitoring programs during the breeding season to Determine breeding success, juvenile recruitment and status of population.
Esacus neglectus Beach Stone Curlew	V (NCA) Mar (EPBC)	Directly sighted: Leeke's Estuary Leeke's Estuary (a pair) Leeke's Beach Putney Beach	Occasional.	Given the habitat of this species covers limited area on GKI it is not regarded as significant at a national or state level owing to its wide occurrence. Little work has been done on the species within a regional context. The paucity of information on the species is highlighted in Freeman's 2003 study undertaken in the Wet Tropics. However, broadly the species is recorded more commonly from beaches in northern Queensland than southern Queensland and NSW (NSW NPWS, 1999).	The species has been recorded from two survey locations on GKI (Birds Australia, 2005-2007). More broadly the Beach Stone-curlew has been recorded from 17 10" cells along the coast between Yeppoon and Mackay (within the CQC bioregion) (Birds Australia, 2005-2007). These 17 survey cells generally show that 11-40% of surveys record this species.	DERM (2007) lists the following six recovery actions for this species: Protect important habitat areas from urban and industrial development, and pollution; Restrict or control assess to beaches where these birds are resident, particularly during the breeding season; Increase public awareness about the effects of beach/sand dune driving; Educate dog owners to restrain their animals in habitat areas; Implement control measures for feral animals; Monitor populations to determine long-term trends. This species is sensitive to human disturbance and loss of habitat. Further research is required to determine critical levels of disturbance that trigger nest desertion (NSW NPWS, 1999).
Falco cenchroides	M, Mar	Recorded by Black and Houston (2011).	Occasional.	Given the broad habitat types used by this species and the wide occurrence of	The Nankeen Kestrel has been recorded from two surveys on GKI	A specific management plan does not exist for this species.

Species	Status	Location Recorded	Population/ Abundance on GKI	Importance of Habitat on local, regional, national, international context	Regional and Local representation of the species relative to GKI	Current Level of Protection and Requirements of Recovery/management plans
Nankeen Kestrel		One bird was recorded at each of the following locations: Leeke's Beach, Putney Beach and Resort Precinct.		habitat types of GKI within a State and National context, habitat on GKI it is not regarded as significant. Broadly, Nankeen Kestrels are found in most areas of Australia including continental Islands and nearby continental islands (New Guinea and Indonesia) (Birds Australia, 2011).	(Birds, Australia, 2005-2007). In the CQC bioregion surveys across 39 10" cells have on average recorded this species 11% of the time (Birds Australia, 2005-2007). Estimated 1,000,000 mature individuals occur (Birdlife International, 2011).	
Haliaeestus leucogaster White-bellied Sea Eagle	M, Mar (EPBC)	Directly sighted: Flyover areas 2, 4	Occasional.	Given the broad habitat types used by this species and the wide occurrence of habitat types of GKI within a State and National context, habitat on GKI it is not regarded as significant.	Has been recorded from three surveys on GKI (Birds, Australia, 2005-2007). In the CQC bioregion surveys across 29 10" cells have on average recorded this species in between 11-40% of the time (Birds Australia, 2005-2007). Based on speculative and conservative estimates of 500 or more pairs in Australia, and more than 10 000 individuals worldwide (including more than 2500 adult pairs, together with immature and non-breeding birds), it has been estimated that approximately 10–20% of the global population of the White-bellied Sea-Eagle occurs throughout Australia (SEWPAC, 2011).	Main threats to White-bellied sea eagle is clearing and development (especially of or near nesting habitats). Eagles may desert nests and young if exposed to human activity near the nest (SEWPAC, 2011). Management recommendations have been made for Victorian and Tasmanian populations of this species. These are listed below: Tasmania (Threatened Species Section, 2006) Increase the effectiveness of predictive habitat models for application State-wide. Increase the proportion and number of nests found prior to land development on all tenures, including, but not restricted to forestry operations and land clearance. Reduce the proportion of nests subject to disturbance. Identify human-induced causes of breeding failure and mitigate against such causes. Increase breeding success. Increase the number and/or density of active territories. Develop and apply protocols for effective eagle management during all land development. Monitor the implementation and effectiveness of management prescriptions. Implement prescriptive nest reserves for conserving nesting habitat. Identify new threats and implement strategies for their mitigation. Reduce the occurrence of eagle mortalities

Species	Status	Location Recorded	Population/ Abundance on GKI	Importance of Habitat on local, regional, national, international context	Regional and Local representation of the species relative to GKI	Current Level of Protection and Requirements of Recovery/management plans
						and injuries (in number and proportion), particularly those attributable to human activities. Engage the electricity industry in reducing the proportion of eagle collisions and electrocutions. Respond to inquiries for information on eagle management by affected interests and the public. Undertake research into eagle biology that targets improved species management. Victoria: Protect known nesting sites, and a suitable buffer zone around nests, from human and habitat disturbance on public land through appropriate land management practices. This protection should be given priority (Clunie, 2003).
Merops ornatus Rainbow Bee- eater	M, Mar (EPBC)	Directly sighted: Area 1, 3, 4, 5, 6 and 8	Abundant.	Given the broad habitat types used by this species and the wide occurrence of habitat types of GKI within a State and National context, habitat on GKI it is not regarded as significant.	Has been recorded from four surveys on GKI (Birds, Australia, 2005-2007). In the CQC bioregion surveys across 41 10" cells have on average recorded this species more than 40% of the time (Birds Australia, 2005-2007). The rainbow bee-eater population size throughout the region and the state are assumed to be large and there is little evidence of declines. (SEWPAC, 2011).	A recovery plan does not exist for this species. The only identified threat to rainbow bee-eaters is the Cane Toad as cane toads feed on the eggs and usurp nesting burrows (SEWPAC, 2011).
Monarcha melanopsis Black-faced Monarch	M, Mar (EPBC)	Directly sighted: Areas 3, 5, 6 and 8 during dry season only	Common.	Given the broad habitat types used by this species and the wide occurrence of habitat types of GKI within a State and National context, habitat on GKI it is not regarded as significant.	Has been recorded from one survey on GKI (Birds, Australia, 2005-2007). In the CQC bioregion surveys across 22 10" cells have on average recorded this species less than 11% of the time (Birds Australia, 2005-2007). The global population size has not been quantified, but the species is reported to be locally quite common (Birdlife International, 2011).	A specific recovery plan does not exist for this species.

Species	Status	Location Recorded	Population/ Abundance on GKI	Importance of Habitat on local, regional, national, international context	Regional and Local representation of the species relative to GKI	Current Level of Protection and Requirements of Recovery/management plans
Monarcha trivirgatus Spectacled Monarch	M, Mar (EPBC)	Directly sighted: Area 10 during wet season:	Occasional.	Given the broad habitat types used by this species and the wide occurrence of habitat types of GKI within a State and National context, habitat on GKI it is not regarded as significant.	Has been recorded from two surveys on GKI (Birds, Australia, 2005-2007). In the CQC bioregion surveys across 23 10" cells have on average recorded this species in between 11-40% of the time (Birds Australia, 2005-2007). The global population size has not been	A specific recovery plan does not exist for this species.
					quantified, but the species is reported to be locally quite common (Birdlife International, 2011).	
Myiagra inquieta Restless Flycatcher	M (EPBC)	Directly sighted: Areas 1, 2, 3, 4, 5, 6, 7, 8 and 10	Abundant.	Given the broad habitat types used by this species and the wide occurrence of habitat types of GKI within a State and National context, habitat on GKI it is not regarded as significant.	Has been recorded from one survey on GKI (Birds, Australia, 2005-2007). In the CQC bioregion surveys across 10 10" cells have on average recorded this species less than 11% of the time (Birds Australia, 2005-2007).	A specific recovery plan does not exist for this species.
					The global population size has not been quantified, but the species is reported to be locally quite common (Birdlife International, 2011).	
Myiagra rubecula Leaden Flycatcher	M (EPBC)	Directly sighted: Area 4	Occasional.	Given the broad habitat types used by this species and the wide occurrence of habitat types of GKI within a State and National context, habitat on GKI it is not regarded as significant.	Has been recorded from two surveys on GKI (Birds, Australia, 2005-2007). In the CQC bioregion surveys across 46 10" cells have on average recorded this species in between 11-40% of the time (Birds Australia, 2005-2007).	A specific recovery plan does not exist for this species.
					The global population size has not been quantified, but the species is reported to be locally quite common (Birdlife International, 2011).	
Numenius madagascariensis Eastern Curlew	NT (NCA) M, Mar (EPBC)	Directly sighted: Leeke's Estuary	Occasional.	Given the habitat of this species covers limited area on GKI it is not regarded as significant at a national or state level owing to its wide occurrence.	Has been recorded from two surveys on GKI (Birds, Australia, 2005-2007). In the CQC bioregion surveys across 21 10" cells have on average recorded this species in between 11-40% of the time (Birds Australia, 2005-2007). This species has been recorded from	Human disturbance can disrupt feeding and roosting. Eastern Curlews may take off when approached within 30-100m or even 250m (SEWPAC, 2011) The Environmental Protection Agency (2007) produced a bird disturbance on beaches fact sheet outlining management activities for migratory shore birds which includes the

Species	Status	Location Recorded	Population/ Abundance on GKI	Importance of Habitat on local, regional, national, international context	Regional and Local representation of the species relative to GKI	Current Level of Protection and Requirements of Recovery/management plans
					within the CQC bioregion from the internationally important site, Mackay Town Beach, where a maximum count of 710 Curlews was made and from the internationally important Shoalwater Bay and Broad Sound where counts of 2,986 birds was made in 1995 (Bamford et. al., 2008; SEWPAC, 2011). The total estimated East Asian – Australasian flyway population is 38 000 curlews (Bamford et. al, 2008). This illustrates that lage numbers of Eastern Curlews use habitats nearby to GKI.	following: Responsible beach driving and dune protection Minimise disturbance to wildlife Noise, speed and movement easily disturb shorebirds, so help protect their habitat and their future by leaving them undisturbed. Ensure that domestic animals under control and kept on a leash Keep our beaches and coastline clean — most rubbish and pollutants discarded on land end up in the ocean, so please take your rubbish with you.
Numenius phaeopus Whimbrel	M, Mar (EPBC)	Directly sighted: Leeke's Estuary	Occasional.	Given the habitat of this species covers limited area on GKI it is not regarded as significant at a national or state level owing to its wide occurrence. Bamford et. al. (2008) identified 7 sites of international importance to this species in Australia. These sites are spread north from Moreton Bay in Queensland and across the northern coast of Australia and GKI is not identified as one of them.	The Whimbrel has been recorded from two locations on GKI (Brids Australia, 2005-2007). In the CQC bioregion surveys across 20 10" cells have on average recorded this species in between 11-40% of the time (Birds Australia, 2005-2007). Of the estimated East Asian – Australasian flyway population of 100 000 whimbrels, a total of 7,124 whimbrels have been recorded from the nearby Shoalwater Bay an dBroad Sound important habitat area (Bamford et. al, 2008).	SEWPAC (SEWPAC, 2009) released draft guidelines containing general recommendations for migratory shorebirds. Measures to mitigate against the impacts of disturbance need to be determined on a case-by-case basis, as different species of shorebird respond differently to disturbance. Options for mitigating impacts from disturbance include: • the use of buffer zones around areas important for the migratory shorebirds. The appropriate buffer will depend on the nature of the individual circumstances, including the species present, type of habitat (ephemeral vs. permanent), habitat use (roosting or foraging) and scale of disturbance. As a guide, previous studies have recommended buffer zones ranging from 165m to 255m; • construction of appropriate barriers, such as fences around important habitat, to restrict access. Ideally, there should be no public access (by humans and/or domestic animals) to areas identified as important to migratory shorebirds. Where this is not feasible, particular recreational activities may need to be excluded from the area or it may be necessary to limit

Species	Status	Location Recorded	Population/ Abundance on GKI	Importance of Habitat on local, regional, national, international context	Regional and Local representation of the species relative to GKI	Current Level of Protection and Requirements of Recovery/management plans
						the number of people using an area at one time and/or to limit activities during the period between October and March (when the majority of birds will be present at the site); and • landscape and urban design, including sympathetic lighting strategies and sound attenuation, or • Community education through mechanisms such as interpretive signs at access points to shorebird habitats.
Thalasseus bengalensis Lesser Crested Tern	M, Mar	Recorded by Black and Houston (2010) from Leeke's Estuary.	Occasional.	Given the broad habitat types used by this species and the wide occurrence of habitat types of GKI within a State and National context, habitat on GKI it is not regarded as significant. Broadly, the Lesser Crested Tern naturally occurs throughout Australia and internationally (DERM, 2011d).	This species has been recorded from two surveys on GKI (Birds, Australia, 2005-2007). In the CQC bioregion surveys across 5 10" cells have on average recorded this species in between 11-40% of the time (Birds Australia, 2005-2007). Estimated 190,000 – 230,000 individuals (Birdlife International, 2011).	A specific management plan does not exist for this species.
Tringa brevipes Grey-tailed Tattler	M, Mar	Recorded by Black and Houston (2011) from Leeke's Estuary.	Occasional.	Has a wide global distribution. In Queensland the Grey-tailed Tattler is found along the entire coast with a continuous population along the east coast of the Cape York Peninsula. Inland records also occur, although rarely (SEWPAC, 2011).	The Grey-tailed Tattler has been recorded from 1 survey on GKI (Birds Australia, 2005-2007). In the CQC bioregion surveys across 15 10" cells have on average recorded this species in between 11-40% of the time (Birds Australia, 2005-2007). The highest maximum bird count at an internationally important site was made in Western Australia (12,420 individuals at Eighty Mile Beach). This species has also been recorded from within the CQC bioregion at Shoalwater Bay and Broad sound (maximum count of 3,014 individuals).	This species is listed under the Wildlife Conservation Plan for Migratory Shorebirds (DEH, 2006) and the SEWPAC (SEWPAC, 2009) draft guidelines containing general recommendations for migratory shorebirds. General guidelines for mitigating development include:
Vanellus miles Masked Lapwing	M (EPBC)	Directly sighted: Area 1, 2, 3, 4, 8 and 10	Abundant.	Given the broad habitat types used by this species and the wide occurrence of habitat types of GKI within a State and National context, habitat on GKI it is not	The Masked Lapwing has been recorded from 6 surveys on GKI (BA, 2005-2007) and is reported as common throughout northern, central and	A specific recovery plan does not exist for this species.

Species	Status	Location Recorded	Population/ Abundance on GKI	Importance of Habitat on local, regional, national, international context	Regional and Local representation of the species relative to GKI	Current Level of Protection and Requirements of Recovery/management plans
				regarded as significant.	eastern Australia (Birds Australia, 2011). In the CQC bioregion surveys across 44 10" cells have on average recorded this species greater than 40% of the time (Birds Australia, 2005-2007).	

Further information on the nesting, resting, breeding, foraging and seasonal influences on the species listed above as well as significant species returned by the EPBC Protected Matters Database search are presented in Appendix H Listed Species Analysis.

None of the habitats on GKI can be considered unique as all types of habitat are represented elsewhere, either on the mainland or on other continental islands of GBR. 'Important habitat' defined in Figure 2 of the Draft EPBC Act Policy Statement 3.21 – Significant Impact Guidelines for 36 Migratory Shorebird Species (SEWPAC, 2009), has been reviewed and no habitats on GKI meet these criteria for those species known to occur. Whilst other habitats on GKI are used by migratory species that are not shorebirds, again none of these habitats can be regarded as 'important'.

None of the nationally significant species have any particular social, economic significance; nor do they have any special conservation or biodiversity value. While Aboriginal groups did have strong links with the native flora and fauna and some of these links may still be important today, no specific species of cultural significance have been identified at this time. Consultation with the Traditional Owners is ongoing and further information will be available once this has been completed.

3.7.2 State Significant Species

Three species of State significance were recorded on Great Keppel Island (table 27). One species is listed as Vulnerable and Two as Near Threatened under the NCA. The Beach Stone Curlew (Vulnerable, NCA) and the Eastern Curlew (Near Threatened, NCA) are discussed in section 3.7.1.

Table 27: State significant Fauna species recorded during the Current Study

Species	Status	Location Recorded	Population/ Abundance on GKI	Importance of Habitat on local, regional, national, international context	Regional and Local representation of the Species relative to GKI	Current Level of Protection and Requirements of Recovery/management plans
Haematopus fuliginosus Sooty Oystercatcher	NT (NCA)	Directly sighted: Wreck Beach	Occasional	Given the limited area on GKI of habitat types used by this species and the wide occurrence within a State and National context, habitat on GKI it is not regarded as significant. Broadly this species is distributed widely throughout coastal (usually within 50m of the ocean) Australia except for coastal northern Australia (Birds Australia, 2011).	The Sooty Oystercatcher has been recorded from 3 surveys on GKI (Birds Australia, 2005-2007). In the CQC bioregion surveys across 15 10" cells have on average recorded this species in between 11-40% of the time (Birds Australia, 2005-2007). The overall population is estimated at 12,000 mature birds (Birdlife International, 2011).	The Department of Environment and Conservation (NSW) (2005) identified 7 priority actions for recovery of this species which are: Undertake fox, feral cat and rat control programs. Assess the appropriateness of dog and cat ownership in new subdivisions. Manage estuaries and the surrounding landscape to ensure the natural hydrological regimes are maintained. Install interpretive signs at major nesting sites. Protect and maintain known or potential habitat, including the implementation of protection zones around known habitat and breeding sites and sites of recent records.

Further information on the nesting, resting, breeding, foraging and seasonal influences on the species listed above as well as significant species returned by the Wildnet Database search are presented in Appendix H Listed Species Analysis.

3.7.3 Otherwise Significant Species

Two species regarded as Priority Species were recorded on GKI. Both species are regarded as High Priority in the Fitzroy Basin Area. The Beach Stone Curlew is regarded as High Priority and is discussed in Sections 3.7.2 and 3.7.1 above. The Rusty Monitor (*Varanus semiremex*) is also regarded as High Priority. The Echidna is regarded as culturally significant under the NCA. Further information on these species is presented in Table 28 below.

Table 28: Otherwise Significant Fauna species recorded during the Current Study.

Species	Status	Location Recorded	Population/ Abundance on GKI	Importance of Habitat on local, regional, national, international context	Regional and Local representation of the Species relative to GKI	Current Level of Protection and Requirements of Recovery/management plans
Varanus semiremex Rusty Monitor	High Priority	Directly sighted: Leeke's Estuary	Occasional.	Given the limited area on GKI of habitat types used by this species and the wide occurrence within a State and National context, habitat on GKI it is not regarded as significant Broadly the Rusty Monitor uses coastal and estuarine areas up to 70km from the Queensland coast between Boyne Island and Weipa including some offshore Islands (EPA, 2007b).	The species is poorly understood in terms of population, breeding habits within its natural habitat (Jackson, unknown).	As this is a priority species for Queensland, and is threatened in other regions, a watching brief is required so the stronghold population is maintained in the region. Action F 59.5.11 in the table 'Potential decline in stronghold populations in the region' table states: Encourage surveys for rusty monitor to identify their distribution and key populations in the Fitzroy NRM region, and monitor potential decline that may results from urban development, cane toads, cats and foxes. Mangrove habitats should be protected from the impacts of development (DERM, 2010d). The EPA (2007) Conservation Management Profile also recommends a buffer of 100m around any hollow-bearing tree used by this species and clearing should not occur within known habitat of the Rusty Monitor.
Tachyglossus aculeatus Echidna	Culturally Significant (NCA)	Directly sighted within the resort precinct	Occasional.	Given the limited area of habitat types on GKI and the wide occurrence within a State and National context, habitat on GKI it is not regarded as significant.	This species is common and widespread throughout Australia (DPIPWE, 2009).	 Drive carefully and do not drive the centre of the car over echidnas; Control dogs and prevent them roaming - they can easily kill echidnas; and Leave gaps under fences where possible. This will allow them to roam freely when feeding (DPIPWE, 2009).

3.8 HABITAT

3.8.1 Confirmed Beach Stone Curlew Habitat

DERM's Essential Habitat mapping is prepared through multiple information sources and habitat modeling. One of the simplest approaches is the buffering of point records. Beach Stone Curlew Essential Habitat for GKI has been mapped utilising this method and thus the resulting mapping incorporates sclerophyll habitats on ridgelines. Whilst the 'Mandatory Essential Habitat Factor' for the species is described as "All regional ecosystems along ecotone with beach", the 'Vegetation Description' (DERM, 2011b) is described as "All types of undisturbed beaches and littoral habitat, both surf and sheltered exposure on mainland and islands, especially near river mouths and mangrove-backed areas. Nest at back of beach/sandbank (occasionally among sparse grass or shingle with plant debris) or on coral ridge above high tide mark, often near creek or estuary." This is consistent with NSW NPWS (1999) which describes the preferred habitat of the species as open undisturbed beaches, islands, reefs, estuarine intertidal sandflats and mudflats. Given this, the extent of Essential Habitat as mapped extends into habitats unlikely to be utilised by the species.

Based on field observations, the known habitat of the species includes areas of RE 8.1.1, 8.1.2 and 8.2.1 in the wetland area behind Leeke's Beach.

A study conducted by Laursen, Kahlert and Frikke (2005) recorded the staging (escape distance) distance of a diversity of wader species on intertidal mudflats. As the Beach Stone Curlew was not one of the species considered in the study a precautionary approach has been adopted whereby the wader bird with the greatest escape distance was used as a surrogate for the species. The greatest mean escape distance was 298m and was recorded for the Curlew (*Numenius arquata*) which is similar in body size to the Beach Stone Curlew. Given this, the application of a 300m buffer to the outward edge of the known habitat of the Beach Stone Curlew is likely to adequately represent a sensitivity area for the species.

3.8.2 Habitat Assessment

Based on the habitat assessment (Appendix F for habitat forms) and the vegetation assessment (Sections 2.3.3 of this report), broad habitat types are mapped for the island in Figure 17. Table 29 below identifies these broad habitat types, the key associated habitat features along with the both fauna groups recorded from the island and threatened species recorded from database searches that may utilise these habitat assemblages.

Table 29: Key Habitat Features of Habitat Types on GKI

Habitat Types	Mapped Regional Ecosystems within Habitat Type	Key Habitat features
Beach front	Includes 8.2.1, 8.2.7e, 8.2.2	Marine flora species Intertidal zone
Tidal inlet/Estuary/mangroves	includes RE 8.1.1, 8.1.2 Includes Leeke's Estuary	Marine flora species Interface with terrestrial vegetation
Sclerophyll Associations (Eucalypt, Corymbia, Melaleuca spp.)	Includes RE 8.3.6c, 8.3.13c	Periodically inundated Fresh water Leaf litter and fallen timber Some hollow bearing trees
Sclerophyll Associations (Eucalypt, Corymbia, Acacia spp.)	Includes RE 8.2.8a, 8.11.3a, 8.12.14x2c	Leaf litter Fallen timber Some hollow bearing trees
Headland and wind-sheared vegetation, cliffs	Includes RE 8.11.9a, 8.11.10	Low vegetation Cliffs/caves Interface between rocky shore and marine areas
Clear open Grassland or dams	Includes non-remnant vegetation	Few trees Open grassed areas Permanent freshwater (Dams)

Many areas throughout the island had high proportions of leaf litter and fallen timber providing good habitat for ground-dwelling fauna, particularly fossorial skinks which were observed in abundance. Generally habitat values across the Island are 'high – very high' (see methodology section) with few areas assessed as very low - low value habitat. Low value habitat corresponds with areas that are cleared and open with little structural diversity and therefore few habitat components of value to an array of fauna. Generally beachfront and wind-swept headlands are ranked as moderate - high due to their intrinsic lack of diverse structural elements and fauna must be tolerant to regular marine influences.

Hollow-bearing trees were recorded in sclerophyll forests and in less disturbed areas, providing nesting/roosting habitat for species of bird including kingfishers, arboreal mammals and microbats.

A number of habitat assemblages occur on GKI which are grouped in Table 29. One of the most important habitat areas on the Island is Leeke's Estuary. This marine influenced community is sensitive to changes or disturbances particularly because it is prime roosting, feeding and nesting habitat for those migratory and marine species recorded in this study.

Leeke's Estuary was identified as significant for several reasons. The highest number of significant species recorded during the study was found in this area. Leeke's estuary was also found to provide breeding habitat (White-faced Heron nest), roosting habitat for flying foxes and foraging habitat for the water rat. The highest diversity of wader birds on GKI was identified in Leeke's estuary. This area was also identified as having the potential to provide foraging and roosting habitat to some scheduled bird species not recorded during the current study.

3.8.3 MOVEMENT CORRIDORS/ CONNECTIVITY

Tidal estuaries like Leeke's estuary provide a corridor for species to move between marine environments and terrestrial environments. Putney Creek provides a similar corridor but on a smaller scale than Leeke's Estuary.

As much of the Island is vegetated and currently no significant man-made barriers to movement are present (i.e. major roads and high car traffic), movement is likely to occur freely across the island for the larger more mobile species and freely between microhabitats for the smaller species.

The terrestrial habitats throughout the Island are sensitive to fragmentation as currently fauna movement is relatively unconstrained. Some areas of the Island where historical clearing has occurred have slightly lower connectivity values particularly for small mammals that require high proportions of groundcover (as predator protection) to move through an area. However, many fauna species recorded on GKI have the capacity to move over/through modified areas.

3.9 FERAL ANIMALS

Several species of exotic fauna were recorded on the island. Two species of exotic mammal (Goat and Black Rat), one reptile (Asian house gecko) and one species of bird (Indian Peafowl) were found to be naturalized in wooded habitats. One species of bird recorded was not native to the region being the Long-billed Corella, recorded from Putney Creek and Area 10. Of these only one, the Goat, is listed under the LPA. Goats are Class 2 pests and landholders must take reasonable steps to keep land free of Class 2 pests.

Of significance is that there have not been any records of Cane Toad (*Rhinella marina*) from GKI.

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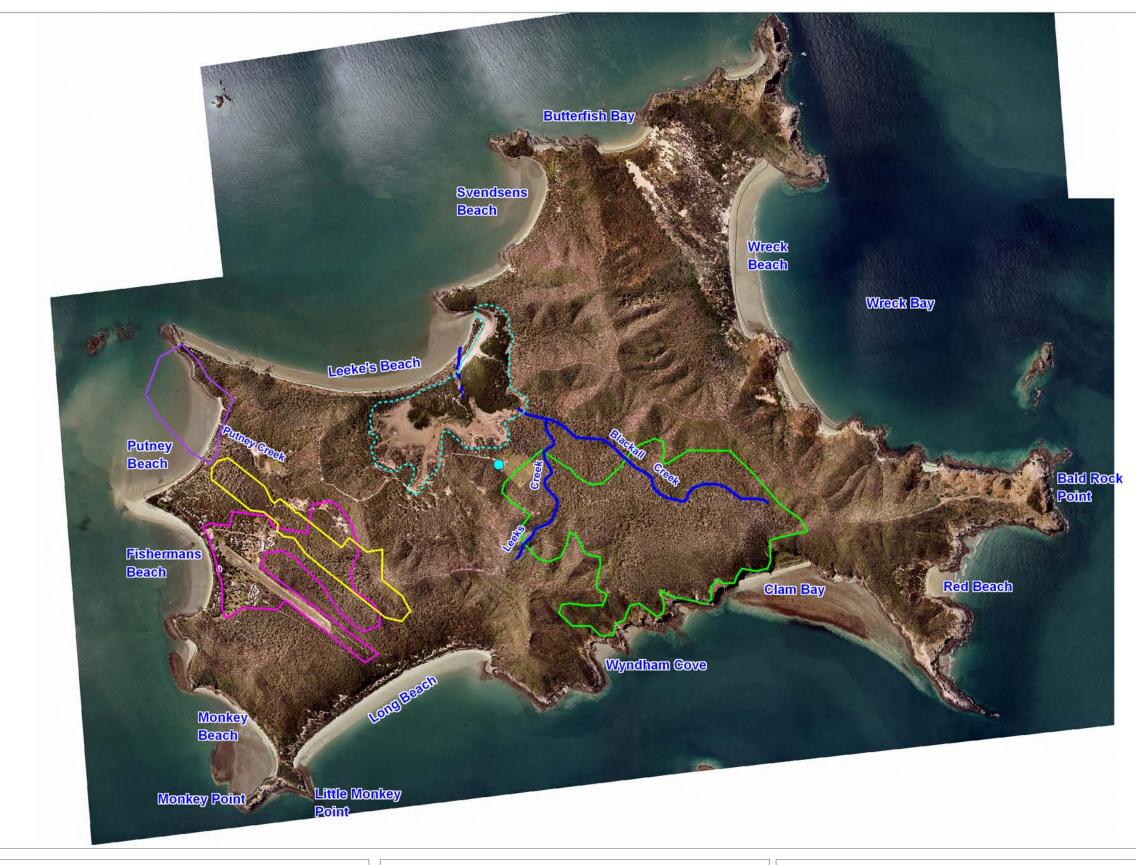
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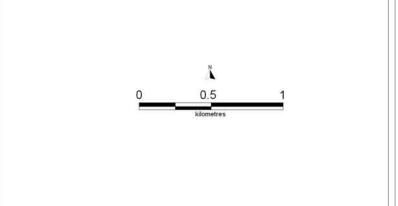
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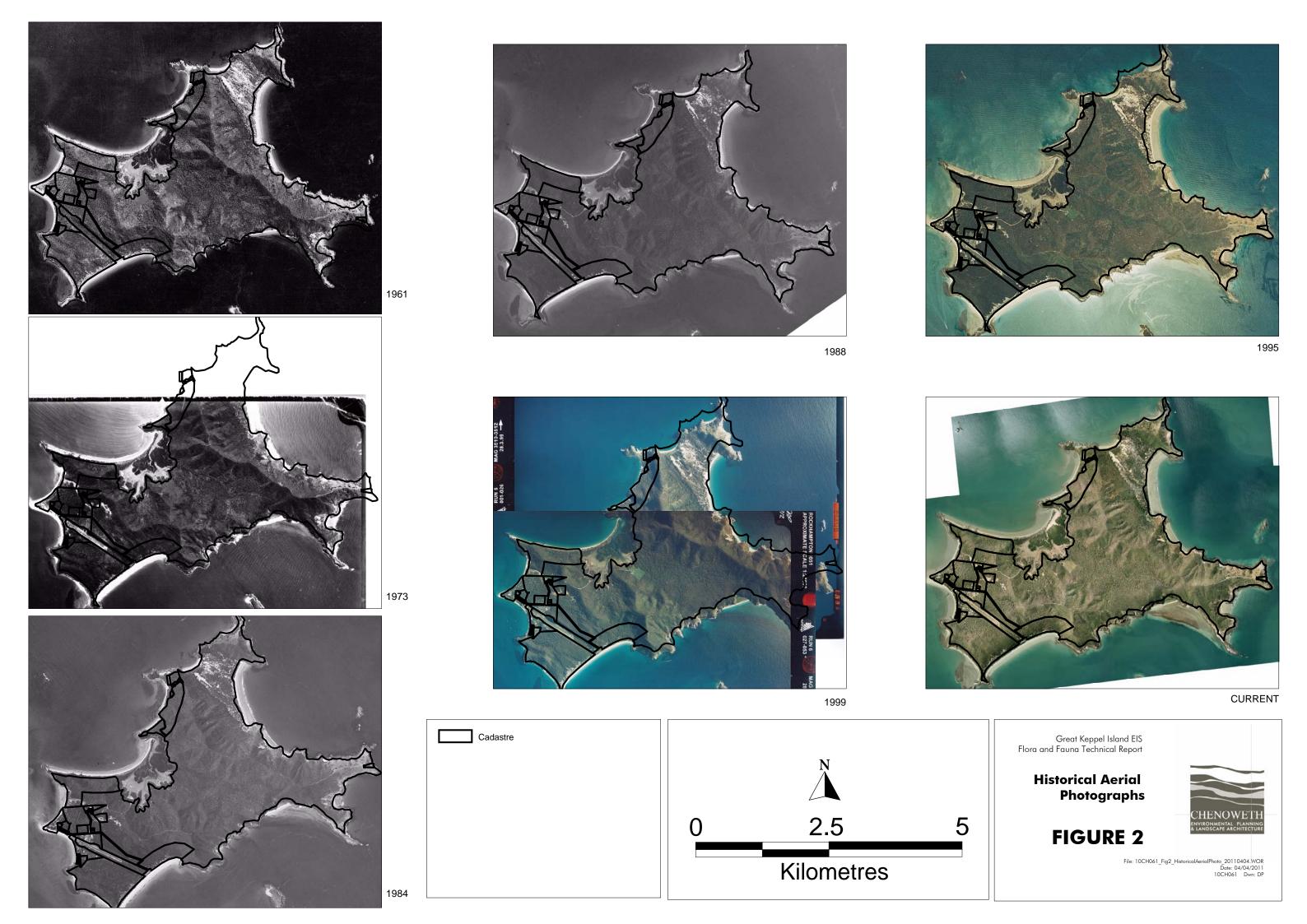
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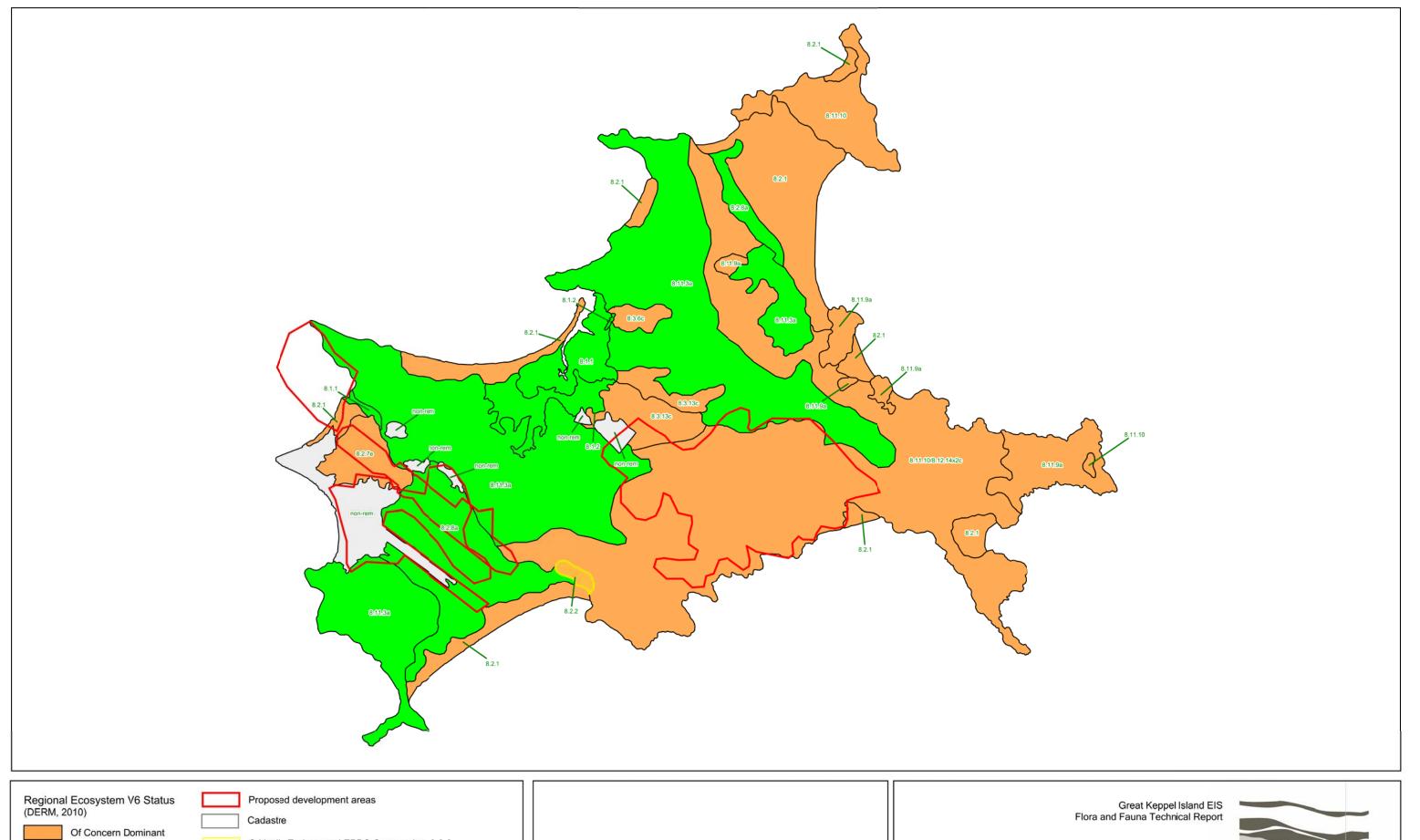
Great Keppel Island and Proposed Development Location

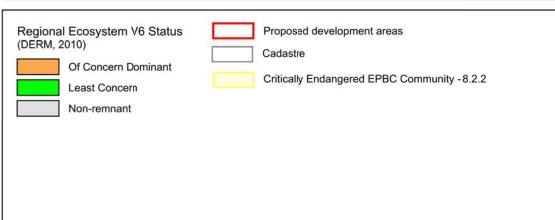


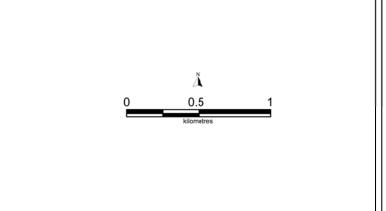
FIGURE 1

File:Fig1_Study Area Location.WOR Date: 19/07/2011 10CH061 Dwn: AP









Regional Ecosystem Mapping Version 6.0 RE Status

FIGURE 3



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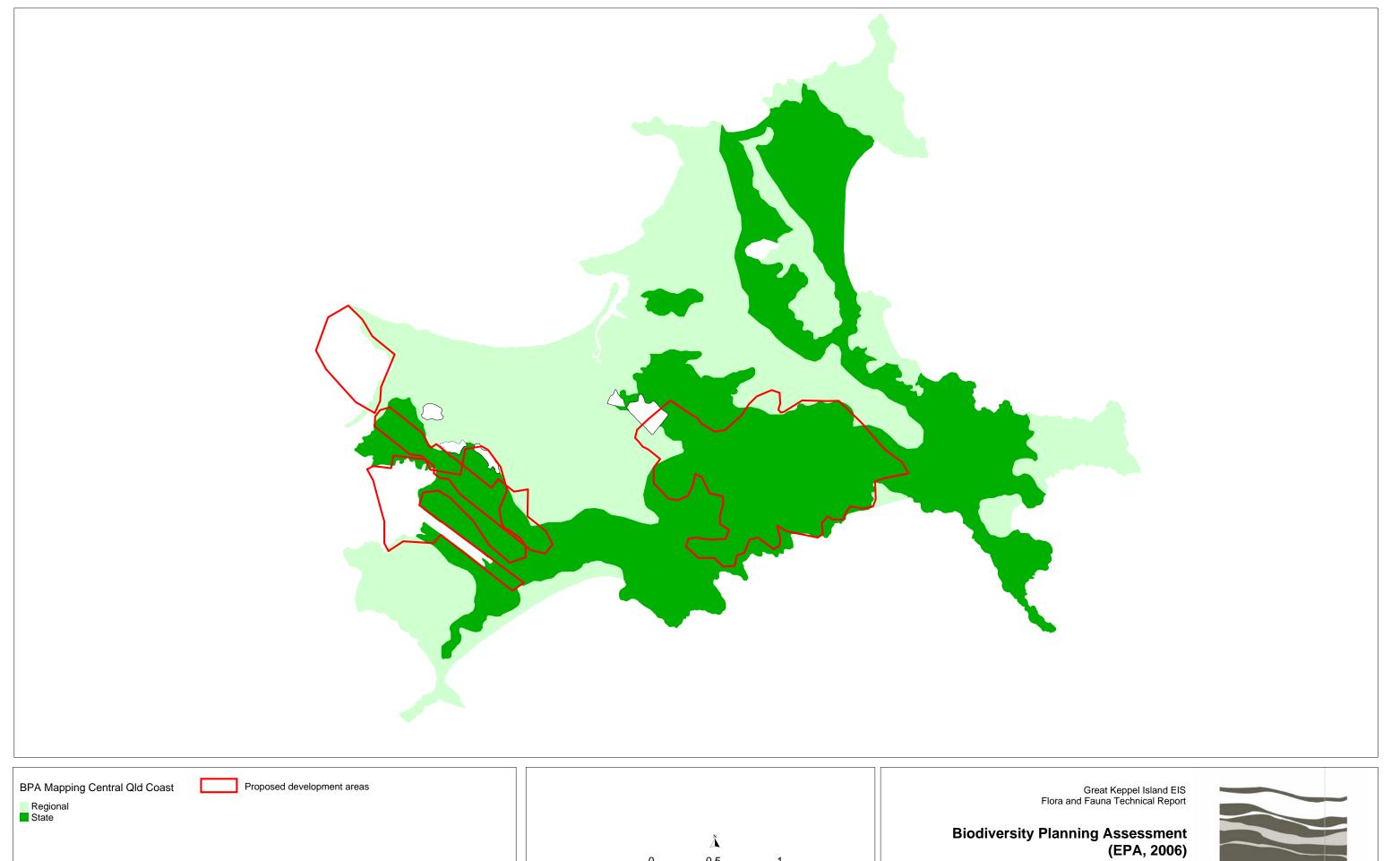
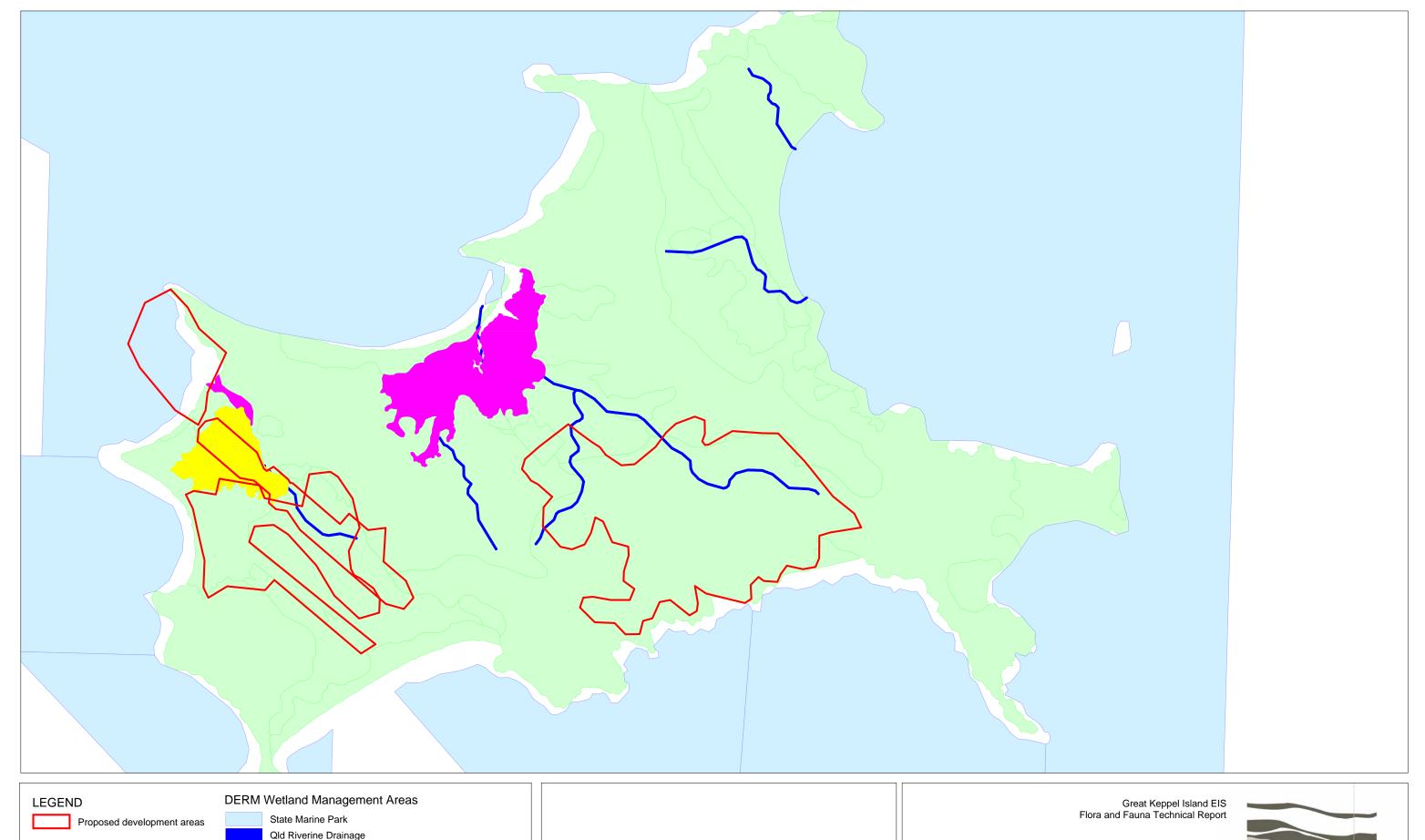
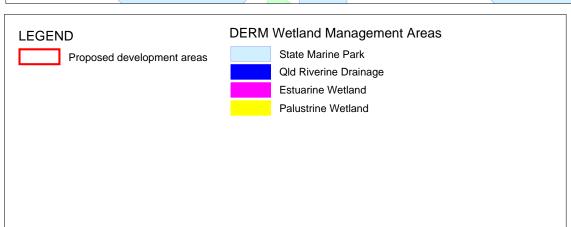


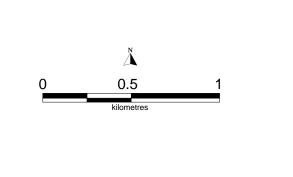


FIGURE 4







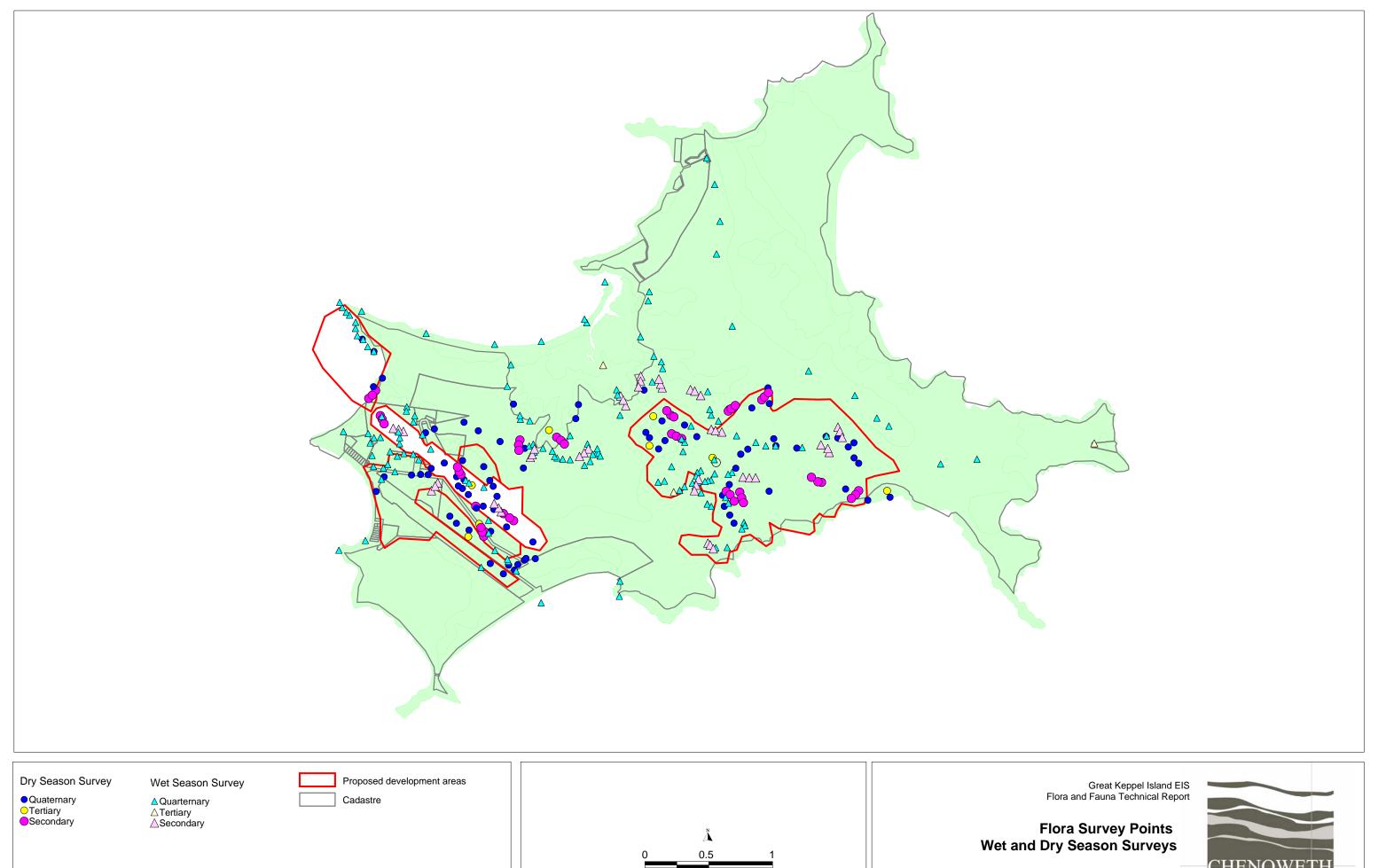


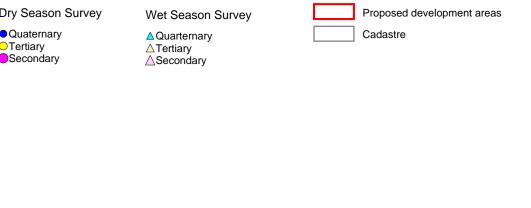
DERM Wetland Mapping



FIGURE 5

File: Fig5_DERM_Wetlands.WOR Date: 19/07/2011 10CH061 Dwn: AP





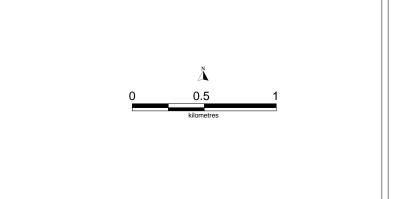
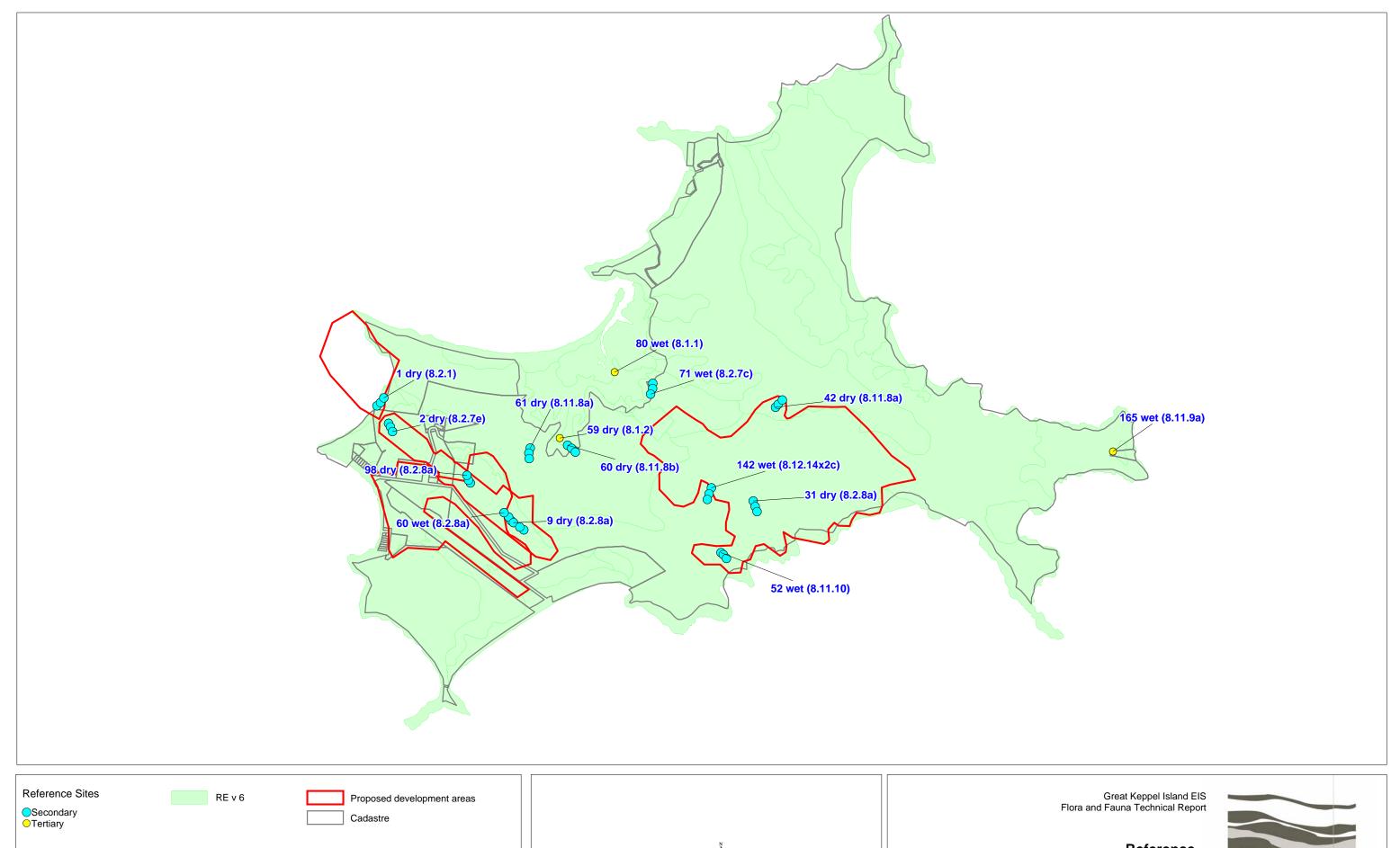
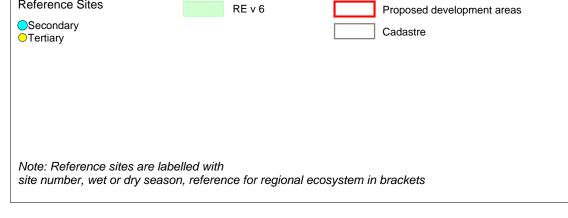


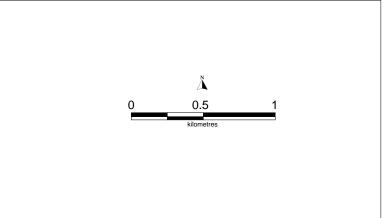


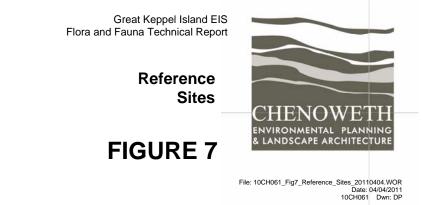
FIGURE 6

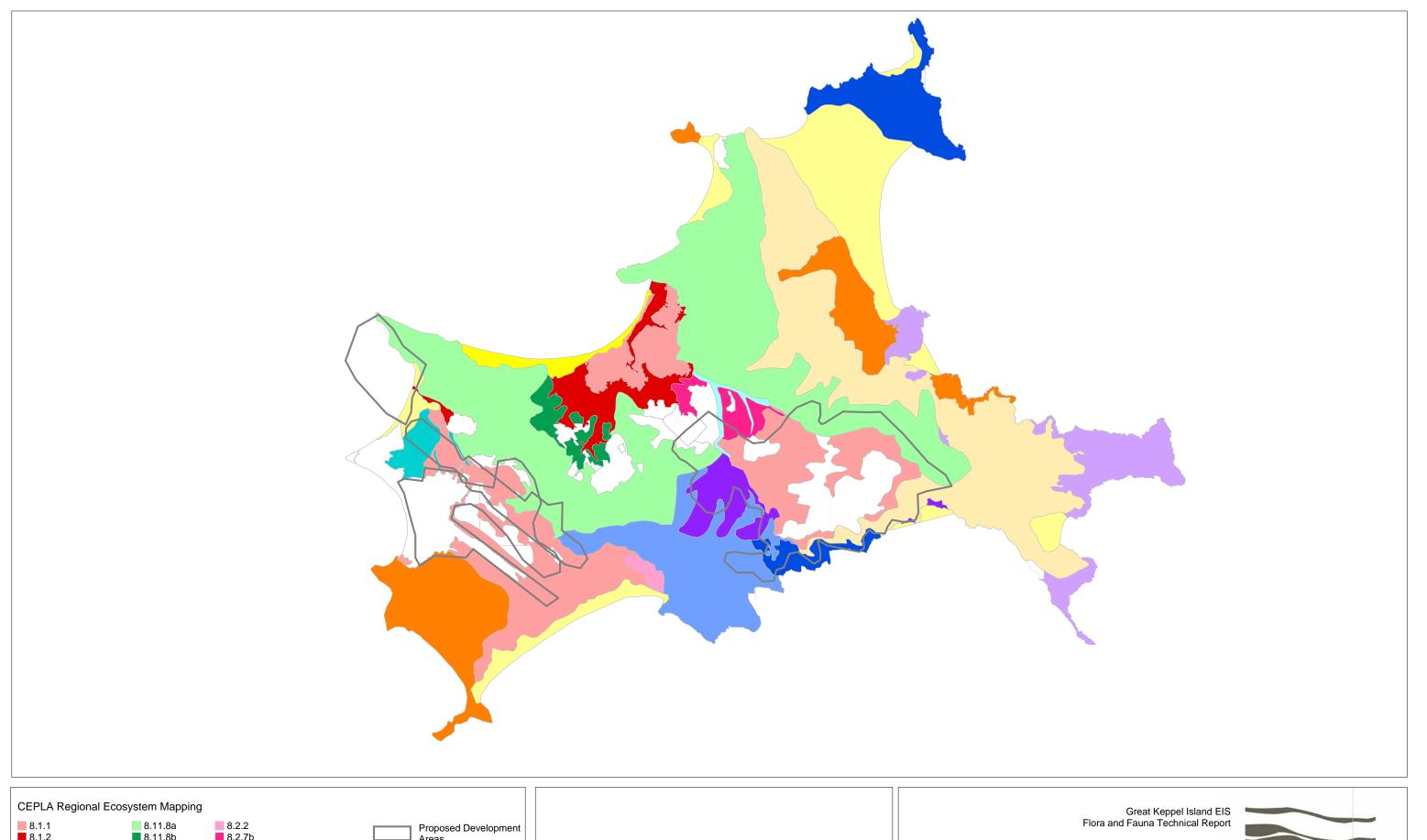
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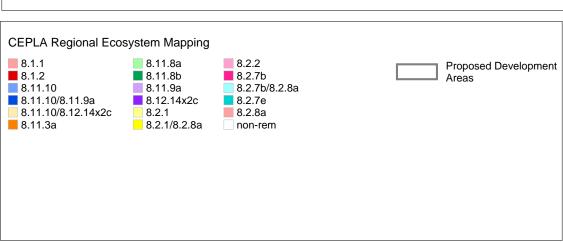


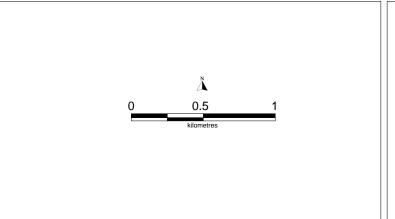












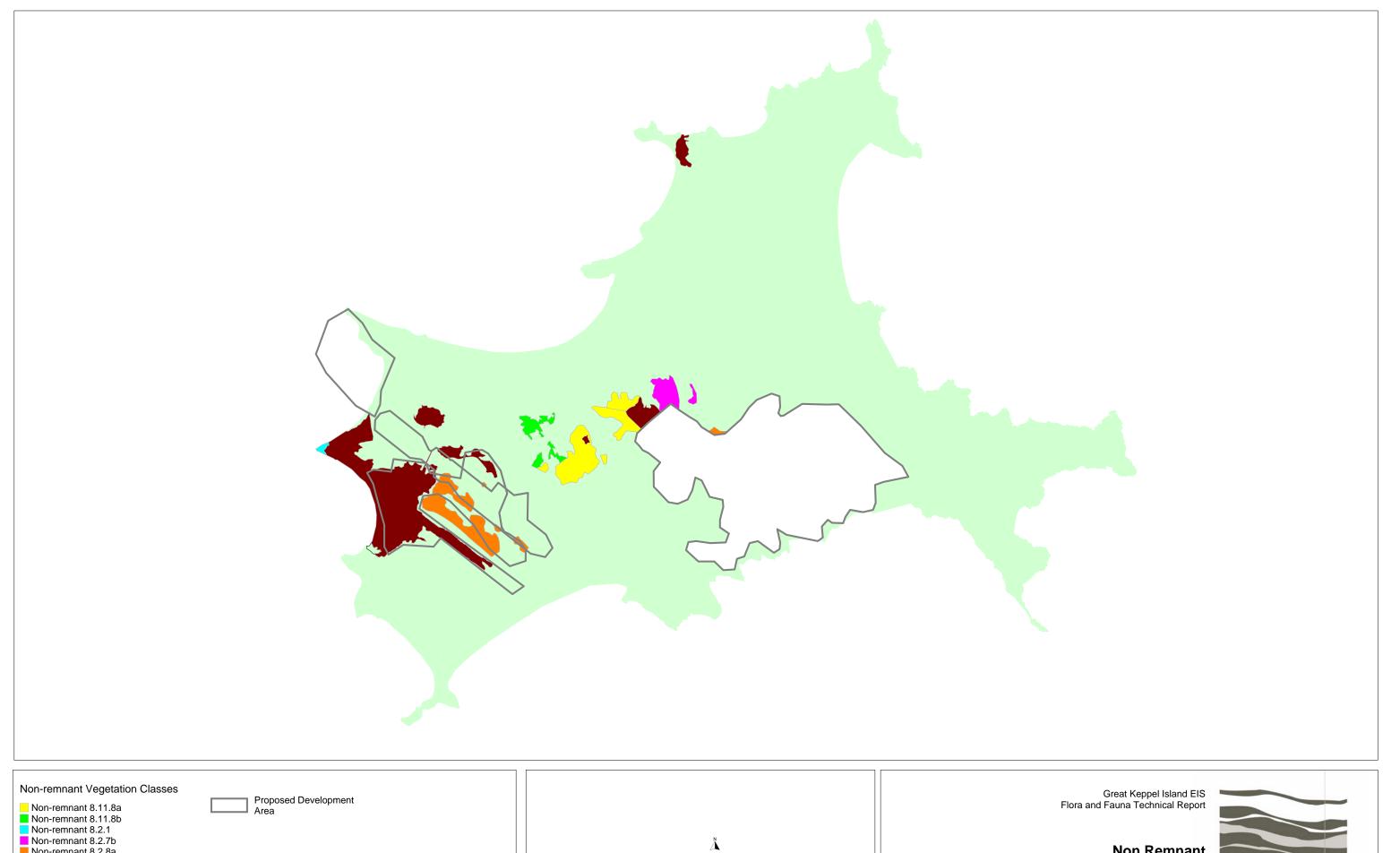
Regional Ecosystem Mapped at a Scale of 1:10,000

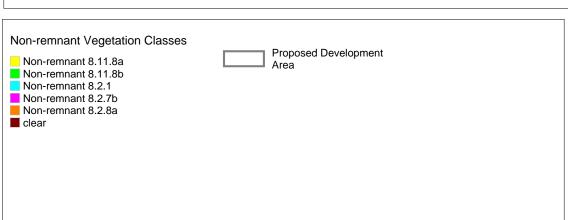
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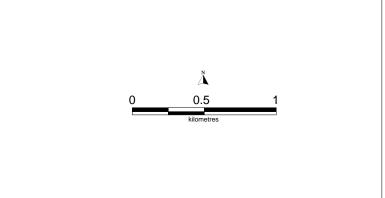


FIGURE 8

File:Fig8_CEPLA_RE.WOR Date: 19/07/2011 10CH061 Dwn: AP





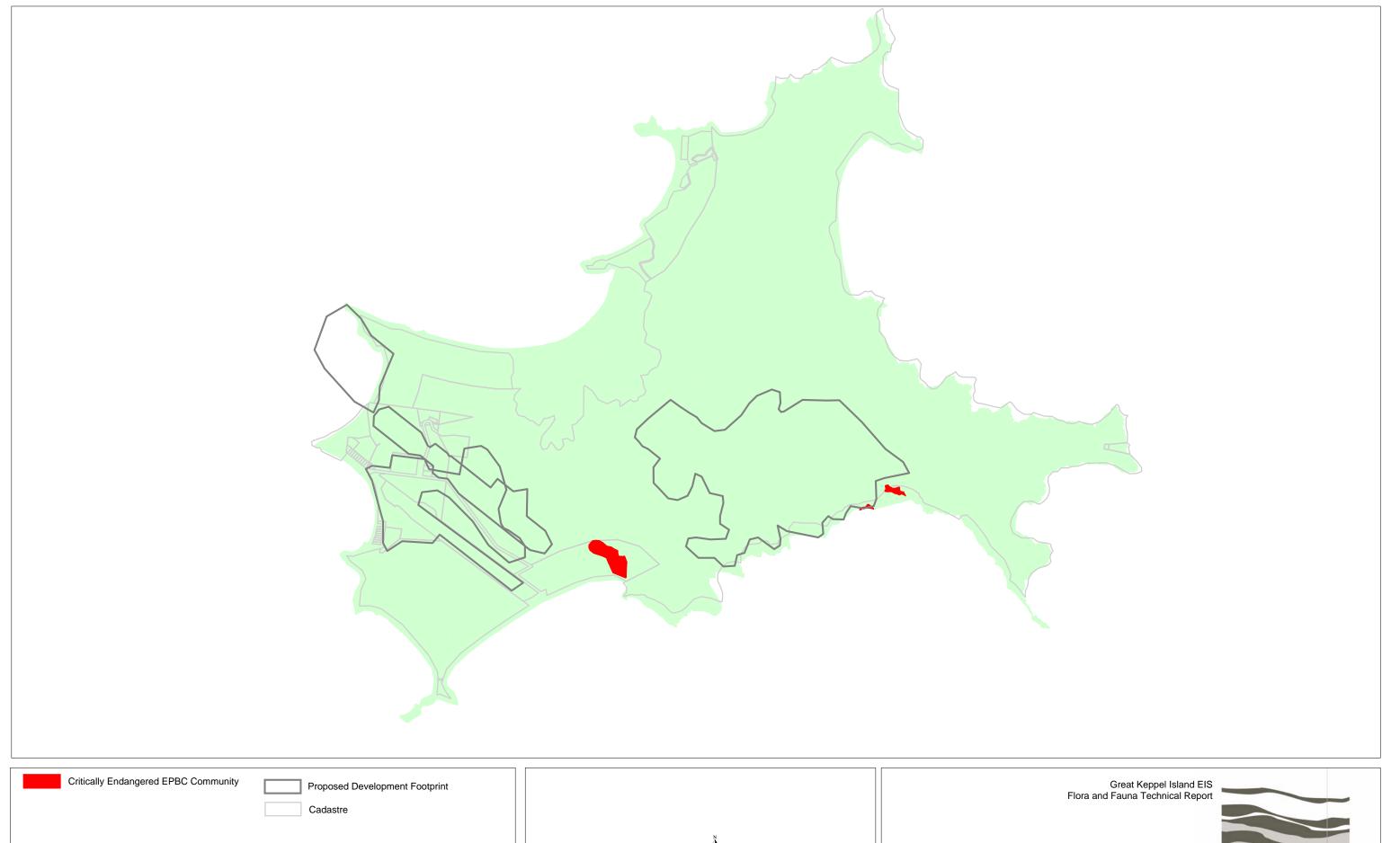


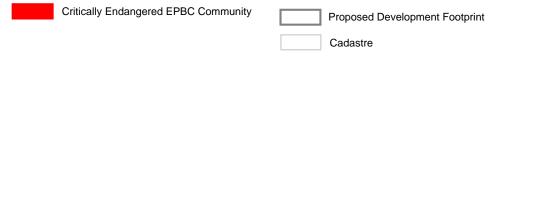
Non Remnant **Vegetation Classes**

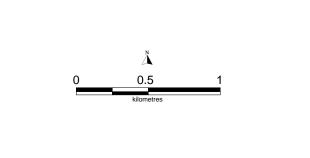




File:Fig9_CEPLA_NonRem.WOR Date: 19/07/2011 10CH061 Dwn: AP





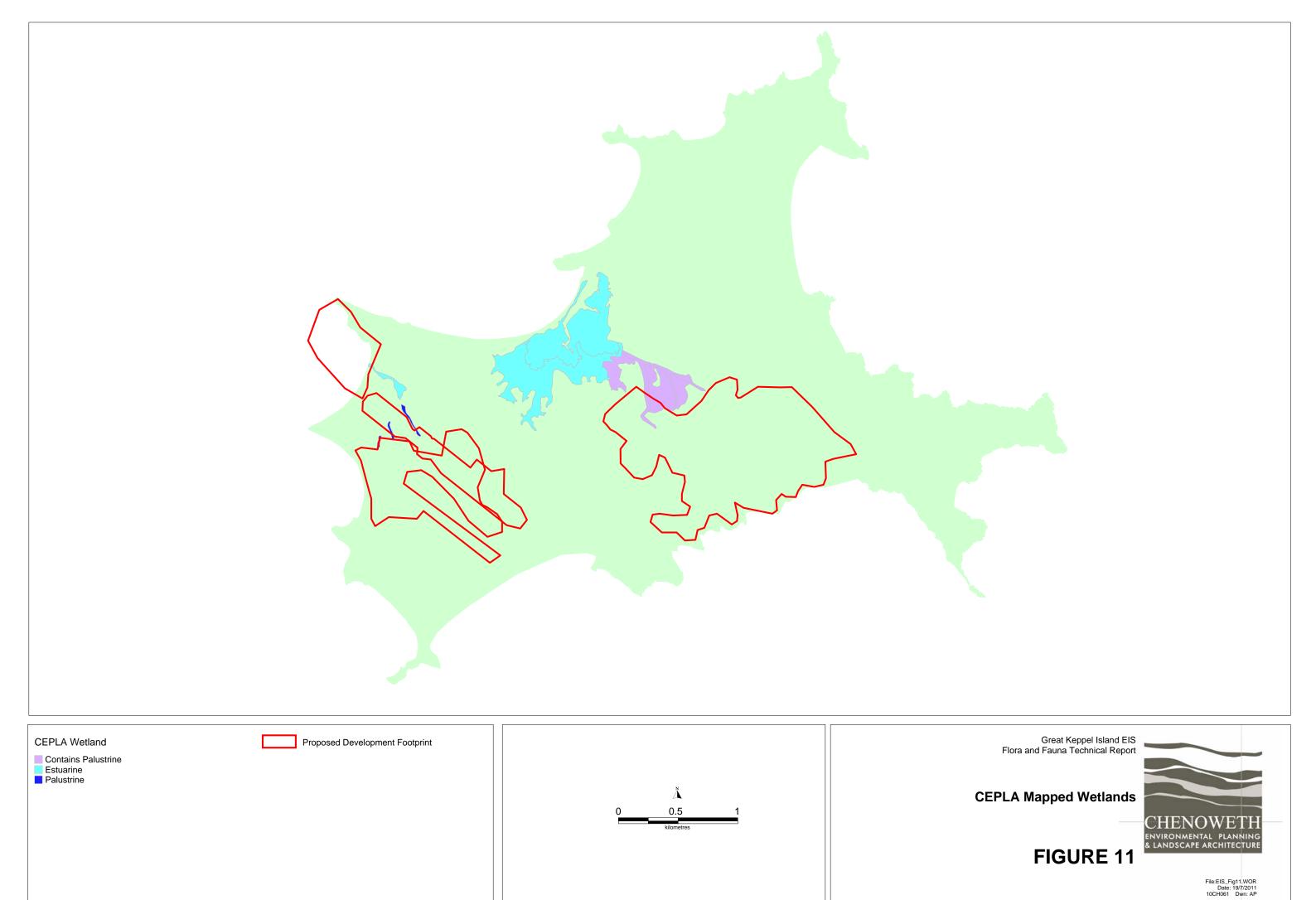


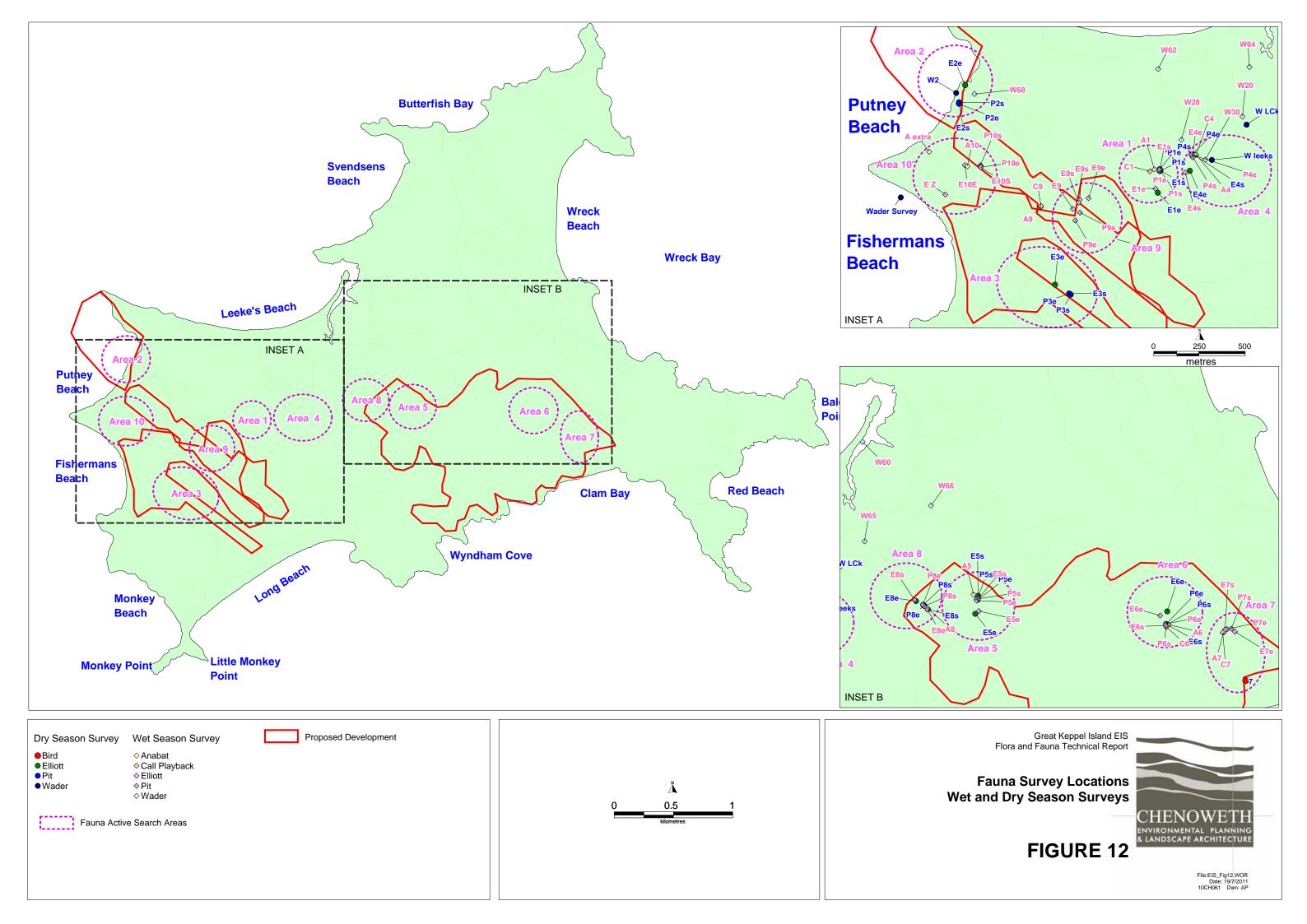
EPBC Communities

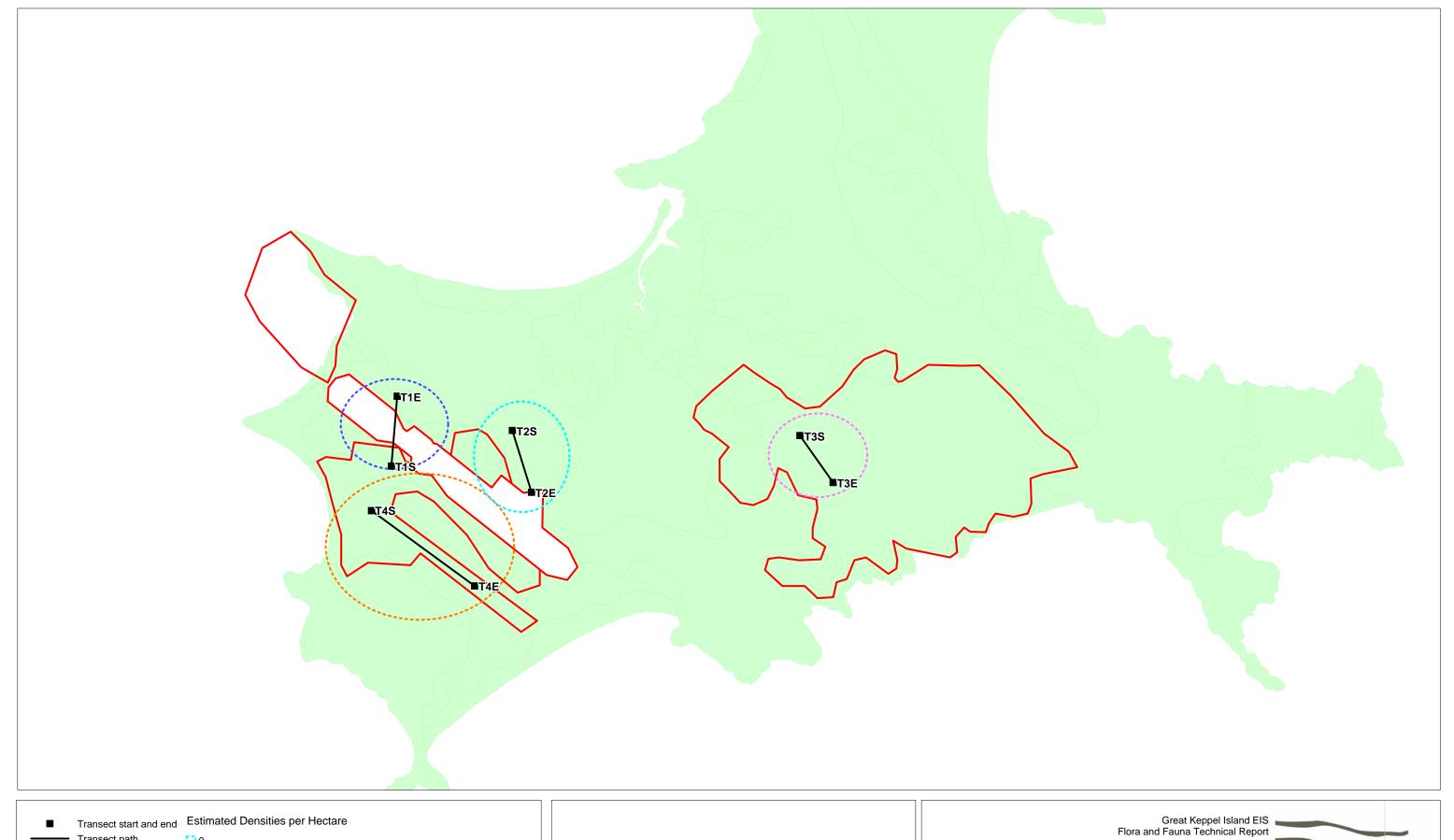


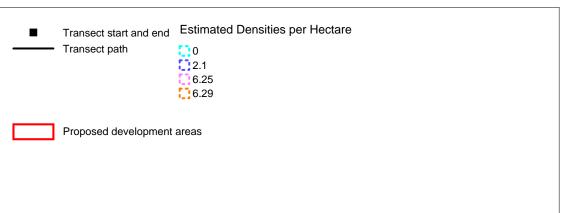
FIGURE 10

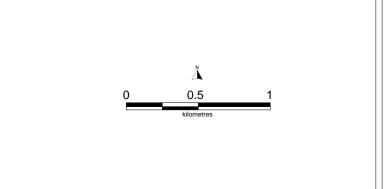
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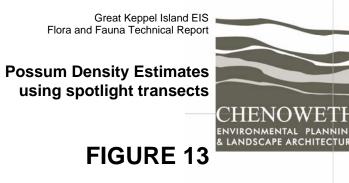




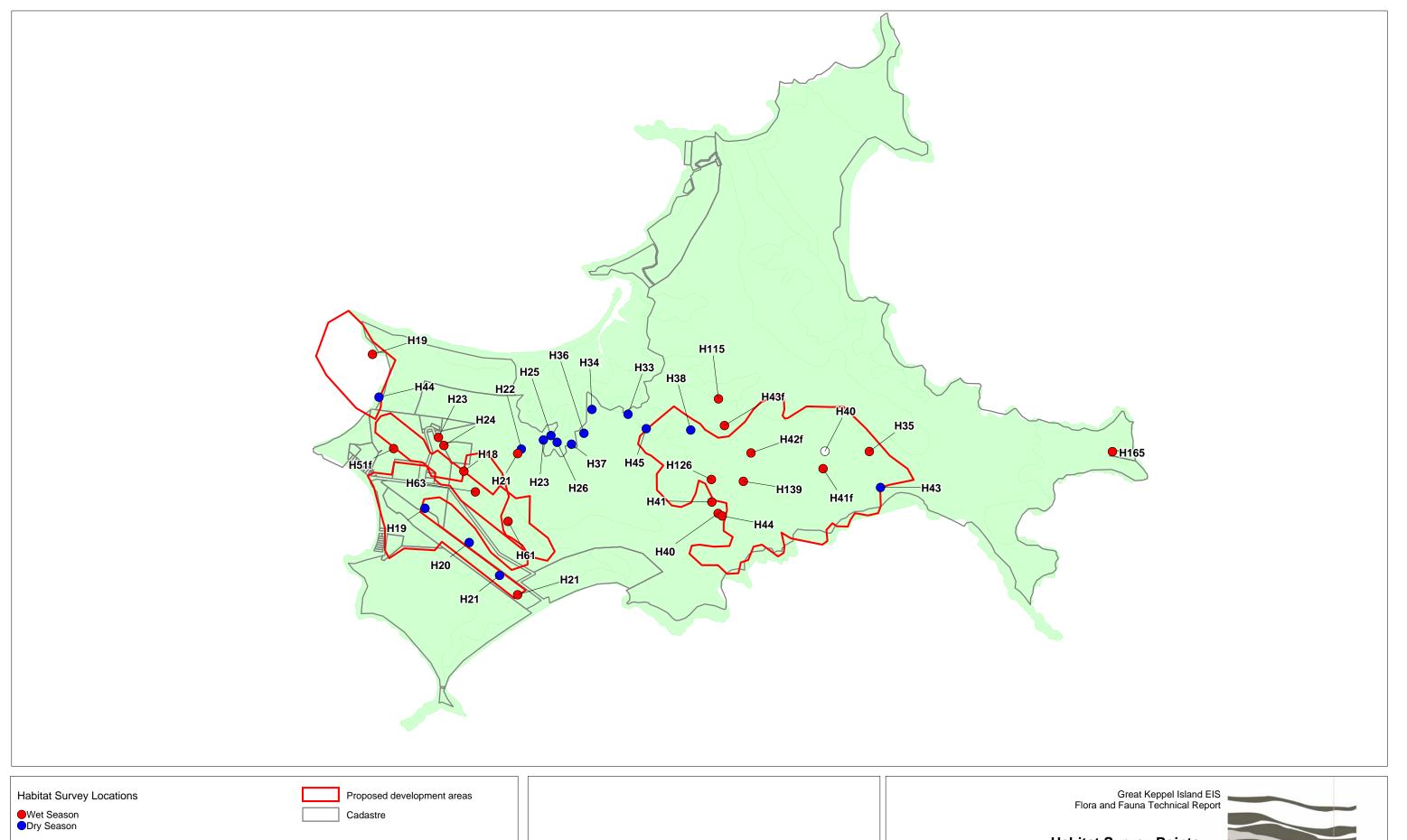




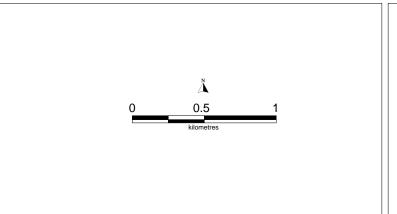




File:EIS_Fig13.WOR Date: 4/4/2011 10CH061 Dwn: AP





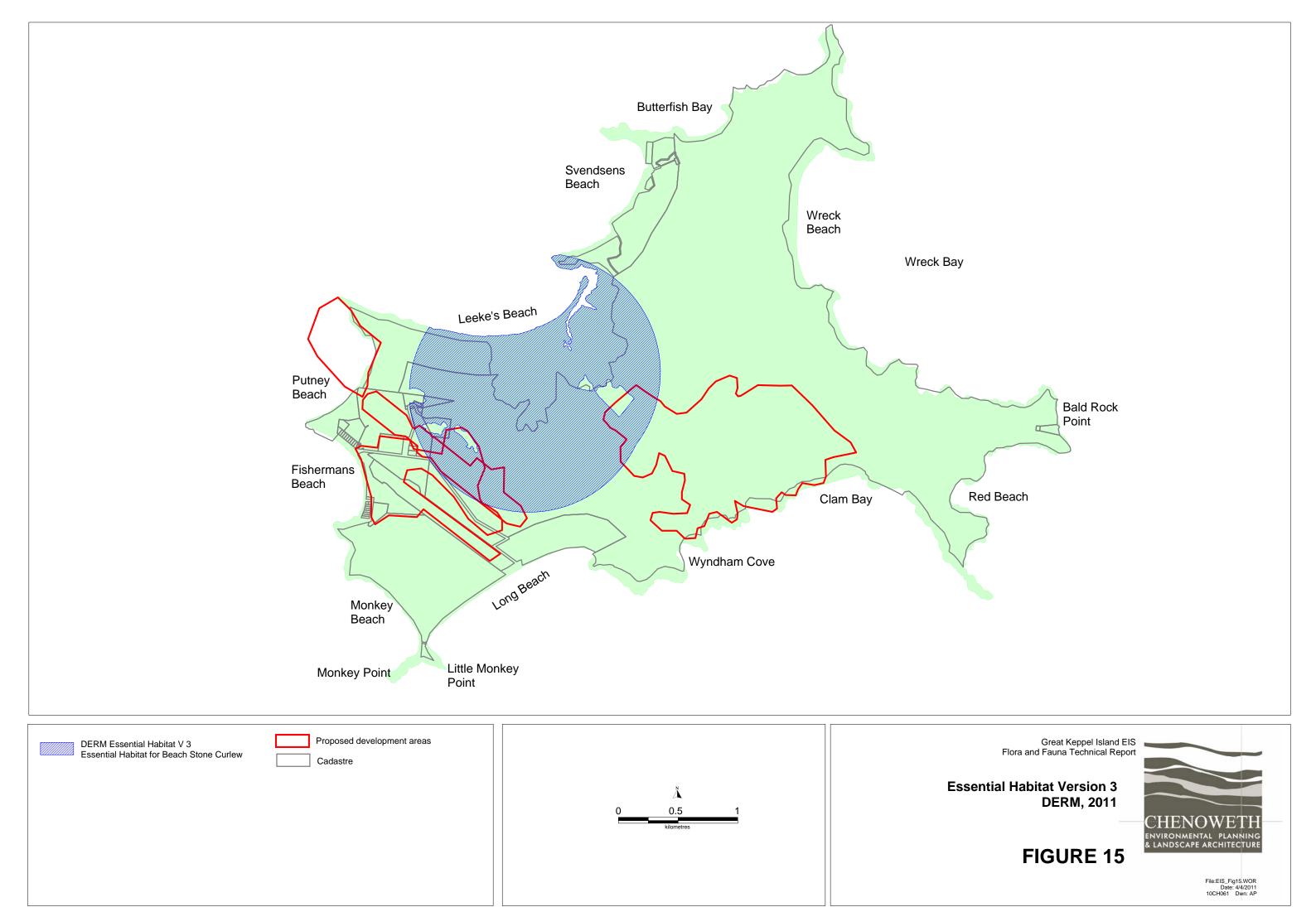


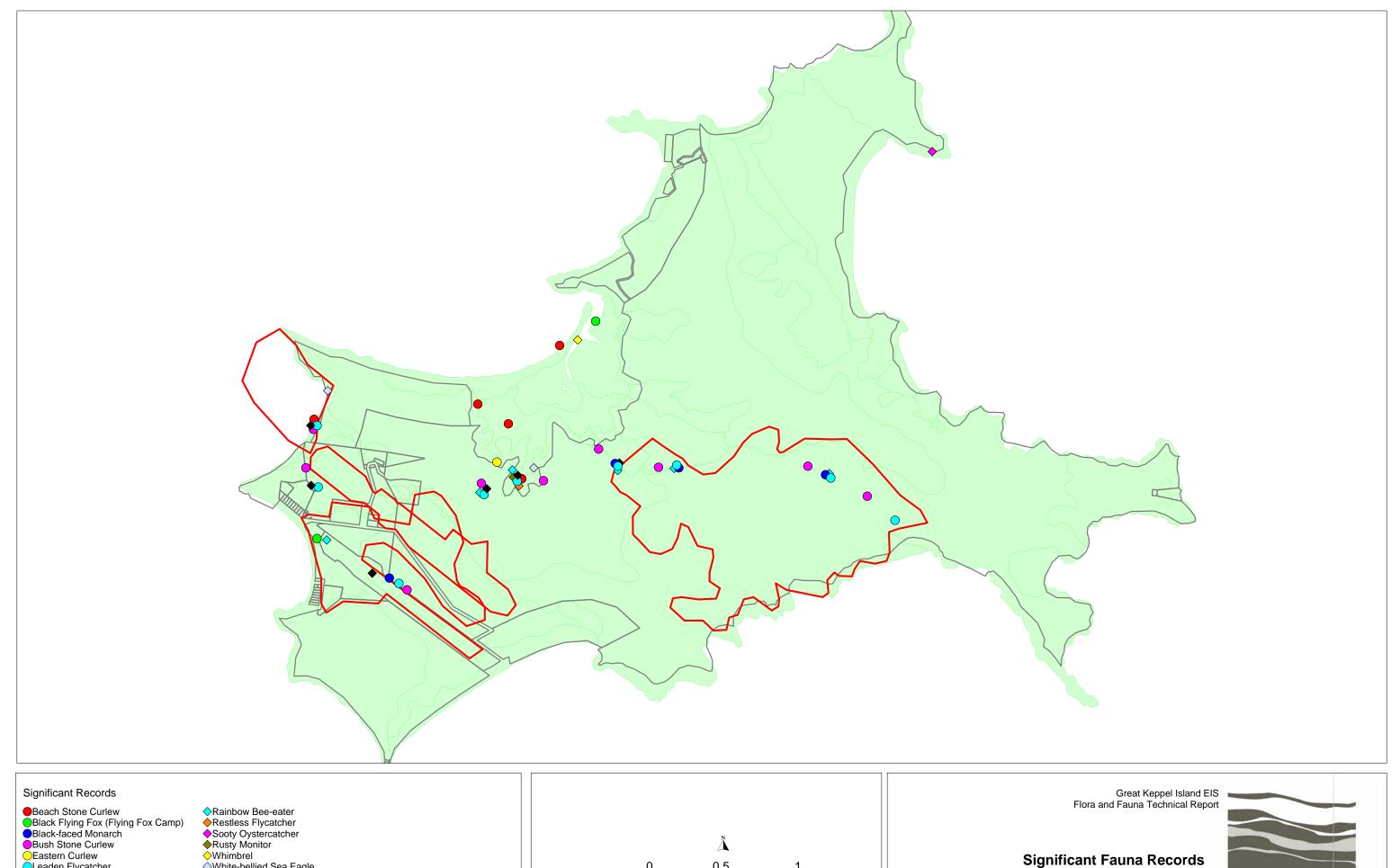
Habitat Survey Points Wet and Dry Season Surveys

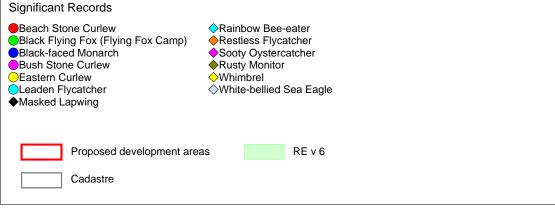


FIGURE 14

File:EIS_Fig14.WOR Date: 4/4/2011 10CH061 Dwn: AP







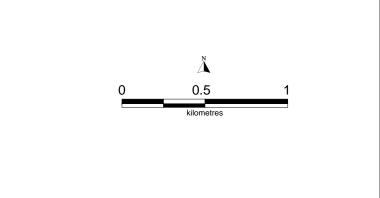
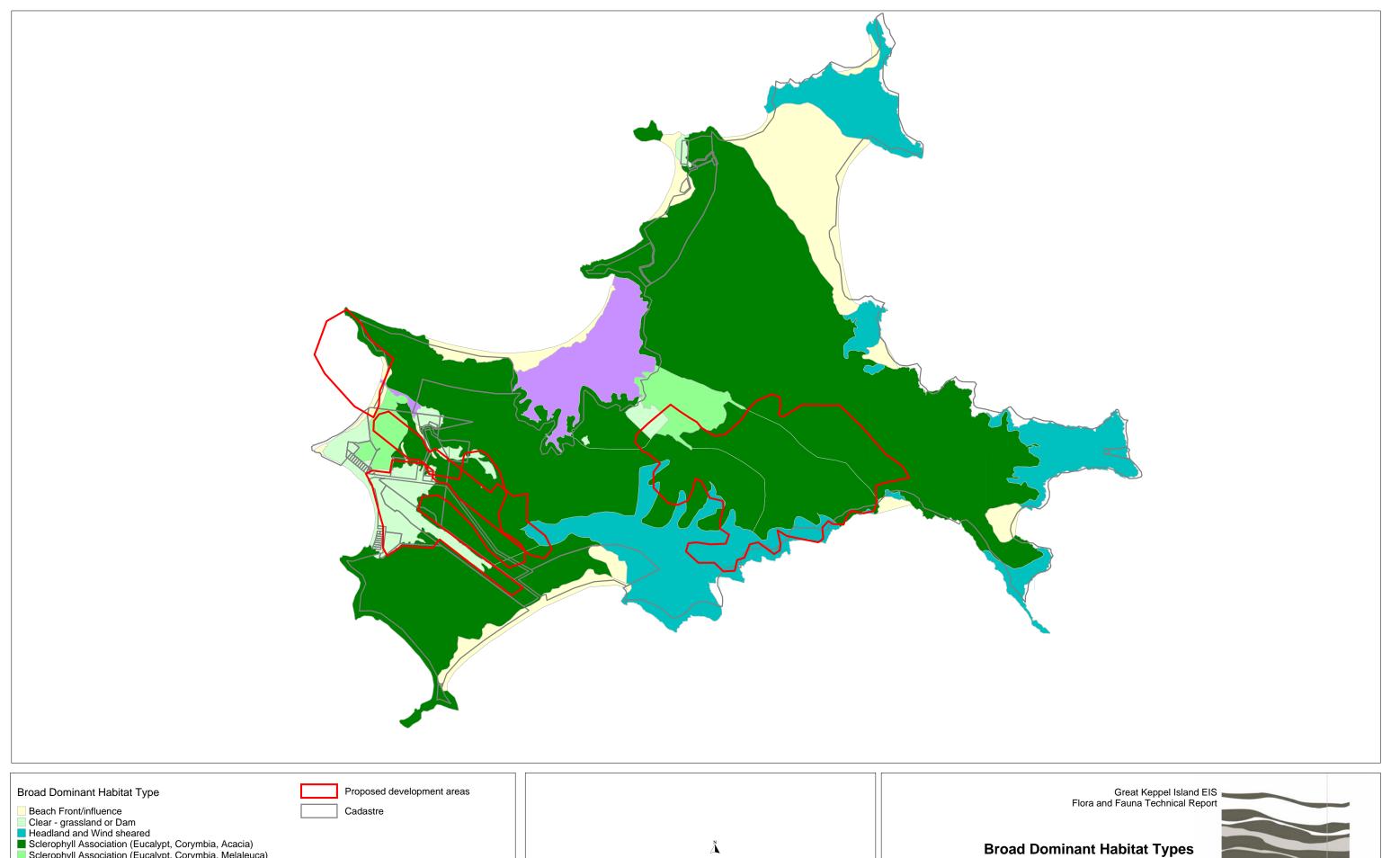


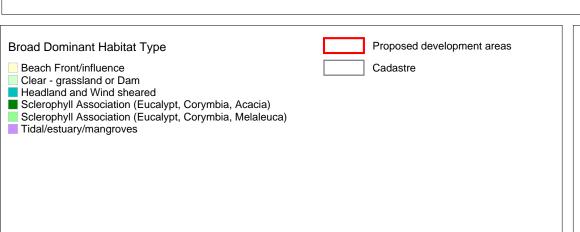


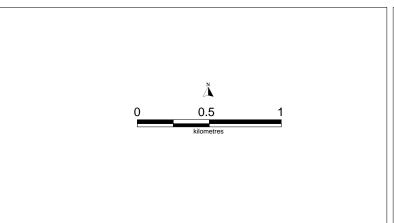


FIGURE 16

File:EIS_Fig16.WOR Date: 4/4/2011 10CH061 Dwn: AP







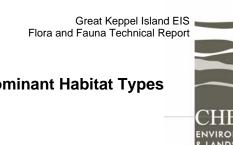




FIGURE 17

File:EIS_Fig18.WOR Date: 4/4/2011 10CH061 Dwn: AP

APPENDIX A – EPBC Protected Matters Database Search Results



Environmental Reporting Tool

You are here: Environment Home > ERIN > ERT

1 September 2010 16:16

Database Report

This report includes places of national environmental significance that are registered in the Department of the Environment and Water Resources' databases, for the selected area. The information presented here has been provided by a range of groups across Australia, and the accuracy and resolution varies.

Search Type: Area **Buffer:** 0 km

Coordinates: -23.14788,150.92548, -23.19957,150.92548, -

23.19957,150.99574, -23.14788,150.99574

Report Contents: Summary >> Details >> Caveat >> Acknowledgment



Biodiversity

Threatened Species: 15 **Migratory Species:** 28 **Listed Marine Species:** 72 **Invasive Species:** None **Whales and Other Cetaceans:** 12 **Threatened Ecological Communities:**

Heritage

World Heritage Properties: 1 **Australian Heritage Sites:** 2

Wetlands

Ramsar sites: (Internationally important) **Nationally Important Wetlands:**

National Pollutant Inventory

Reporting Facilities: None Airsheds: None **Catchments:** None

Protected Areas

Reserves and Conservation Areas3 Regional Forest Agreements: None



This map may contain data which are © Commonwealth of Australia (Geoscience Australia) © PSMA Australia Limited

Biodiversity

Threatened Species [Dataset Information] Comments Status

Birds

Macronectes giganteus Endangered Species or species habitat may occur within

Southern Giant-Petrel

Pterodroma neglecta neglecta Vulnerable Species or species habitat may occur within area

Kermadec Petrel (western)

Mammals

Balaenoptera musculus Endangered Species or species habitat may occur within Blue Whale

Megaptera novaeangliae Humpback Whale	Vulnerable	Breeding known to occur within area
Reptiles		
<u>Caretta caretta</u> Loggerhead Turtle	Endangered	Species or species habitat likely to occur within area
<u>Chelonia mydas</u> Green Turtle	Vulnerable	Breeding known to occur within area
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle	Vulnerable	Species or species habitat likely to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle	Endangered	Species or species habitat likely to occur within area
Natator depressus Flatback Turtle	Vulnerable	Breeding known to occur within area
Sharks		
<u>Pristis zijsron</u> Green Sawfish, Dindagubba, Narrowsnout Sawfish	Vulnerable	Species or species habitat may occur within area
Rhincodon typus Whale Shark	Vulnerable	Species or species habitat may occur within area
Plants		
Cycas megacarpa	Endangered	Species or species habitat may occur within area
Cycas ophiolitica	Endangered	Species or species habitat likely to occur within area
<u>Taeniophyllum muelleri</u> Minute Orchid, Ribbon-root Orchid	Vulnerable	Species or species habitat may occur within area
Migratory Species [Dataset Information]	Status	Comments
Migratory Terrestrial Species		
Birds		
Haliaeetus leucogaster White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail	Migratory	Species or species habitat may occur within area
Hirundo rustica Barn Swallow	Migratory	Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher	Migratory	Species or species habitat likely to occur within area
Migratory Wetland Species		
Birds		
Arenaria interpres Ruddy Turnstone	Migratory	Roosting known to occur within area
<u>Charadrius bicinctus</u> Double-banded Plover	Migratory	Roosting known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Migratory	Roosting may occur within area
Heteroscelus brevipes Grey-tailed Tattler	Migratory	Roosting known to occur within area
Numenius madagascariensis Eastern Curlew	Migratory	Roosting known to occur within area
Numenius minutus Little Curlew, Little Whimbrel	Migratory	Roosting likely to occur within area
Numenius phaeopus Whimbrel	Migratory	Roosting known to occur within area

<u>Pluvialis fulva</u> Pacific Golden Plover	Migratory	Roosting known to occur within area
Migratory Marine Birds		
<u>Macronectes giganteus</u> Southern Giant-Petrel	Migratory	Species or species habitat may occur within area
Migratory Marine Species		
Mammals		
<u>Balaenoptera edeni</u> Bryde's Whale	Migratory	Species or species habitat may occur within area
Balaenoptera musculus Blue Whale	Migratory	Species or species habitat may occur within area
<u>Dugong dugon</u> Dugong	Migratory	Species or species habitat likely to occur within area
<u>Megaptera novaeangliae</u> Humpback Whale	Migratory	Breeding known to occur within area
<u>Orcaella brevirostris</u> Irrawaddy Dolphin	Migratory	Species or species habitat may occur within area
<u>Orcinus orca</u> Killer Whale, Orca	Migratory	Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin	Migratory	Species or species habitat may occur within area
Reptiles		
<u>Caretta caretta</u> Loggerhead Turtle	Migratory	Species or species habitat likely to occur within area
<u>Chelonia mydas</u> Green Turtle	Migratory	Breeding known to occur within area
<u>Crocodylus porosus</u> Salt-water Crocodile, Estuarine Crocodile	Migratory	Species or species habitat likely to occur within area
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth	Migratory	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle	Migratory	Species or species habitat likely to occur within area
<u>Lepidochelys olivacea</u> Olive Ridley Turtle, Pacific Ridley Turtle	Migratory	Species or species habitat likely to occur within area
Natator depressus Flatback Turtle	Migratory	Breeding known to occur within area
Sharks		
Rhincodon typus Whale Shark	Migratory	Species or species habitat may occur within area
Listed Marine Species [Dataset Information]	Status	Comments
Birds		
<u>Arenaria interpres</u> Ruddy Turnstone	Listed	Roosting known to occur within area
<u>Charadrius bicinctus</u> Double-banded Plover	Listed - overfly marine area	Roosting known to occur within area
<u>Charadrius ruficapillus</u> Red-capped Plover	Listed - overfly marine area	Roosting known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Listed - overfly marine area	Roosting may occur within area
Gallinago megala Swinhoe's Snipe	Listed - overfly marine area	Roosting likely to occur within area

Gallinago stenura Pin-tailed Snipe	Listed - overfly marine area	Roosting likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
Heteroscelus brevipes Grey-tailed Tattler	Listed	Roosting known to occur within area
Himantopus himantopus Black-winged Stilt	Listed - overfly marine area	Roosting known to occur within area
Hirundapus caudacutus White-throated Needletail	Listed - overfly marine area	Species or species habitat may occur within area
Hirundo rustica Barn Swallow	Listed - overfly marine area	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel	Listed	Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher	Listed - overfly marine area	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew	Listed	Roosting known to occur within area
Numenius minutus Little Curlew, Little Whimbrel	Listed - overfly marine area	Roosting likely to occur within area
Numenius phaeopus Whimbrel	Listed	Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover	Listed	Roosting known to occur within area
Mammals		
<u>Dugong dugon</u> Dugong	Listed	Species or species habitat likely to occur within area
Ray-finned fishes		
Acentronura tentaculata Shortpouch Pygmy Pipehorse	Listed	Species or species habitat may occur within area
<u>Campichthys tryoni</u> Tryon's Pipefish	Listed	Species or species habitat may occur within area
<u>Choeroichthys brachysoma</u> Pacific Short-bodied Pipefish, Short-bodied Pipefish	Listed	Species or species habitat may occur within area
<u>Corythoichthys amplexus</u> Fijian Banded Pipefish, Brown-banded Pipefish	Listed	Species or species habitat may occur within area
<u>Corythoichthys flavofasciatus</u> Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish	Listed	Species or species habitat may occur within area
Corythoichthys haematopterus Reef-top Pipefish	Listed	Species or species habitat may occur within area
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish	Listed	Species or species habitat may occur within area
Corythoichthys ocellatus Orange-spotted Pipefish, Ocellated Pipefish	Listed	Species or species habitat may occur within area
Corythoichthys paxtoni Paxton's Pipefish	Listed	Species or species habitat may occur within area
Corythoichthys schultzi Schultz's Pipefish	Listed	Species or species habitat may occur within area
<u>Doryrhamphus excisus</u> Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific	Listed	Species or species habitat may occur within area

Blue-stripe Pipefish		
Festucalex cinctus Girdled Pipefish	Listed	Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish	Listed	Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish	Listed	Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish	Listed	Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish	Listed	Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish	Listed	Species or species habitat may occur within area
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish	Listed	Species or species habitat may occur within area
<u>Hippichthys heptagonus</u> Madura Pipefish, Reticulated Freshwater Pipefish	Listed	Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish	Listed	Species or species habitat may occur within area
Hippocampus bargibanti Pygmy Seahorse	Listed	Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse	Listed	Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse	Listed	Species or species habitat may occur within area
Hippocampus zebra Zebra Seahorse	Listed	Species or species habitat may occur within area
<u>Lissocampus runa</u> Javelin Pipefish	Listed	Species or species habitat may occur within area
Micrognathus andersonii Anderson's Pipefish, Shortnose Pipefish	Listed	Species or species habitat may occur within area
Micrognathus brevirostris thorntail Pipefish, Thorn-tailed Pipefish	Listed	Species or species habitat may occur within area
Nannocampus pictus Painted Pipefish, Reef Pipefish	Listed	Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse	Listed	Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish,	Listed	Species or species habitat may occur within area
Solenostomus paegnius Rough-snout Ghost Pipefish	Listed	Species or species habitat may occur within area
<u>Solenostomus paradoxus</u> Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish	Listed	Species or species habitat may occur within area
<u>Syngnathoides biaculeatus</u> Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish	Listed	Species or species habitat may occur within area
<u>Trachyrhamphus bicoarctatus</u> Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish	Listed	Species or species habitat may occur within area
Reptiles		
Acalyptophis peronii Horned Seasnake	Listed	Species or species habitat may occur within area
Aipysurus duboisii Dubois' Seasnake	Listed	Species or species habitat may occur within area
Aipysurus eydouxii	Listed	Species or species habitat may occur within

Spine-tailed Seasnake		area
Aipysurus laevis Olive Seasnake	Listed	Species or species habitat may occur within area
Astrotia stokesii Stokes' Seasnake	Listed	Species or species habitat may occur within area
<u>Caretta caretta</u> Loggerhead Turtle	Listed	Species or species habitat likely to occur within area
<u>Chelonia mydas</u> Green Turtle	Listed	Breeding known to occur within area
<u>Crocodylus porosus</u> Salt-water Crocodile, Estuarine Crocodile	Listed	Species or species habitat likely to occur within area
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth	Listed	Species or species habitat likely to occur within area
Disteira kingii Spectacled Seasnake	Listed	Species or species habitat may occur within area
<u>Disteira major</u> Olive-headed Seasnake	Listed	Species or species habitat may occur within area
Emydocephalus annulatus Turtle-headed Seasnake	Listed	Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle	Listed	Species or species habitat likely to occur within area
Hydrophis elegans Elegant Seasnake	Listed	Species or species habitat may occur within area
Lapemis hardwickii Spine-bellied Seasnake	Listed	Species or species habitat may occur within area
Laticauda colubrina a sea krait	Listed	Species or species habitat may occur within area
Laticauda laticaudata a sea krait	Listed	Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle	Listed	Species or species habitat likely to occur within area
Natator depressus Flatback Turtle	Listed	Breeding known to occur within area
Pelamis platurus Yellow-bellied Seasnake	Listed	Species or species habitat may occur within area
Whales and Other Cetaceans [Dataset Information]	Status	Comments
Balaenoptera acutorostrata Minke Whale	Cetacean	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale	Cetacean	Species or species habitat may occur within area
Balaenoptera musculus Blue Whale	Cetacean	Species or species habitat may occur within area
<u>Delphinus delphis</u> Common Dophin, Short-beaked Common Dolphin	Cetacean	Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus	Cetacean	Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale	Cetacean	Breeding known to occur within area
<u>Orcaella brevirostris</u> Irrawaddy Dolphin	Cetacean	Species or species habitat may occur within area
<u>Orcinus orca</u> Killer Whale, Orca	Cetacean	Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin	Cetacean	Species or species habitat may occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin	Cetacean	Species or species habitat may occur within area

Tursiops aduncus

Indian Ocean Bottlenose Dolphin, Spotted Bottlenose

Dolphin

Tursiops truncatus s. str. Cetacean Species or species habitat may occur within

Bottlenose Dolphin area

within area

Threatened Ecological Communities [Dataset Status Comments <u>Information</u>]

Littoral Rainforest and Coastal Vine Thickets of Eastern

Australia

Critically Endangered

Cetacean

Community likely to occur within area

Species or species habitat likely to occur

Heritage

World Heritage Properties [Dataset Information]

Great Barrier Reef QLD

Australian Heritage Sites [Dataset Information] Note that not all Indigenous sites may be listed.

Indigenous

Wamba - Guran QLD

Natural

Great Barrier Reef Region QLD

Wetlands

Wetlands of International Importance (Ramsar sites) [Dataset Information]

SHOALWATER AND CORIO BAYS AREA

Within same catchment as Ramsar site

Nationally Important Wetland Sites [Dataset Information]

Great Barrier Reef Marine Park, QLD

Other

Reserves and Conservation Areas [Dataset Information]

Great Barrier Reef Marine Park, COM

Keppel Bay Islands National Park, QLD

Mackay/Capricorn Marine Park, QLD

Caveat

The information presented here has been drawn from a range of sources, compiled for a variety of purposes. Details of the coverage of each dataset are included in the metadata [Dataset Information] links above.

Acknowledgment

This database has been compiled from a range of data sources. The Department acknowledges the following custodians who have contributed valuable data and advice:

- New South Wales National Parks and Wildlife Service
- Department of Sustainability and Environment, Victoria
- Department of Primary Industries, Water and Environment, Tasmania
- Department of Environment and Heritage, South Australia Planning SA
- Parks and Wildlife Commission of the Northern Territory
- Environmental Protection Agency, Queensland
- Birds Australia
- Australian Bird and Bat Banding Scheme
- Australian National Wildlife Collection
- · Natural history museums of Australia
- Queensland Herbarium
- National Herbarium of NSW
- Royal Botanic Gardens and National Herbarium of Victoria
- Tasmanian Herbarium
- State Herbarium of South Australia
- Northern Territory Herbarium
- Western Australian Herbarium

- Australian National Herbarium, Atherton and Canberra
- University of New England
- Other groups and individuals

ANUCliM Version 1.8, Centre for Resource and Environmental Studies, Australian National University was used extensively for the production of draft maps of species distribution. The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

APPENDIX B – Secondary and Tertiary Sites

Vegetation Mapping Records - Great Keppel Island September 2010REFERENCE SITE FOR 8.2.1

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Situation	ŔМ	R			3.2.1 Element	BF	R1	Eros pat		G R			Pattern	n	E	BEA	
Situation SLOPE	ŔМ	R			Element			Eros pat			Δο	nect (°	Patterr			BEA	
Situation SLOPE Type	ŔМ				Element	Bi Slope					As	pect (°	Patterr	n 0		BEA	
Situation SLOPE Type SOILS	RM	R F		E	Element	Slope	(%)	Eros pat	tern	GR			Patterr	0)		4
Situation SLOPE Type	ŔМ	R			Element	Slope	(%)	Eros pat		GR		pect (°	Patterr	0			d
Situation SLOPE Type SOILS Source	RM S	R F		E	Element	Slope	(%)	Eros pat	tern	GR			Patterr	0)		d
Situation SLOPE Type SOILS Source	RM S	R F		H	Code	Slope	(%)	Eros pat <5% -	tern ISB/M	GR U -			Pattern) Buff	0 T	exture	San	d
Situation SLOPE Type SOILS Source GEOLOG Source	S	R F Relia	bility	H	Element	Slope	(%)	Eros pat <5% -	ISB/M	GR U -			Patterr	0 T	exture		d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT	STRU	R F Relia	bility	H	Code	Slope	(%)	Eros pat <5% -	ISB/M	GR U -			Pattern) Buff	0 T	exture	San	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND	S STRU	R F Relia	bility	H Rel	Code	Slope E H	(%) Add data	Eros pat	ISB/M	GR U -	C	olour	Pattern Buff Map L] O	exture	San	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT	S STRU	R F Relia	bility	H Rel	Code	Slope E H	(%) Add data	Eros pat <5% -	ISB/M	GR U -	C		Pattern Buff Map L] O	exture	San	d
Situation SLOPE Type SOILS Source GEOLOG Source GROUND Litter	S STRU	R F Relia	bility	H Rel	Code	Slope E H	(%) Add data	Eros pat	ISB/M	GR U -	C	olour	Pattern Buff Map L] O	exture	San	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter	S STRU	R F Relia	CODE	H Rel	Code liability	Slope E	Add data	Eros pat <5% - Code Low open 10	ISB/M	GR Find	C	olour	Pattern Buff Map L	Jnit Vege	exture QI	Sanncb 80	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOF Struct.	S STRU	R F Relia	CODE	E	Code	Slope E	(%) Add data	Eros pat	ISB/M woodlar Cryp	GR U -	C	olour	Pattern Buff Map L	Jnit Vege	exture QI tation	San	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex	S STRUD (%)	R F Relial	CODE	E	Code liability	Slope E	Add data	Eros pat <5% - Code Low open 10	ISB/M woodlar Cryp	GR Find	C	olour	Pattern Buff Map L	Jnit Vege	exture QI tation	Sanncb 80	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURE	STRUD (%)	R F Relial O CTURE O	CODE	H Rel	Code liability	Slope E	Add data	Eros pat <5% - Code Low open 10	ISB/M Woodlar Cryp	GR U -	C	olour	Pattern Buff Map U	Jnit Vege	exture QI tation	Sanncb 80	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURE Storm da	STRUD (%) REST ity BANCE	R F Relial O CTURE O	CODE	E	Code liability	Slope E	Add data	Code Low open 10 Road Wo	ISB/M Woodlar Cryp FI Coorks	GR U -	C	olour	Pattern Buff Map L	Jnit Vege	exture QI tation	Sanncb 80	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURE Storm da (Proporti	STRUD (%) REST ity BANCE	R F Relial O CTURE O	CODE	Rel	Code liability	Slope E	Add data	Eros pat <5% - Code Low open 10	ISB/M Woodlar Cryp FI Coorks	GR U -	C	olour	Pattern) Buff Map L	Jnit Vege	exture QI tation	Sanncb 80	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOF Struct. Complex DISTURE Storm da (Proporti	STRUD (%) STRUD (%) REST ity BANCE mage on/Ag	R F Relial 0 CTURE 0 0	CODE Rock Leaf Size	H Rel	Code liability	Slope E	Add data	Code Low open 10 Road Wo	ISB/M Woodlar Cryp FI Coorks	GR U -	C	olour	Pattern Buff Map U	Jnit Vege	exture QI tation	Sanncb 80	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOF Struct. Complex DISTURE Storm da (Proporti Fire (Proporti	STRU STRU STRU O (%) SANCE inage on/Ag on/Ag	R F Relial 0 CTURE 0 0	CODE Rock Leaf Size	Rel	Code liability	Slope E	Add data	Code Low open 10 Road Wo (Proport Salinity	ISB/M Woodlar Cryp Fi Coorks con/Age	GR U - F nd otophy oor pomp	C	0 -	Pattern) Buff Map L	Jnit Vege	exture QI tation	Sanncb 80	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURE Storm da (Proporti Fire (Proporti Logging	STRU STRU STRU O (%) SANCE inage on/Ag on/Ag	R F Relial 0 CTURE 0 0	CODE Rock Leaf Size	Rel	Code liability	Slope E	Add data	Code Low open 10 Road Wo (Proport Salinity Ringbarl	ISB/M Woodlar Cryp Fi Coorks ion/Age	GR U - F nd otophy oor pomp	C	0 -	Pattern Buff Map L 0 0	Jnit Vege	exture QI tation	Sanncb 80	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURE Storm da (Proporti Fire (Proporti Logging Grazing	STRUUD (%) STRUUD	R F Relial	CODE Rock Leaf Size	Rel	Code liability	Slope E	Add data	Code Low open 10 Road Wo (Proport Salinity	ISB/M Woodlar Cryp Fi Coorks ion/Age	GR U - F nd otophy oor pomp	C	0 -	Pattern Buff Map U 0 0	Jnit Vege	exture QI tation	Sanncb 80	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURE Storm da (Proporti Fire (Proporti Logging	STRUUD (%) STRUUD	R F Relial	CODE Rock Leaf Size	Rel	Code liability	Slope E	Add data	Code Low open 10 Road Wo (Proport Salinity Ringbarl	ISB/M woodlar Cryp Fi Coorks ion/Age	GR U - F nd otophy oor pomp	C	0 -	Pattern Buff Map L 0 0	Jnit Vege	exture QI tation	Sanncb 80	d
Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURE Storm da (Proporti Fire (Proporti Logging Grazing	STRU STRU O (%) 1 STRU STRU O (%) 1 STRU O (%) (#) CON/Ag (#)	R F Relial O CTURE O O O O O O O O O	CODE Rock Leaf Size	Rel	Code liability	Slope E	Add data	Code Low open 10 Road Wo (Proport Salinity Ringbarl Feral Dig	ISB/M woodlar Cryp Fi Coorks ion/Age	F F ad otophy	C	0 -	Pattern) Buff Map U 0 0 1	Jnit Vege	exture QI tation	Sanncb 80	d

SITE NUMBER		1 continued								
STRUCTURAL SUMMA	ARY									
Stratum Height Range in Strata (m)		Median Height (m)	Cover (%) (100m transect)	Species						
Emergent	-	-	-	-						
Tree 1	6-11	7	6	Banksia integrifolia subsp. compar Casuarina equisetifolia subsp. incana Corymbia tessellaris						
Tree 2	2-5	4.5	33.5	Allocasuarina littoralis Alphitonia excelsa Dodonaea viscosa Ficus opposita						

Tree 3	-			-			-	-								
Shrub 1	0.5-1			1			-	Dodonaea vis Lantana cama Opuntia stricta	ıra*							
Shrub 2	+			_			+-	-	7							
01100		0-0.5					-	Canavalia rosea Crotalaria medicaginea var. neglecta Eragrostis curvula Eragrostis interrupta Imperata cylindrica Lysiana maritima Melinis repens* Passiflora suberosa* Tridax procumbens* Out of plot: Agave vivipara* Catharanthus roseus* Euphorbia cyathophora*								
Species		Basal area (50X10m)			lot		Volume/ha	Volume/ha			Stem count for plot (50X10m)					
•	İ	È	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2		
Allocasuarina littoralis				2							19		2			
Banksia integrifolia sub- compar	sp.										1					
Casuarina equisetifolia subsp. Incana										2	'					
Corymbia tessellaris																
Dodonaea viscosa											6		6			
Lantana camara*													1			
Opuntia stricta*													2			

CANOPY COVER DATA (1	CANOPY COVER DATA (100m TRANSECT)										
Canopy Start (m)	Canopy finish (m)	Species	Strata								
0	0.5	Allocasuarina littoralis	T2								
8	9.5	Allocasuarina littoralis	T2								
9.5	11	Dodonaea viscosa	T2								
25	27	Allocasuarina littoralis	T2								
32	35	Allocasuarina littoralis	T2								
37	38.5	Stag	T1								
38.5	40	Corymbia tessellaris	T1								
40	43	Allocasuarina littoralis	T2								
45.5	48.5	Corymbia tessellaris	T1								
48.5	50	Dodonaea viscosa	T2								
50	56	Allocasuarina littoralis	T2								
58.5	63	Allocasuarina littoralis	T2								
61	63	Alphitonia excelsa	T2								
67	67.5	Allocasuarina littoralis	T2								
76	76.5	Allocasuarina littoralis	T2								
78.5	82.5	Allocasuarina littoralis	T2								
85.5	87.5	Allocasuarina littoralis	T2								
90	93	Dodonaea viscosa	T2								

REFERENCE SITE RE 8.2.6

SITE NUMBER	2
LEVEL	2
DETAIL SP. LIST	Υ
REGIONAL	8.2.6
ECOSYSTEM	
DATE	21/09/2010
RECORDER	David Francis &
	Julia Olsen
LOCALITY	Great Keppel Island



													a total	1		2	
SITE DES	CRIP	TION	Melale	euca d	dealbata d	open for	est	A Aller	- Marie		The state of the	No. of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of	and the	100/2			
GENERA	• • • • • • • • • • • • • • • • • • • •		morare	, aca t	acamata t	<u> </u>											
COMMUN	ITY A	AREA (ha) 20-50						COMMUNITY WIDTH (m) 75-150									
MAPPED	(Curi	ent RE)	8.	.2.7e			REFERE	NCE	SITE			Yes				
LANDFORM																	
Situation		Plain		Element A			Eros pat	tern	L	.P		Patte	rn		Pl	_A	
SLOPE																	
Type		F			S	Slope (%)	<5%				Aspect (°)		10		
SOILS																	
Source	S	Relia	bility	Н	Code	E	Add data	-	ISB	/MU	-	Colour	Grey	′	Text	ure	Sand
GEOLOGY																	
Source		0		Reli	iability	Н		Code		F			Мар	Uni	t	Qh	cb
SPECHT	STRU	ICTURE	CODE					Open Fore	st								
GROUND	(%)																
Litter		50	Rock		-	Bare		<1	С	rypto	phyt	e -	Vegetatio		on	50	
RAINFOR	EST																
Struct.		-	Leaf		-	Lea	f fall	-		Floo	r	-		In	. Gr		-
Complexi			Size							Com	ıp			F	orms		
DISTURB																	
Storm da				0				Road Wo					0				
(Proportion	on/Ag	je)						(Proport	ion/A	ge)							
Fire				0				Salinity					0				
(Proportion		je/Heigh	nt)					ļ <u>.</u>				, m	.				
Logging (#)			N				Ringbarl			nıng	(#)	N				
Grazing				N				Feral Dig					N				
Weeds (%		- /		15%	1			Remnan	<u> </u>				Υ				
Erosion (ı ype/	Severit	у)	0				ļ									

SITE NUMBER		2	continued					
STRUCTURAL SUMM	MARY							
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species				
Emergent	-	-	-	=				
Tree 1	14-17	15	55.5	Melaleuca dealbata				
Tree 2	4-8	7	58.5	Acacia disparrima subsp. disparrima Allocasuarina littoralis Alphitonia excelsa Banksia integrifolia subsp. compar Breynia oblongifolia Casuarina equisetifolia subsp. incana Corymbia tessellaris Dodonaea viscosa Planchonia careya				
Tree 3	1 -	_	l -	-				

Shrub 1	1-4	1-4			2.5 - Acacia disparrima subsp. disparrima Alphitonia excelsa Breynia oblongifolia Clerodendrum floribundum Lantana camara* Opuntia stricta* Pittosporum ferrugineum subsp. linifolia									
Shrub 2	-			-			-	-						
Ground	0-0.5			0.5			-	Abrus precato Bulbostylis ba Cenchrus ech Clematocissu. Conyza canad Cyperus rotur. Cyperus strad Euphorbia cys Imperata cylin Lepturus repe Megathyrsus Melinis repen. Passiflora sub Solanum nigru Stephania jap	rbata inatus s opa densis dus lbroke athopl drica maxin s* perosa um*	s* ca s var. p ensis hora* mus*				
BASAL AREA & STEW	I COUN													
Species	-		al area (10m) T1	for pl	T3	S1	Volume/ha	T2	Ste	m cou	Int for	plot T3	(50X1 (0m) S2
Acacia disparrima subs	p.			12	13	01	11	12	_		2	13	1	OZ.
Allocasuarina littoralis				5							14		4	1
Alphitonia excelsa											1		1	
Banksia integrifolia sub- compar	sp.										2			
Breynia oblongifolia													3	3
Clerodendrum floribund	lum												4	10
Dodonaea viscosa													5	1
Lantana camara*													4	
Melaleuca dealbata			6											
Pittosporum ferrugineur	m												2	
subsp. linifolium														
Planchonia careya											1		2	1
Senna pendula*									<u> </u>	<u> </u>			22	2
Acacia julifera									<u> </u>	<u> </u>			1	

CANOPY COVER DATA (100m TRANSECT)								
Canopy Start (m)	Canopy finish (m)	Species	Strata					
0	1	Allocasuarina littoralis	T2					
3	7	Allocasuarina littoralis	T2					
3	4	Banksia integrifolia subsp. compar	T2					
4	23	Melaleuca dealbata	T1					
9.5	11	Allocasuarina littoralis	T2					
17.5	23	Allocasuarina littoralis	T2					
19.5	20.5	Breynia oblongifolia	T2					
24	25	Stag	T2					
25.5	31.5	Allocasuarina littoralis	T2					
34	42.5	Melaleuca dealbata	T1					
35.5	38	Acacia disparrima subsp. disparrima	T2					
46	50.5	Allocasuarina littoralis	T2					
50.5	59	Dodonaea lanceolata var. subsessilifolia	T2					
51	69	Melaleuca dealbata	T1					
55	56.5	Acacia disparrima subsp. disparrima	T2					
62	63	Acacia disparrima subsp. disparrima	T2					
62.5	67.5	Dodonaea viscosa	T2					
65	68	Acacia disparrima subsp. disparrima	T2					
68	68.5	Acacia disparrima subsp. disparrima	T2					

69	71	Dodonaea viscosa	T2
70	71.5	Acacia disparrima subsp. disparrima	T2
73.5	77.5	Dodonaea viscosa	T2
73	83	Melaleuca dealbata	T1
80	83	Dodonaea viscosa	T2
84	84.5	Planchonia careya	T2
88.5	90	Planchonia careya	T2
93	99	Corymbia tessellaris	T2

REFERENCE SITE FOR 8.2.6a

SITE NUMBER	9
LEVEL	2
DETAIL SP. LIST	Y
REGIONAL	8.2.6a
ECOSYSTEM	
DATE	21/09/2010
RECORDER	David Francis &
	Julia Olsen
LOCALITY	Great Keppel Island



								The same		28		200	名管		X	-11-		
SITE DESC	CRIP	TION	Coryn	nbia cl	arksoniar	na open i	forest											
GENERAL	NOT	ES				•												
COMMUNI	TY A	REA (h	a)	20)-50			COMMU	NITY	WIDT	TH (m)		75-15	0			
MAPPED (Curr	ent RE)		8.2	2.8a			REFERE	NCE	SITE				Υ				
LANDFOR	M																	
Situation		Α		EI	ement	VLF		Eros pat	tern	l	JP			Patte	rn		PL/	4
SLOPE																		
Type		R			S	lope (%))	<5%				Asp	ect (°)		260		
SOILS																		
Source	S	Relial	oility	М	Code	D	Add data	-	ISB	/MU	-	Co	lour	F		Textur	е	Α
GEOLOGY	<i>'</i>																	
Source		0		Relia	ability	Н		Code		Α				Мар	Unit	t (Qhcc	t
SPECHT S	TRU	CTURE	CODE					Open Fore	st									
GROUND	(%)																	
Litter	4	0	Rock		0	Bare grou		0	С	rypto	phy	rte	0		Ve	getation	6	60
RAINFORE	ST								•									
Struct.	-		Leaf		-	Leaf	fall			Floo	r		-		In	. Gr	-	
Complexit			Size							Com	ıp				Fo	orms		
DISTURBA																		
Storm dan				0				Road Wo						0				
(Proportio	n/Ag	e)						(Proport	ion/A	ge)								
Fire				0				Salinity						0				
(Proportio		e/Heigh	t)	^				Diam'r.	-! '	TI.:		. /#\		_				
Logging (#	F)			0				Ringbarl			nıng	(#)		0				
Grazing	Cove	>r\		•				Feral Digging 0										
Weeds (%			۸	0				Remnan	<u> </u>									
Erosion (T	ype/	severity	()	U				1										

SITE NUMBER		9	9 continued						
STRUCTURAL SUMM	ARY								
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species					
Emergent	-	-	-	-					
Tree 1	7-12	10	53.5	Acacia disparrima subsp. disparrima Allocasuarina littoralis Corymbia clarksoniana Eucalyptus portuensis					
Tree 2	3-7	7	53.0	Acacia disparrima subsp. disparrima Allocasuarina littoralis Alphitonia excelsa Banksia integrifolia subsp. compar Corymbia clarksoniana Eucalyptus portuensis Leptospermum neglectum Petalostigma pubescens					

Tree 3				_			 -	+_								
Shrub 1	1-1.5			1			+-	Lithomyrtus o	htusa							
Cinds 1	1-1.5			•				Xanthorrhoea		lia						
Shrub 2	-			-			-	-	-							
Ground	0-0.5			0.5			-	Amyema cons					3			
								Eriachne palle			oalles	cens				
								Imperata cylin								
								Paspalidium d								
								Paspalidium g								
								Passiflora sub Planchonia ca			ina)					
								Trachystylis s								
								Triumfetta rho			13					
								Xanthorrhoea								
BASAL AREA & STEM	COUN	TS					· ·									
		Bas	al area	for p	lot		Volume/ha		Ste	m cou	nt for	plot	(50X1	0m)		
Species			(10m)													
		E	T1	T2	T3	S1	T1	T2	Е	T1	T2	Т3	S1	S2		
Acacia disparrima subsp	Э.															
disparrima											1					
Allocasuarina littoralis	-		1	5							<u> </u>					
Allocasuarina ilitoralis			l '	٦							13		5			
Alphitonia excelsa				1							-10		_			
											10		2	1		
Banksia integrifolia subs	sp.															
compar																
											2					
Corymbia clarksoniana			7							_				١.		
Freehortes assisted					-					5			1	1		
Eucalyptus portuensis																
Leptospermum neglectu	ım															
Loptospermam neglecta	""															
Lithomyrtus obtusa																
													1	1		
Petalostigma pubescens			+					1								
retaiostigina pubescent	S															

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	1.5	Banksia integrifolia subsp. compar	T2
0.5	2	Alphitonia excelsa	T2
3.5	5	Allocasuarina littoralis	T2
6	9.5	Allocasuarina littoralis	T2
8	11	Acacia disparrima subsp. disparrima	T2
13.5	18	Corymbia clarksoniana	T1
17	19.5	Allocasuarina littoralis	T2
22.5	26	Allocasuarina littoralis	T2
26	30	Alphitonia excelsa	T2
30	34.5	Allocasuarina littoralis	T2
31	32	Alphitonia excelsa	T2
34.5	45.5	Corymbia clarksoniana	T1
41.5	44	Allocasuarina littoralis	T2
41.5	43	Alphitonia excelsa	T2
47	52.5	Alphitonia excelsa	T2

	1		1
		Allocasuarina littoralis	
51	58.5		T2
		Corymbia clarksoniana	
53	57.5		T1
		Acacia disparrima subsp. disparrima	
58.5	59.5		T2
		Banksia integrifolia subsp. compar	
60	63		TT2
		Alphitonia excelsa	
59	64	•	T2
		Banksia integrifolia subsp. compar	
67	68.5		T2
		Corymbia clarksoniana	
67.5	87		T1
		Alphitonia excelsa	
71	73	•	T2
92	94	Banksia integrifolia subsp. compare	T2
		Banksia integrifolia subsp. compar	
95	98		T2
98	100	Acacia disparrima subsp. disparrima	T2
		Eucalyptus portuensis	
86	100	•• •	T1

Tertiar	v Sit	e												
SITE NUM			24			100	U.S. 185			1000	W-1967	3061	PRODUCTION TO	
LEVEL	NDLK		3			55		No.						Carlos Add
DETAIL S	D 110	эт	<u>У</u>								88 7 E			
REGIONA		21	8.2.1			20			170	MASS.			10 700	19
			0.2.1											1000
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SITE DES	CRIP	TION												
GENERA														
COMMUN	NITY A	REA (I	na)	5-	-20			COMMUNI	TY WIDTH (m)		75-150		
MAPPED	(Curr	ent RE)	8.	2.1			REFEREN	CE SITE			N		
LANDFO	RM													
Situation		Α		E	lement	FOC)	Eros patte	rn GP			Pattern	Р	LA
SLOPE														
Type		F			S	lope (%	6)	<1		Asr	ect (°))		
SOILS														
Source	S	Relial	oility	М	Code	Α	Add	I -	ISB/MU -	Cc	olour	K	Texture	ΤE
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GEOLOG	Υ													
Source		S		Rel	iability	М		Code	K			Map Ur	it Co	·s
SPECHT	STRII	_	COD		idollity	101		Open Herbla				map or		
GROUND		OTOIL	_ 002	_				Орентнегыа	TIQ .					
Litter	/ (/0)		Rock	,		Bar	_		Cryptoph	vte		V	egetation	
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RAINFOR	FST					ı gı u	unu			_				
Struct.	(ESI		Leaf		-	Loc	f fall	T -	Floor		Ι -	1.	n. Gr	-
Complex		-	Size		_	Lea	ıı ıalı	1 -	Comp		-		orms	-
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Storm da (Proporti- Fire (Proporti- Logging	mage on/Ag on/Ag	e)	ht)	0 N	N40\			(Proportion Salinity Ringbarkin	n/Age) g /Thinning (i	#)		0 N		
Storm da (Proporti Fire (Proporti Logging Grazing	mage on/Ag on/Ag (#)	e) e/Heig	ht)	0 N Y (0	Goats)			(Proportion Salinity Ringbarkin Feral Diggi	n/Age) g /Thinning (i	#)		0		
Storm da (Proporti- Fire (Proporti- Logging Grazing Weeds (%	mage on/Ag on/Ag (#)	e/Heig er)		0 N Y (0	Goats)			(Proportion Salinity Ringbarkin	n/Age) g /Thinning (i	#)		0 N		
Storm da (Proporti Fire (Proporti Logging Grazing	mage on/Ag on/Ag (#)	e/Heig er)		0 N Y (0	Goats)			(Proportion Salinity Ringbarkin Feral Diggi	n/Age) g /Thinning (i	#)		0 N		

SITE NUMBER		24 continued						
STRUCTURAL SUMMA	ARY							
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species				
Emergent	-	-	-	-				
Tree 1		-	-	No Trees				
Tree 2								
Tree 3	-	-	-	-				
Shrub 1	1	1		Lantana camara*				
Shrub 2	-	-	-	-				
Ground	0-0.5	0.5	-	Ageratum conyzoides subsp. conyzoides* Tridax procumbens*diera scandens Cryptostegia grandiflora* Cynodon dactylon* Heteropogon contortus Hibbertia scandens				

Imperata cylindrica
Ipomoea pes-caprae subsp. brasiliensis
Opuntia stricta*
Sida cordifolia*
Boerhavia pubescens
Mukia maderaspatana*
Hyptis suaveolens*
Stephania japonica var. discolor
Triumfetta rhomboidea

Tertiar	v Sit	e												
SITE NUM			25			- 8			THE BOOK PROPERTY.	100 A				
LEVEL	IDLK		3			- 9			Sales Services		多是国政	100		
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REGIONA		, ,	8.12.	1/1/20		9	ATS.							PACE EXET
ECOSYS							den l	1					V ACC	
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RECORD	ER			l Fran		i i			5		VI.	A War		THE REAL PROPERTY.
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GENERA			1 1008	Juliq	ua wiiiu-	on careu	LIUSE	101691						
COMMUN			121	5	-20			COMMUNI	TV WIDTH	(m)		75-150		
MAPPED					2.1			REFEREN		(111)		N		
LANDFOR		EIIL KL		0.	<u>Z. I</u>			KLILKLIN	CL SIIL			IN		
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					Τ.	21 (0	/\	100		_	A 1 (0	<u> </u>	100	
Туре		R			5	Slope (%	<u>%) </u>	30			Aspect (°)	160	
SOILS		D. F.			10.1	T			100/04/1		0.1	L D	1	101.1
Source	S	Relial	oility	М	Code		Add data	-	ISB/MU		Colour	Dark Brown	Texture	Sandy Loam & Clay
GEOLOG							-		1					
Source		0			iability	Low		Code	K			Map Ur	nit Co	CS
SPECHT		CTURE	COD	<u> </u>				Low Closed I	orest					
GROUND							-		1 -					T = •
Litter	5		Rock	i	40	Bare grou	-	0	Crypto	phy	t e 5	Ve	egetation	50
RAINFOR	EST													
Struct.	-		Leaf		-	Lea	f fall	-	Floo		-	li	n. Gr	-
Complexi	ity		Size						Com	р		F	orms	
DISTURB	ANCE													
Storm da				0				Road Work				0		
								(Proportion	n/Age)					
(Proportion	 .			_				0 - 1: - : :				0		
Fire				0				Salinity						
Fire (Proportion	on/Ag	e/Heigl	ht)					,						
Fire (Proportion Logging (on/Ag	e/Heigl	ht)	N				Ringbarkin	g /Thinnin	g (#)	N		
Fire (Proportion Logging (Grazing	on/Ag (#)		ht)	N Y (G	Goats)			,		ıg (#)	N N		
Fire (Proportion Logging (Grazing Weeds (%	on/Ag (#) 6 Cove	er)		N	Goats)			Ringbarkin		ıg (#)			
Fire (Proportion Logging (Grazing	on/Ag (#) 6 Cove	er)		N Y (G	Goats)			Ringbarkin Feral Diggi		ıg (#)			

SITE NUMBER		25 continued							
STRUCTURAL SUMMA	ARY								
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species					
Emergent	-	-	-	-					
Tree 1		6		Diospyros geminata Ficus obliqua Jagera pseudorhus var. pseudorhus Pipturus argenteus Pouteria sericea Scolopia braunii					
Tree 2									
Tree 3	-	-	-	-					
Shrub 1				Lantana camara*					
Shrub 2	-	-	-	-					
Ground	0-0.5	0.5	-	Acronychia laevis					

Adiantum hispidulum var. hispidulum
Ageratum conyzoides subsp. conyzoides*
Clematicissus opaca
Cissus oblonga
Cyperus gracilis
Diospyros geminata
Microsorum punctatum
Oplismenus aemulus
Passiflora suberosa*
Pseuderanthemum variabile
Stephania japonica var. discolor
Tetrastigma nitens
Triumfetta rhomboides

SITE NUMBER	27
LEVEL	2
DETAIL SP. LIST	Υ
REGIONAL	8.11.10
ECOSYSTEM	
DATE	22/09/2010
RECORDER	David Francis &
	Julia Olsen
LOCALITY	Great Keppel Island



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SITE DES	CRIF	PTION	Allocas	uarina lit	toralis	s low v	voodla	nd							
GENERAL	. NO	TES													
COMMUN	ITY A	AREA (h	na)	20-50				COMMUNI	TY WIDT	H (m)		75-150			
MAPPED	(Cur	rent RE)	8.11.1/	8.12.	14x2c		REFEREN	CE SITE			N			
LANDFOR	RM														
Situation		F		Eleme	nt	HSL		Eros patte	rn	UH		Pattern		HIL	
SLOPE															
Type		M	0		SI	ope (%	6)	15			Aspect (°)	80		
SOILS															
Source	S	Reliat	oility	/ Co	de	A/K	Add	-	ISB/MU	-	Colour	Dark	Textu	ire S	andy Clay
							data					Brown			
GEOLOG'	Y														
Source		1		Reliabili	ty I	М		Code		/G		Map U	nit	Ccs	
SPECHT S		JCTURE	CODE					Low Woodla	nd						
GROUND															
Litter		5	Rock	0		Baro	-	0	Crypt	ophy	t e 0	V	egetatio	n 95	
RAINFOR	EST											<u> </u>		_	
Struct.		-	Leaf	-		Lea	f fall	-	Flo	or	-		ln. Gr	-	
Complexit	ty		Size						Co	mp			Forms		
DISTURBA	ANC	Ε													
Storm dar	nage	е)				Road Work	s			0			
(Proportio	n/A	ge)						(Proportion	n/Age)						
Fire)				Salinity				0			
(Proportion	Proportion/Age/Height)							<u> </u>							
	ogging (#)							Ringbarking /Thinning (#)							
	#)			-						9 (,				
Grazing				N				Feral Digg		J (,	N			
	Cov			-						3 (•	N Y			

SITE NUMBER		27		continued
STRUCTURAL SU	JMMARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	4-5	4	25	Acacia disparrima subsp. disparrima Acacia leiocalyx subsp. leiocalyx Allocasuarina littoralis Capparis canescens
Tree 2	1-3	2	48.5	Acacia disparrima subsp. disparrima Acacia leiocalyx subsp. leiocalyx Acronychia laevis Allocasuarina littoralis
Tree 3	1 _	1_	-	-

Shrub 1	0.5-1			1			-	Diospyros ger Drypetes depl Lantana cama Trema toment	anche ira*								
Shrub 2	-			-			-	-									
	0-0.5	- 0.5					-	Brunoniella australis Capparis canescens Cheilanthes sieberi Desmodium rhytidophyllum Diospyros geminata Ficus opposita (seedling) Gahnia aspera Hibbertia vestita Lomandra multiflora Lomandra confertifolia subsp. pallida Oplismenus aemulus Passiflora suberosa Marrumbium vulgare* Scleria brownii Sida cordifolia*									
BASAL AREA & STEM	COLIN	ITC						Triumfetta rho	mboi	des							
BASAL AREA & STEWN	COOK		al area	forn	lot		Volume/ha		Cto	m 001	nt for	nlot	(50X10)m)			
Species			ai ai ea (10m)	i ioi p	ioi		voiume/na		Sie	III COU	nit ioi	piot	(30711	,,,,			
		Е	T1	T2	Т3	S1	T1	T2	E	T1	T2	Т3	S1	S2			
Acacia leiocalyx subsp.																	
leiocalyx				1						1	31		12				
Allocasuarina littoralis			5							18	3		1				
Acacia disparrima subsp.																	
disparrima																	
Diospyros geminata											2		1				
Capparis canescens													1				
										1							
Lantana camara*													1				
Trema tomentosa													1				
Alphitonia excelsa																	
Drypetes deplanchei													1				
Acronychia laevis													1				
_											2		3				

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	5	Acacia leiocalyx subsp. leiocalyx	T2
4.5	7	Allocasuarina littoralis	T1
7	9	Acacia leiocalyx subsp. leiocalyx	T2
12	20	Allocasuarina littoralis	T1
20	22	Acacia leiocalyx subsp. leiocalyx	T2
23	26.5	Allocasuarina littoralis	T1
23.5	24	Acacia leiocalyx subsp. leiocalyx	T2
27	30	Acacia disparrima subsp. disparrima	T2
31.5	35.5	Acacia disparrima subsp. disparrima	T2
39	39.5	Acacia disparrima subsp. disparrima	T2
40	42	Stag	T1
43	44	Acacia leiocalyx subsp. leiocalyx	T2

		Acacia disparrima subsp. disparrima	
45	50		T2
51	52	Acacia disparrima subsp. disparrima	T2
53.5	59.5	Allocasuarina littoralis	T1
55	57	Acronychia laevis	T2
59	64	Acronychia laevis	T2
65	67	Acacia leiocalyx subsp. leiocalyx	T2
67.5	69	Allocasuarina littoralis	T2
71	72.5	Acronychia laevis	T2
71.5	74.5	Acacia leiocalyx subsp. leiocalyx	T2
76	79	Acronychia laevis	T2
78	80	Allocasuarina littoralis	T1
84	84.5	Allocasuarina littoralis	T2
87	88.5	Acacia leiocalyx subsp. leiocalyx	T2
90	91	Allocasuarina littoralis	T1
94	98	Acacia disparrima subsp. disparrima	T2
98	99.5	Acronychia laevis	T2

					10 To N	MANA SAMMANISMS	B Children and C	7-100MS/T00	9884,059	E	The second	20,555	0.000	ADD VAROUS DELL'
SITE NUMBE	:K	29		_	1		6	Consult of	1			SIN	10/10	
LEVEL		2		_			View b	f				Time.		- CONT.
DETAIL SP. L	121	Y	0.00	_	国家	The Party of	117	1			A. A.	100	A C	10
REGIONAL		Non-rem	1 8.2.8a		1/83	I And S		1	4500	3.4		120		
ECOSYSTEM	l	00/00/00		_			201	50000		A P		網	7	
DATE		22/09/20		_	7.0	W V							190	
RECORDER		David Fr							1		ので			
		Julia Ols		_	DE S		为多 为							
LOCALITY		Great Ke	eppel Island											
				1			13					政队	11 -	
SITE DESCRI	IPTION	Allocasu	arina littorali	s open fo	rest									
GENERAL NO	OTES													
COMMUNITY	AREA (h	a)	20-50			COMMU	NITY W	IDTH (m)		75-15	0		
MAPPED (Cu	rrent RE)		8.11.10/8.1	2.14x2c		REFERE	NCE SI	TE			N			
LANDFORM														
Situation	F		Element	HSL		Eros pat	tern	UL			Patte	rn	L	.ow
SLOPE														
Туре	V	G	S	lope (%))	<5%			Asp	ect (°)		320	
						_								
SOILS														
SOILS Source S	Relia	bility H	Code	А	Add data		ISB/M	U -	Co	lour	Dark Grey		Texture	Sand
SOILS Source S GEOLOGY	Relia								Со	lour	Grey			Sand
SOILS Source S GEOLOGY Source	Relia	 F	Code	Н		Code	I	U - Sand	Со	lour				
SOILS Source S GEOLOGY Source SPECHT STR	Relia	 F					I		Co	lour	Grey			
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%)	Relia	CODE	Reliability			Code Low Open	I		Со	olour	Grey	Unit	t C	
SOILS Source S GEOLOGY Source SPECHT STR	Relia	 F			data	Code	Forest			olour 0	Grey	Unit		
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%)	Relia ORUCTURE)	CODE	Reliability	H Bare	data	Code Low Open	Forest	Sand			Grey	Unit	t C	CS
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%) Litter	Relia ORUCTURE)	CODE	Reliability	H Bare	data	Code Low Open	Forest Cryp	Sand			Grey	Unit	t C	CS
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%) Litter RAINFORES Struct. Complexity	Relia ORUCTURE) 15	Rock	Reliability 0	H Bare grou	data	Code Low Open	Forest	Sand		0	Grey	Unit	t Co	es 85
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%) Litter RAINFORES Struct. Complexity DISTURBANG	Relia ORUCTURE 15 T	Rock	Reliability 0	H Bare grou	data	Code Low Open	Forest Cryp	Sand		0	Grey	Unit	t Co	es 85
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%) Litter RAINFORES Struct. Complexity DISTURBANG	Relia ORUCTURE 15 T - CE ge	Rock Leaf Size	Reliability 0	Bare grou	data	Code Low Open	Forest Cryp	Sand		0	Grey	Unit	t Co	es 85
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%) Litter RAINFORES Struct. Complexity DISTURBANG	Relia ORUCTURE 15 T - CE ge	Rock Leaf Size	0 - (storm/cyclo	Bare grou	data	Code Low Open 0	Forest Cryp	Sand		0	Grey Map	Unit	t Co	es 85
SOILS Source S SECHT STR GROUND (%) Litter RAINFORES Struct. Complexity DISTURBANG Storm damag (Proportion/A	Relia ORUCTURE 15 T CE ge Age)	Rock Leaf Size	0 - (storm/cyclo	Bare grou	data	Code Low Open 0 Road Wo (Proporti	Forest Cryp	Sand		0	Map 0	Unit	t Co	es 85
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%) Litter RAINFORES Struct. Complexity DISTURBANC Storm damag (Proportion)/ Fire	Relia ORUCTURE 15 T CE ge Age)	Rock Leaf Size	0 - (storm/cyclo	Bare grou	data	Code Low Open 0 Road Wo (Proporti Salinity	Forest Cryp FI Coorks on/Age	Sand otophy oor omp	rte	0	Map 0	Unit	t Co	es 85
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%) Litter RAINFORES Struct. Complexity DISTURBANG Storm damag (Proportion/# Fire (Proportion/# Logging (#)	Relia ORUCTURE 15 T CE ge Age)	Rock Leaf Size 3 nt) N	Reliability 0	Bare grou	data	Code Low Open 0 Road Wo (Proporti Salinity Ringbark	Forest Cryp FI Coorks on/Age	Sand otophy oor omp	rte	0	Map 0 0	Unit	t Co	es 85
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%) Litter RAINFORES Struct. Complexity DISTURBANG Storm damag (Proportion/A Fire (Proportion/A	Relia O UUCTURE) 15 T - CE ge Age) Age/Heigh	Rock Leaf Size 3 0 N Y	0 - (storm/cyclo	Bare grou	data	Code Low Open 0 Road Wo (Proporti Salinity	Forest Cryp FI Coorks on/Age	Sand otophy oor omp	rte	0	Map 0 0 N	Unit	t Co	es 85
SOILS Source S GEOLOGY Source SPECHT STR GROUND (%) Litter RAINFORES Struct. Complexity DISTURBANG Storm damag (Proportion/A Fire (Proportion/A Logging (#) Grazing	Relia ORUCTURE 15 T - CE ge Age/Heigh	Rock Leaf Size 3 N N Y <	Reliability 0 - (storm/cyclo (goats) 1%	Bare grou	data	Code Low Open O Road Wo (Proporti Salinity Ringbark Feral Dig	Forest Cryp FI Coorks on/Age	Sand otophy oor omp	rte	0	Grey Map 0 0 N N N	Unit	t Co	es 85

SITE NUMBER		29		continued
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	4-8	5	46	Acacia disparrima subsp. disparrima Acacia leiocalyx subsp. leiocalyx Acacia julifera Allocasuarina littoralis Alphitonia excelsa Corymbia tessellaris
Tree 2	-	-	-	-
Tree 3	-	-	-	-
Shrub 1	0.5-1	1	-	Lithomyrtus obtusa
Shrub 2	-	-	-	-
Ground	0-0.5	0.5	-	Eriachne pallescens var pallescens Lomandra leucocephala subsp. leucocephala
BASAL AREA &	STEM COUNTS	•	•	· · · · · ·

Species		al area (10m)	for p	lot		Volume/ha			Stem count for plot (50X10m)						
-	Ē	T1	T2	T3	S1	T1	T2	E	T1	T2	T3	S1	S2		
Acacia disparrima subsp. disparrima		1							8			1			
Allocasuarina littoralis		3							13			2			
Acacia julifera		1							3						
Corymbia tessellaris									2						
Alphitonia excelsa									1			1			
Acacia leiocalyx subsp. leiocalyx									1			23			
Lithomyrtus obtusa												71			

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	1	Acacia disparrima subsp. disparrima	T1
2.5	7	Allocasuarina littoralis	T1
6	19.5	Acacia disparrima subsp. disparrima	T1
10	11.5	Allocasuarina littoralis	T1
23.5	24.5	Acacia julifera	T1
27	28.5	Acacia julifera	T1
39	40	Corymbia tessellaris	T1
38.5	41	Allocasuarina littoralis	T1
45	46	Acacia julifera	T1
61	64	Alphitonia excelsa	T1
66.5	73.5	Allocasuarina littoralis	T1
80	85.5	Allocasuarina littoralis	T1
83	85	Acacia julifera	T1
87	91	Acacia julifera	T1
98.5	100	Allocasuarina littoralis	T1

REFERENCE FOR 8.2.8a

SITE NUMBER	31
LEVEL	2
DETAIL SP. LIST	Υ
REGIONAL	8.2.8a
ECOSYSTEM	
DATE	22/09/2010
RECORDER	David Francis &
	Julia Olsen
LOCALITY	Great Keppel Island



					公司								
SITE DESCRIPTION	Corymb	ia clarksonia	na open	fores	t	PERSONAL PROPERTY.	CASE OF	IN COLUMN	ALC: N. S. S. S.	THE PARTY OF		A STATE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF T	
GENERAL NOTES	Corynno	a olarnoorna	ла орон	110100	•								
COMMUNITY AREA	ha)	20-50			COMMUNIT	Y WIDTH	(m)		75-150				
MAPPED (Current RE	- ,	8.11.10/8.1	2.14x2c	;	REFERENC		(,		Y				
LANDFORM	,												
Situation F		Element	HSL		Eros pattern	ı U	IL		Pattern		HIL		
SLOPE													
Type L		SI	lope (%))	5			Aspect (°)	290			
SOILS													
Source S Relia	bility H	Code	Α	Add	-	ISB/MU	-	Colour	Light	Textu	ıre	Sand	
				data					Brown				
GEOLOGY													
Source Map		Reliability	Low		Code	A/I	K		Map U	nit	Ccs		
SPECHT STRUCTUR	E CODE				Open Forest								
GROUND (%)		_	1			1							
Litter 55	Rock	0	Bare		0	Crypto	phyt	e 0	V	egetatio	n	45	
2401502505			grou	nd									
RAINFOREST	11		11	· C - II	1	1 =1							
Struct	Leaf Size	-	Leaf	tali	-	Floo	-	-		ln. Gr Forms	-		
Complexity DISTURBANCE	Size					Com	р			Forms			
Storm damage	Ι ο				Road Works				0				
(Proportion/Age)	U				(Proportion/				U				
Fire	0				Salinity	Agc)			0				
(Proportion/Age/Heig					Camilly				~				
Logging (#)	,,				Ringbarking	/Thinnin	q (#))	N				
Grazing	N				Feral Diggin				N N				
Weeds (% Cover)	0				Remnant								
Erosion (Type/Severi	ty) 0								•				

SITE NUMBER		31	continued					
STRUCTURAL SUN	MARY							
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species				
Emergent	-	-	-	-				
Tree 1	8-13	10	63.5	Allocasuarina littoralis Alphitonia excelsa Banksia integrifolia subsp. compar Corymbia clarksoniana Corymbia tessellaris				
Tree 2	3-7	7	44	Acacia disparrima subsp. disparrima Allocasuarina littoralis Alphitonia excelsa Banksia integrifolia subsp. compar Corymbia clarksoniana Corymbia tessellaris				

								Ficus obliqua Glochidion lob	ocarı	oum					
Tree 3	-			-			-	-							
Shrub 1	1-2			2			=	Alphitonia excelsa							
Shrub 2	0.5			1			-	Lithomyrtus obtusa							
Ground	0-0.5			0.5			-	Aristida calycina var. calycina Cyperus gracilis Eriachne pallescens Lomandra leucocephala subsp. leucocephala Passiflora suberosa* Stephania japonica var. discolor						la	
BASAL AREA & STEM	COUN														
Species		Basal area for plot (50X10m)					Volume/ha		Stem count for plot (50X10m)						
		Е	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2	
Corymbia clarksoniana			3							2			1		
Corymbia tessellaris			6	1						3					
Allocasuarina littoralis				2						j	3				
Alphitonia excelsa				1							14		11	1	
Banksia integrifolia subs compar	sp.			1							8		1		
Glochidion lobocarpum				1							1		1		
Lithomyrtus obtusa				-								46			
Acacia disparrima subsp disparrima	Э.										1				

CANOPY COVER DATA (1			
Canopy Start (m)	Canopy finish (m)	Species	Strata
_		Glochidion lobocarpum	
0	2		T2
_	_	Corymbia clarksoniana	
0	3		T1
40	44	Alphitonia excelsa	T0
10	11	On marking alording a sign a	T2
10	20	Corymbia clarksoniana	T1
10	20	Almhitania	11
14.5	15	Alphitonia excelsa	T2
14.5	15	Allocasuarina littoralis	12
23.5	26.5	Allocasuarina lilloralis	T2
23.3	20.3	Corymbia clarksoniana	12
24	25	Corymbia ciarksoriiana	T1
24	23	Alphitonia excelsa	11
26	28.5	Alphilonia excelsa	T2
20	20.3	Banksia integrifolia subsp. compar	12
31	33.5	Вапкзіа інтедпіона завзр. сотіраї	T2
	00.0	Corymbia tessellaris	12
32	38	Gorymbia tessenans	T1
		Alphitonia excelsa	
34.5	38.5	ruprintorna exterioa	T2
		Banksia integrifolia subsp. compar	
38	41.5		T1
		Alphitonia excelsa	
42	43.5	,	T2
		Corymbia tessellaris	
47	55.5	-	T1
		Alphitonia excelsa	
47.5	49	•	T2
		Banksia integrifolia subsp. compar	
48	51		T1
50.5	55.5	Alphitonia excelsa	T2

		Glochidion lobocarpum	
59.5	74		T2
		Corymbia tessellaris	
61	68		T1
		Corymbia clarksoniana	
68	85		T1
		Glochidion lobocarpum	
77	78.5	•	T2
		Banksia integrifolia subsp. compar	
82.5	90		T1
		Allocasuarina littoralis	
89	94		T2
95.5	98	Corymbia clarksoniana	T1

SITE NUMBER	35
LEVEL	2
DETAIL SP. LIST	Υ
REGIONAL	8.2.8a
ECOSYSTEM	
DATE	22/09/2010
RECORDER	David Francis &
	Julia Olsen
LOCALITY	Great Keppel Island



							7			1	1		E.		9	
SITE DES	CRI	PTION	Lopho	stem	non confe	rtus / E	ucalypi	tus portuensis	closed	fore	st					
GENERAL	L NO	OTES														
COMMUN				20	0-50			COMMUNI	TY WII	DTH	(m)		75-150)		
MAPPED	(Cu	rrent RE)	8.	11.10/8.1	2.14x2	С	REFEREN	CE SIT	Έ			N			
LANDFOR	RM															
Situation		F		E	lement	HSL		Eros pattern UH				Patter	n	HIL	_	
SLOPE																
Type		L			S	lope (%	6)	<5%			1	Aspect (°)			
SOILS																
Source	S	Relial	oility	H	Code	A/K	Add data	-	ISB/N	ИU	-	Colour	Brow	n Textu	re	Sandy Clay
GEOLOG	Υ									•						
Source O Reliability H								Code		Ro	ck		Мар	Unit	Ccs	
SPECHT	STR	UCTURE	CODE					Low closed F	orest							
GROUND	(%)															
Litter		5	Rock		5	Bare	-	0	Cry	ptop	ohyte	e 5		Vegetation		85
RAINFOR	ES1															
Struct.		-	Leaf		-	Lea	f fall	-	F	loor	•	-		In. Gr	-	
Complexi			Size						(Com	р			Forms		
DISTURB																
Storm da				0				Road Work					0			
(Proportio	on/A	(ge)						(Proportion	า/Age)							
Fire				0				Salinity					0			
(Proportio		ge/Heigl						<u> </u>								
Logging (#)			N				Ringbarkin		nnin	g (#)		N			
Grazing	_			N 10/	,			Feral Digging N								
Weeds (%		- /		<1%)			Remnant					Υ			
Erosion (Тур	e/Severit	y)	0				1								

SITE NUMBER		35	continued						
STRUCTURAL SUMM	IARY								
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species					
Emergent	-	-	-	-					
Tree 1	7-12	8	85	Eucalyptus crebra Eucalyptus portuensis Lophostemon suaveolens					
Tree 2	3-7	5	14.5	Acacia disparrima subsp. disparrima Eucalyptus portuensis Jagera pseudorhus var. pseudorhus Lophostemon suaveolens					
Tree 3	-	-	-	-					
Shrub 1	1-2	1	-	Xanthorrhoea latifolia					

Shrub 2	-			-			-	-						
Ground	0-0.5			0.5			-	Alphitonia excelsa (seedling) Arundinella nepalensis Desmodium rhytidophyllum Enteropogon unispiceus Entolasia stricta Lepidosperma laterale var. laterale Lomandra confertifolia subsp. palli Lomandra leucocephala subsp. lei Panicum effusum Passiflora suberosa* Xanthorrhoea latifolia				allida	cepha	la
BASAL AREA & STEM	COUN	ITS												
Species		Basal area for plot (50X10m)					Volume/ha		Ste	m cou	nt for	plot	(50X10	0m)
		Е	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
Lophostemon suaveolei	าร									8	2			
Eucalyptus portuensis			10	1						16				
Eucalyptus crebra 3		3										1		
Acacia disparrima subsp. disparrima											1			

CANOPY COVER DATA (100m TRANSECT)										
Canopy Start (m)	Canopy finish (m)	Species	Strata							
		Lophostemon suaveolens								
0	2.5		T2							
		Eucalyptus portuensis								
2.5	7.5		T1							
		Lophostemon suaveolens								
6	11		T2							
4.0		Eucalyptus portuensis	- .							
10	20		T1							
24	40	Eucalyptus portuensis	T4							
21	42	Freehoutes and comple	T1							
44	56	Eucalyptus portuensis	T1							
44	30	Eucolyntus portuonais	11							
60	91	Eucalyptus portuensis	T1							
00		Lophostemon confertus	· · ·							
87	97	Lophodomon domondo	T1							
93	100	Jagera pseudorhus var. pseudorhus	T2							

REFERENCE SITE FOR 8.11.8a

SITE NUMBER 42 DETAIL SP. LIST Y REGIONAL B.11.8a ECOSYSTEM DATE 22/09/2010 RECORDER David Francis & Julia Olsen LOCALITY Great Keppel Island SITE DESCRIPTION Corymbia citriodora closed forest GENERAL NOTES Colluvial fan at the toe of slopes COMMUNITY AREA (ha) 20-50 COMMUNITY AREA (ha) 20-50 MAPPED (Current RE) 8.11.3a REFERENCE SITE Y LANDFORM Struation B Element VLF Eros pattern LP Pattern ALP SLOPE Type F Slope (%) 1-3 Aspect (*) SOURCE S Reliability H Code K Add data GEOLOGY Source S Reliability H Code K Add data GEOLOGY Source M Reliability Low Code B Map Unit Qa SPECHT STRUCTURE CODE Closed Forest GROUND (%) Litter 10 Rock 0 Bare ground Closed Forest Complexity Size Distribution 90 RAINFOREST Struct - Leaf - Leaf all - Floor Comp - In. Gr Forms Source Size No Map Unit Qa ROCK ORD Size ORD - In. Gr Forms Forms O ROAD ORD - In. Gr Forms Forms O ROAD ORD - In. Gr Forms Struct - Leaf - Leaf all - Floor Comp - In. Gr Forms Struct - Leaf - Size ORD - In. Gr Forms Struct - Leaf - Size ORD - In. Gr Forms Struct - Leaf - Size ORD - In. Gr Forms Struct - Leaf - Size ORD - In. Gr Forms Struct - Leaf - Size ORD - In. Gr Forms Struct - Leaf - Size ORD - In. Gr Forms Struct - Leaf - Size ORD - In. Gr Forms Struct - Leaf - Size ORD - In. Gr Forms Struct - Leaf - Size ORD - In. Gr Forms Struct - Leaf - Size ORD - In. Gr Forms Struct - Size ORD - In. Gr Forms Struct - Size ORD - In. Gr Forms Struct - Size ORD - In. Gr Forms Struct - Size ORD - In. Gr Forms Struct - Size ORD - In. Gr Forms Struct - Size ORD - In. Gr Forms Struct - Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms Size ORD - In. Gr Forms	REFERENC	יוט ידי		OK 6	5.11.0a														
DETAIL SP. LIST	SITE NUMBER		42				15		TOTAL STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE										
REGIONAL ECONYSTEM DATE								21		1				1		275			
DATE	DETAIL SP. LIST	Т	Г					1	No. of the	V		10 miles	1	30		13	达学信号		
DATE	REGIONAL	За			CA NE		6 2 let			1				97.3	A PARTY				
David Francis & Julia Olsen	ECOSYSTEM							2			RIV	Code Co		Od		218			
Site Description Great Keppel Island	DATE																		
Julia Olsen	RECORDER	David									170	X	YES	57	THE STATE OF				
SITE DESCRIPTION Corymbia citriodora closed forest GENERAL NOTES Colluvial fan at the toe of slopes COMMUNITY AREA (ha) 20-50 COMMUNITY WIDTH (m) 75-150 MAPPED (Current RE) 8.11.3a REFERENCE SITE Y LANDFORM Situation B Element VLF Eros pattern LP Pattern ALP SLOPE Type F Slope (%) 1-3 Aspect (*) SOILS Source S Reliability H Code K Add data data Code B Map Unit Ca SPECHT STRUCTURE CODE Closed Forest GROUND (%) Litter 10 Rock 0 Bare ground						美国企业			到是是		11/1	123		加速速					
SITE DESCRIPTION Corymbia citriodora closed forest GENERAL NOTES Colluvial fan at the toe of slopes COMMUNITY AREA (ha) 20-50 COMMUNITY WIDTH (m) 75-150 MAPPED (Current RE) 8.11.3a REFERENCE SITE Y LANDFORM Situation B Element VLF Eros pattern LP Pattern ALP SLOPE Type F Slope (%) 1-3 Aspect (*) SOILS Source S Reliability H Code K Add data Source M Reliability Low Code B Map Unit Clay Source M Reliability Low Closed Forest GROUND (%) Litter 10 Rock 0 Bare ground GROUND (%) Closed Forest Struct. Leaf Leaf fall - Floor - In. Gr Complexity Size Complexity Size Storm damage 0 Road Works (Proportion/Age) Fire (Proportion/Age/Height) 0 Road Works (Proportion/Age) Fire (Proportion/Age/Height) 0 Complexity 0 Salinity 0 Complexity 0 Complexity 0 Complexity 0 Salinity 0 Complexity 0 Complex	LOCALITY									1		27	III)	HEE	題目	1/2	A) DES		
Colluvial fan at the toe of slopes			Oreat Kepper Island						美國祖籍			THE S		THE	1	10	人包有理		
Colluvial fan at the toe of slopes							S AN	B) I	出题				SAM!	12 1 1					
Colluvial fan at the toe of slopes																			
Colluvial fan at the toe of slopes							242		是欧洲				15			16 m	A 5		
Colluvial fan at the toe of slopes							NEW Y	外上				3.73%	46		SHAME OF				
Colluvial fan at the toe of slopes							自			100	1		112			居門	The same		
Colluvial fan at the toe of slopes				A THE RESERVE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF T															
Colluvial fan at the toe of slopes																			
Colluvial fan at the toe of slopes										245	-	1	46	E PAY	(R) (D)	165	1000		
Colluvial fan at the toe of slopes							200			A SE	1000	N	200	10	1				
Colluvial fan at the toe of slopes	SITE DESCRIPT	TION	Corvr	nbia ci	itriodora	clos	ed forest						-						
COMMUNITY AREA (ha) 20-50 COMMUNITY WIDTH (m) 75-150																			
MAPPED (Current RE)						, 0 0.	0.0000		COMMUI	VITY	WID.	TH (n	n)		75-15	50			
Color																			
Situation		, III IX E /			11.00				IXEI EIXE	ITOL	0112								
SLOPE		B		E	oment	Τ,	/I F		Fros nat	torn	П	P		Т	Patte	rn		AI D	
Type				1	Cilicit		V LI		LIOS pat	CIII					1 atte	111		<u>TLI</u>	
SOILS Source S Reliability H Code K Add - ISB/MU - Colour Dark Brown Texture Sandy Clay GEOLOGY Source M Reliability Low Code B Map Unit Qa SPECHT STRUCTURE CODE Closed Forest GROUND (%) Litter 10 Rock 0 Bare ground Property Comp - In. Gr Gromplexity Size - Leaf fall - Floor Comp Forms - Forms Struct Leaf Size - Leaf fall - Floor Comp Forms - Forms DISTURBANCE Storm damage (Proportion/Age) (Proportion/Age) Fire (Proportion/Age/Height)		TE		Cl (0/)					1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2										
Source S Reliability H Code K Add data - ISB/MU - Colour Dark Brown Texture Sandy Clay		<u> </u>				olope	e (70)		1-3				AS	peci (
		Dalial	. :1:4		0-4-	Liz	1 4-	11		ICE	/B.#1.1	1 1	_	-1	D1		Tautuna	l Carada	
Source	Source 5	Reliai	ollity	н	Code	e K			-	195	ISB/MU -		C						
Source	CEOLOGY					<u> </u>	ua	ıa							DIOV	VII		Clay	
Closed Forest		N.4		D-II	- I- !!!4	1		_	OI-						Man	I I as i		_	
Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet Carpet C							N							Map Unit Qa					
Cryptophyte 0 Vegetation 90 RAINFOREST		JIUKE	CODE	<u> </u>					Closed For	est									
								-		-						١,,		T 00	
RAINFOREST Struct.	Litter 10		Rock		0				0	C	Cryptophyte		١٠		vegetation		90		
Struct.	D. 11150 DECE	AINFOREST					ground												
Complexity Size Comp Forms																			
DISTURBANCE Storm damage 0							Leaf fall					-				-			
Storm damage (Proportion/Age) 0 (Proportion/Age) Road Works (Proportion/Age) 0 (Proportion/Age) Fire (Proportion/Age/Height) 0 Salinity 0			Size								Comp					Fe	orms		
(Proportion/Age) (Proportion/Age) Fire 0 Salinity 0 (Proportion/Age/Height) 0			-	_					D 13**										
Fire 0 Salinity 0 (Proportion/Age/Height)				0											0				
(Proportion/Age/Height))		_					(Proportion/Age)						<u> </u>				
				_					Salinity						0	U			
Logging (#) N Ringbarking /Thinning (#) N		e/Heigh	t)						Discharling (This is a 40)						L	N			
Grazing N Feral Digging N																			
110000 (1000101)									Remnant Y										
Erosion (Type/Severity) 0	Erecion /Type/S	Severity	/)	0															

SITE NUMBER		42 continued							
STRUCTURAL SUMMARY									
Stratum	tratum Height Range in Strata (m)		Cover (%) (100m transect)	Species					
Emergent	-	-	-	-					
Tree 1	15-25	18	93	Corymbia citriodora subsp. citriodora Corymbia clarksoniana Eucalyptus platyphylla Eucalyptus tereticornis					
Tree 2	3-7	5	12.5	Acacia disparrima subsp. disparrima Acacia leiocalyx subsp. leiocalyx Corymbia citriodora subsp. citriodora Planchonia careya					
Tree 3	-	-	-	-					
Shrub 1	1-2	2	-	Acacia disparrima subsp. disparrima Corymbia citriodora subsp. citriodora					
Shrub 2	-	-	-	-					

BASAL AREA & STEM COU			0.5			-	Cissus oblonga Clematocissus opaca Cyanthillium cinereum Desmodium rhytidophyllum Dianella rara Enteropogon unispiceus Gahnia aspera Hybanthus stellarioides Imperata cylindrica Lomandra confertifolia subsp. pallida Murdannia graminea Oplismenus aemulus Passiflora suberosa* Phyllanthus virgatus Sida cordifolia* Tetrastigma nitens Trema tomentosa (seedling) Triumfetta rhomboidea						
Species	Bas	al area (10m)	for p	lot		Volume/ha		Ste	m cou	int foi	plot	(50X10	0m)
	Е	T1	T2	T3	S1	T1	T2	Е	T1	T2	Т3	S1	S2
Corymbia citriodora subsp.													
citriodora		7							2	2		4	
Corymbia clarksoniana		_							4				
Eucalyptus platyphylla		4							4				
Eddalyplus platypriylla		1							1				
Acacia disparrima subsp. disparrima													
Planchonia careya			1							6		1	
-													
Eucalyptus tereticornis		1											
Acacia leiocalyx subsp. leiocalyx										1	1		

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
		Eucalyptus platyphylla	
0	5.5		T1
		Corymbia citriodora subsp. citriodora	
5.5	15.5		T1
·		Corymbia citriodora subsp. citriodora	
20	29.5	•	T1
		Acacia disparrima subsp. disparrima	
29.5	38		T2
		Corymbia clarksoniana	
32	53		T1
		Acacia disparrima subsp. disparrima	
41.5	45.5		T2
		Corymbia clarksoniana	
55	57		T1
_		Corymbia citriodora subsp. citriodora	
57	100	•	T1
·		Corymbia clarksoniana	
61	63		T1

						444		17.000		AMERICA S		OTHER CORE				
SITE NUI	MBE	R	46A				Me A	1	4	130	17	- 建洲			at .	3
LEVEL			2							3/1	為關	The second			- Call	4
DETAIL S		.IST	Υ			1	第一大	Ser Wall			V-32				TO SERVICE	3
REGION			8.2.8a					BOY'S THE	24			32173		The same of	30 48	il i
ECOSYS	TEM							A PARTY	y was		2					100
DATE			22/09/2			100	NEWS.				1		2 / 展			100
RECORD	ER		David F		is &		480							ATTEN A	Table :	4
			Julia O				4	1-4/	4				-	CHANN!	1	7
LOCALIT	Y		Great k	(eppe	el Island											
SITE DES	SCRI	PTION	Eucaly	otus p	ortuensi	s / Lopho	stemo	n suaveolen	s closed	d fore	st					
GENERA	L NO	OTES														
COMMU	YTIV	AREA (h	ia)	20	-50			COMMU	NITY W	/IDTI	1 (m)		75-150	0		
MAPPED	(Cu	rrent RE)	8.1	11.10/8.1	2.14x2c		REFERE	NCE S	ITE			N			
LANDFO	RM															
Situation	١	Α		Ele	ement	VLF		Eros pat	tern	UP)		Patter	'n	PLA	
SLOPE																
Type		V	G		9	Slope (%)	1			As	pect (°)	20		
SOILS																
Source	S	Relia	bility	+	Code	Α	Add data	-	ISB/M	IU	- C	olour	Browi	n Textu i	e S	Sand
GEOLOG	Ϋ́															
Source		I		Relia	ability	Low		Code		В			Map	Unit	Qа	
SPECHT	STR	UCTURE	CODE					Closed Fo	rest							
GROUND	(%)															
Litter		5	Rock		0	Bare grou		0	Cry	ptopl	hyte	0		Vegetation	1 85	
RAINFOR	REST															
Struct.		-	Leaf S	ize	-	Lea	f fall	T -	F	loor		-		In. Gr	-	
Complex	ity									omp				Forms		
DISTURE		E														
Storm da)				Road Wo	orks				0			
(Proporti								(Proport	ion/Age	∍)						
Fire		•	()				Salinity					0			
(Proporti		ge/Heigl														
Logging	(#)			V				Ringbarl		ninnii	ng (#)		N			
Grazing				V				Feral Dig					N			
Weeds (9				3%				Remnan	t				Υ			
Erosion	(Тур	e/Severit	y)	0												

SITE NUMBER		46A		continued
STRUCTURAL SU	MMARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	8-14	10	74	Corymbia clarksoniana Corymbia tessellaris Eucalyptus portuensis Lophostemon suaveolens
Tree 2	3-7	5	15	Acacia disparrima subsp. disparrima Allocasuarina littoralis Alphitonia excelsa Drypetes deplanchei Planchonia careya
Tree 3	-	-	-	-
Shrub 1	1-2	1.5		Acacia disparrima subsp. disparrima Alphitonia excelsa

Shrub 2	-			-			-	<u> </u>						
	0-0.5			0.5			-	Cryptostegia g Enteropogon i Eriachne palle Eustrephus la Imperata cylin Oplismenus a Paspalidium g Passiflora sub Sida cordifiora Stephania jap Triumfetta rho	unispi escens tifolius drica emulu gracile perosa n* onica	iceus s s us us n* var. d	iscolo	ur		
BASAL AREA & STEM									T ==				(==>//	
Species	(50X1	0m)				Volume/ha	LTO					(50X1)	•
Eucalyptus portuensis	E	=	T1	T2	T3	S1	T1	T2	Е	T1	T2	Т3	S1	S2
Lucaryptae portaericie			2							1				
Corymbia tessellaris			1							2				
Allocasuarina littoralis											1			
Corymbia clarksoniana			2											
Lophostemon suaveolens	s		1							2				
Planchonia careya										_	2			
Alphitonia excelsa											5		10	
Drypetes deplanchei											<u> </u>		2	
Acacia leiocalyx subsp. Leiocalyx														
Lolodalyx													6	

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	4.5	Lophostemon suaveolens	T1
6.5	8.5	Allocasuarina littoralis	T2
11	16	Alphitonia excelsa	T2
11	26	Corymbia clarksoniana	T1
30	35.5	Corymbia tessellaris	T1
47	55	Lophostemon suaveolens	T1
54.5	66	Corymbia clarksoniana	T1
57.5	60	Planchonia careya	T2
62.5	66.5	Acacia disparrima subsp. disparrima	T2
66	78	Corymbia tessellaris	T1
70.5	72	Alphitonia excelsa	T2
78	83	Corymbia clarksoniana	T1
87.5	96	Lophostemon suaveolens	T1
96	100	Corymbia clarksoniana	T1

Tertiar	y Sit	te																	
SITE NUM	MBER	2	46B						- CO.	1			32	10 m	below.	1	100	Etc.	No.
LEVEL			3				-			福德		壁》	V		SHEET.	- 3	100	60	1 2.0
DETAIL S	SP. LI	ST	Υ											7	1	1725	430	07	
REGIONA	AL		8.2.8a	1						May 1	AVe)		1				10		
ECOSYS	TEM								-					Sale					1
DATE			23/09/						Land Total	0	100	2	<u> </u>		60 被整				
RECORD	ER		David							90	369			KEEPIN			- F		100
			Julia C				- 1				20%					3	这所包息		A COL
LOCALIT	TY		Great	Керр	el Island						N			A		成門に		是 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 · 1000 ·	
SITE DES	CDID	TION	Conin	ahio o	larksonia	no o	non fore	ot	200		A2030		BR:	15 16		70 (30	CORN	186	1000
GENERA			Coryii	ibia c	iai KSUi iiai	na o	pen iore	;SI											
COMMUN			2)	20	0-50				COMMUI	UITV	WIDT	'LI /n	n)		75-15	^			
MAPPED					.11.10/8.1	2 1/	1,20		REFERE			п (п	<u>'')</u>		N	U			
LANDFO		rent KE		0.	.11.10/6.1	2.14	+X20		KEFEKE	NCE	SIIE				IN				
Situation		F		T E	lement	Т.	HSL		Eroc not		Τ.	E			Datte				
		ļ !																	
I SI OPE					Terrierit	<u> </u>	IJL		Eros pat	tern	l G				Patte	rn		HIL	-
SLOPE		LM								tern	l G		۸er	noct (9)		rn I	20	HIL	_
Туре		M					e (%)		5	tern			Asp	pect (°)		rn 	20	HIL	-
	S	Relia		M			e (%)	.dd		ISB				pect (°)) Oran	ge	20 Textur		Sand
Type SOILS Source					S	lope	e (%)	dd ata	5)	ge			
Type SOILS Source GEOLOG		Relia		M	Code	lope	e (%)		5		'MU				Oran Brow	ge 'n	Textur	е	Sand
Type SOILS Source GEOLOG Source	SY .	Relia	bility	M	S	lope	e (%)	ata	5 - Code	ISB) Oran	ge 'n	Textur		Sand
Type SOILS Source GEOLOG Source SPECHT	STRU	Relia	bility	M	Code	lope	e (%)	ata	5	ISB	'MU				Oran Brow	ge 'n	Textur	е	Sand
Type SOILS Source GEOLOG Source	STRU	Relia	bility	M	Code	A	e (%) A d	ata	5 - Code	ISB/	'MU	-	Co		Oran Brow	ge 'n	Textur	e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND	STRU	Relia M JCTURE	bility	M	Code	A	e (%)	ata	5 Code Open Fore	ISB/	/MU	-	Co	olour	Oran Brow	ge 'n	Textur	e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter	STRU (%)	Relia M JCTURE	bility	M	Code	A	e (%) A d	ata	5 Code Open Fore	ISB/	/MU	-	Co	olour	Oran Brow	ge 'n Unit	Textur	e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex	STRU STRU D (%)	M JCTURE	E CODE Rock	M	Code iability	A	e (%) A da Bare ground	ata	Code Open Fore	ISB/	MU K	- phyt	Co	olour 0	Oran Brow	ge n Unit	Textur	e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct.	STRU STRU D (%)	M JCTURE	bility CODE Rock	M	Code iability	A	e (%) A da Bare ground	ata	Code Open Fore	ISB/	/MU K	- phyt	Co	olour 0	Oran Brow	ge n Unit	Textur (e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex	STRU STRU D (%) REST	Relia M JCTURE 10	bility CODE Rock	M	Code iability	A	e (%) A da Bare ground	ata	Code Open Fore	ISB/	/MU K	- phyt	Co	olour 0	Oran Brow	ge n Unit	Textur (e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURB	STRU O (%) REST Lity	Relia M JCTURE 10	bility CODE Rock	M	Code iability	A	e (%) A da Bare ground	ata	Code Open Fore	ISB/	MU K	- phyt	Co	olour 0	Oran Brow	ge n Unit	Textur (e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURB Storm da (Proporti	STRU STRU O (%) REST iity BANCI amage	Relia M JCTURE 10 E e ge)	Book Code Leaf Size	M	Code iability	A	e (%) A da Bare ground	ata	Code Open Fore 0	ISB/	MU K	- phyt	Co	olour 0	Oran Brow	ge n Unit	Textur (e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURB Storm da (Proporti	STRU STRU O (%) REST iity BANCI amage	Relia M JCTURE 10 E e ge)	Book Code Leaf Size	M Reli	Code iability	A	e (%) A da Bare ground	ata	Code Open Fore 0 Road Wo (Proporti	ISB/	MU K	- phyt	Co	olour 0	Oran Brow Map	ge n Unit	Textur (e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURB Storm da (Proporti	STRL O (%) REST ity BANCI amage ion/Ac	Relia M JCTURE 10 E e ge)	Book Code Leaf Size	M Reli	Code iability	A	e (%) A da Bare ground	ata	Code Open Fore 0 Road Wo (Proporti	ISB/	K yypto Com	phyt	Co	olour 0	Oran Brow Map	ge n Unit	Textur (e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURB Storm da (Proporti Fire (Proporti Logging Grazing	STRUD (%) REST SHANCION (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOMPANY) STRUM (ACCOM	Relia M JCTURE 10 E e ge)	Book Code Leaf Size	M Reli	Code iability	A	e (%) A da Bare ground	ata	Code Open Fore O Road Wor (Proporti Salinity	ISB/	K yypto Com	phyt	Co	olour 0	Oran Brow Map	ge n Unit	Textur (e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURB Storm da (Proporti Fire (Proporti Logging Grazing Weeds (%)	STRUD (%) REST SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCI	Relia M JCTURE 10 E ge) ge/Heigh	CODE Rock Leaf Size	M Reli	Code iability	A	e (%) A da Bare ground	ata	Code Open Fore O Road Wo (Proporti Salinity Ringbark	ISB/	K yypto Com	phyt	Co	olour 0	Oran Brow Map	ge n Unit	Textur (e Ccs	Sand
Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURB Storm da (Proporti Fire (Proporti Logging Grazing	STRUD (%) REST SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCIAN SHANCI	Relia M JCTURE 10 E ge) ge/Heigh	CODE Rock Leaf Size	M Reli	Code iability	A	e (%) A da Bare ground	ata	Code Open Fore O Road Wo (Proporti Salinity Ringbark Feral Dig	ISB/	K yypto Com	phyt	Co	olour 0	Oran Brow Map	ge n Unit	Textur (e Ccs	Sand

SITE NUMBER		46B		continued
STRUCTURAL S	UMMARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1				Corymbia clarksoniana
Tree 2				Acacia julifera subsp. julifera Acronychia laevis Allocasuarina littoralis Alphitonia excelsa Banksia integrifolia subsp. compare
Tree 3	-	-	-	-
Shrub 1	0.5-1.5	0.8	-	Lithomyrtus obtusa
Shrub 2	-	-	-	-
Ground	0-0.5	0.5	-	Abutilon albescens var. australiense Eriachne pallescens Lomandra leucocephala subsp. leucocephala Triumfetta rhomboidea

BASAL AREA & STEM COUNTS														
Species		al area (10m)	for p	lot		Volume/ha		Stem count for plot (50X10m)						
	Е	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2	
Corymbia clarksoniana		2												
Allocasuarina littoralis			6											
Alphitonia excelsa			4											

									-		
SITE NUMBE	R	48			. 39	100	2 - North 1	-	100	Sept. 155	
LEVEL		2			43-00	E Joseph		10	No. of Lot, House, etc., in such spirits, and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits and the such spirits are spirits and the such spirits and the such spirits and the such spirits are spirits and the such spirits and the such spirits and the such spirits are spirits and the such spirits and the such spirits are spirits and the such spirits and the such spirits are spirits and the such spirits and the such spirits are spirits and the such spirits and the such spirits are spirits and the such spirits are spirits and the such spirits are spirits and th	1	A Prince
DETAIL SP. I	LIST	Υ		in the second	- 21	WHAT P			1 day	-	100 A
REGIONAL ECOSYSTEM	1	Non-rem 8.	.2.7b			19					
DATE		23/09/2010			The said	11	7 1 1 13	16.5			8 / 2.6
RECORDER		David Fran			116		VI B	变量	第5 4	Survey	0
		Julia Olsen				Page 1	200				Sec. 1
LOCALITY		Great Kepp	el Island							X	
SITE DESCR	IPTION	Corymbia	clarksonian	a open fores	at the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of th						
GENERAL N		Corymbia	Jaiksullali	a open lores	οι -						
COMMUNITY		2) 2	0-50		COMMI	NITY WI	DTH (m)		75-150	1	
MAPPED (Cu			.3.13c			NCE SIT			n 75-150)	
LANDFORM	inent KL)	0	.3.136		KLFLKI	INCL SI	_		11		
Situation	Α	1 6	lement	PLA	Eros pa	ttorn	UP	1	Patter	n I	PLA
SLOPE			.iciiiciit	I I LA	LIUS PA	tterri	OI		1 atter		LA
Type	F		- CI	ope (%)	0		Λο.	pect (°	`	60	
SOILS			31	ope (%)			AS	pect (1 00	
Source S	Relia	bility M	Code	A Ac		ISB/MI	1 - C	olour	Dark Browr	Texture	Sand
GEOLOGY				uu	ita				Diowi		
Source	Тм	Rel	iability	Low	Code		В		Map l	Jnit Q	2
SPECHT STR		CODE	lability	LOW	Open For				wap v	Jint Q	
GROUND (%		CODE			Оренто	,,,,					
Litter	0	Rock	0	Bare ground	0	Cryp	tophyte	0		Vegetation	100
RAINFORES	T										
Struct.	-	Leaf	-	Leaf fall	-		oor omp	-		In. Gr Forms	-
		Size									
Complexity	CE	Size									
Complexity DISTURBAN Storm damage	ge	Size 0			Road W (Propor	orks ion/Age)	,		0		
Complexity DISTURBAN	ge								0		
Complexity DISTURBAN Storm damage (Proportion/)	ge Age)	0			(Propor						
Complexity DISTURBAN Storm damage (Proportion// Fire (Proportion//	ge Age)	0			(Propor Salinity	ion/Age)					
Complexity DISTURBAN Storm dama (Proportion/) Fire	ge Age)	0 0			(Propor Salinity Ringbar	ion/Age)	nning (#)		0		
Complexity DISTURBAN Storm damag (Proportion// Fire (Proportion// Logging (#) Grazing	ge Age) Age/Heigh	0 0 10 N			(Propor Salinity	ion/Age) king /Thi gging			0 N		
Complexity DISTURBANI Storm damage (Proportion/) Fire (Proportion/) Logging (#)	ge Age) Age/Heigh over)	0 0 N N 5%			(Propor Salinity Ringbar Feral Di	ion/Age) king /Thi gging			0 N N		

SITE NUMBER		48		continued
STRUCTURAL S	UMMARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	9-17	10	40.5	Banksia integrifolia subsp. compare Corymbia clarksoniana Corymbia tessellaris Eucalyptus crebra Melaleuca dealbata
Tree 2	3-7	5	25	Acacia disparrima subsp. disparrima Acacia leiocalyx subsp. leiocalyx Alphitonia excelsa Drypetes deplanchei Glochidion lobocarpum Planchonia careya
Tree 3	-	-	-	-
Shrub 1	0.5-1.5	1.5		Acacia disparrima subsp. disparrima

Shrub 2 Ground	0-0.5			- 0.5			-	Alphitonia exc Ficus opposita Lantana cama Wikstroemia ir - Abutilon albes Ageratum con Cenchrus cillia Cyanthillium c Panicum effus Passiflora sub Sida cordifolia Stephania japo Triumfetta rho	cens yzoid ris* inereu erosa *	es sub um a* var. di	isp. co	onyzoi	des	
BASAL AREA & STEM	COUN	Basa	al area	for p	lot		Volume/ha		Ste	m cou	nt for	plot	(50X10	m)
Species	ŀ	(50X	(10m) T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
Corymbia clarksoniana				12	10	01		12	_		12	10	01	- OZ
Banksia integrifolia subs compare	sp.		2							1				
Acacia leiocalyx subsp. leiocalyx													2	
Melaleuca dealbata			1							1	21			
Planchonia careya														
Acacia disparrima subsp Disparrima).		2											
Eucalyptus platyphylla			1											
Eucalyptus crebra			2											
Lantana camara*													4	
Ficus opposita													1	
Alphitonia excelsa													2	
Mallotus discolor											1			
Drypetes deplanchei													2	

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
		Ficus opposita	
0	9.5		T1
		Drypetes deplanchei	
5.5	6		T2
		Mallotus discolor	
8.5	11.5		T2
		Acacia disparrima subsp. disparrima	
31.5	36		T2
		Acacia leiocalyx subsp. leiocalyx	
32	37.5		T1
		Acacia disparrima subsp. disparrima	
47.5	50		T2
		Corymbia clarksoniana	
45	50		T1
		Corymbia tessellaris	
53	56		T2
		Acacia disparrima subsp. disparrima	
57.5	60		T2
		Alphitonia excelsa	
60	63.5		T2

		Corymbia tessellaris	
60	70.5	-	T1
		Planchonia careya	
63	63.5	-	T2
		Acacia disparrima subsp. disparrima	
72	74		T2
		Corymbia clarksoniana	
79	83.5		T1
		Corymbia tessellaris	
89	90		T1
		Corymbia clarksoniana	
95.5	100		T1
		Planchonia careya	
95	98		T2

Tertiary Site

Tortiary Brice	
SITE NUMBER	50
LEVEL	3
DETAIL SP. LIST	Υ
REGIONAL	Non-rem
ECOSYSTEM	
DATE	23/09/2010
RECORDER	David Francis &
	Julia Olsen
LOCALITY	Great Keppel Island



							1869	186 200		de 18	706 Th			The East	1000	是 他们
SITE			Open	Gra	ssy Paddo	ock										
DESCRIPT	TION															
GENERAL	NO	TES														
COMMUNI				C				COMMUNI		H (m))	E				
MAPPED (Cur	rent R	E)	Ν	lon-remna	ant		REFERENC	REFERENCE SITE				1			
LANDFOR	M															
Situation		Α		E	lement	PLA		Eros patter	rn	UP		P	attern		PLA	
SLOPE																
Type		F			S	Slope (%	6)	0			Aspec	t (°)		50		
SOILS																
Source	1	Relia	bility	L	Code	Α	Add	-	ISB/MU	J -	Colo	ur l	Brown	Texture	e S	Sand
							data									
GEOLOGY																
Source		I			liability	L		Code	E	3			Map Uni	it C	(a	
SPECHT S	TRU	JCTUR	E COD	E				Tussock Grassland								
GROUND ((%)															
Litter		0	Rock		0	Bar	е	0	Cryp	tophy	/te 0		Ve	getation	10	00
						gro	und									
RAINFORE	EST															
Struct.		-	Leaf		-	Lea	f fall	-	Flo	т.	-			. Gr	-	
Complexit			Size						Co	mp			Fo	orms		
DISTURBA		=														
Storm dam				0				Road Work	-			(0			
(Proportio	n/Aç	ge)						(Proportion	ı/Age)							
Fire				0				Salinity				(0			
(Proportio		ge/Heig	ght)								_					
Logging (#	#)			Υ				Ringbarkin		ing (#	#)		N			
Grazing				N				Feral Diggi	ng				N			
Weeds (%				95%	%			Remnant					N			
Erosion (T	ype	/Sever	ity)	0				1								

SITE NUMBER		50		continued
STRUCTURAL SUMM	MARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	-	-	-	-
Tree 2	-	-	-	-
Tree 3	-	-	-	-
Shrub 1	-	-	-	-
Shrub 2	-	-	-	-
Ground	0-0.5	0.5	-	Ageratum conyzoides subsp. Conyzoides* Bidens bipinnata* Cenchrus ciliaris* Chamaecrista rotundifolia* Chloris gayana*

Cynodon dactylon*
Epaltes australis
Heteropogon contortus
Malvastrum americanum*
Sida cordifolia*
Sida rhombifolia*
Sida hakettiana
Spermacoce remota*
Stylosanthes humilis*

Tertiary Sit															
OITE MUMBER					1	and a	2000	BOT S	-ES 150	1.10		MEZ TO		eration is	ZW - W
SITE NUMBER	{	53			_		6	Na.			A HITE			27	E ON S
DETAIL SP. LI	CT.	3 Y									18.				100
REGIONAL	31	8.11.8a				100			三十二	進力		200		68	
ECOSYSTEM		8.11.8a							200	No.	103			1	100
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Source SPECHT STRU GROUND (%) Litter RAINFOREST Struct. Complexity DISTURBANC Storm damage (Proportion/Ag	0 - E e ge)	Rock Leaf S	10 ize -	ty L	Bare grou	ind	O Road Wo	orks	Floor Com	r		0	Vegetati		90
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SITE NUMBER		53	•	continued
STRUCTURAL S	UMMARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1				Eucalyptus crebra Eucalyptus exserta Melaleuca nervosa
Tree 2	4-7	5		Acacia leiocalyx subsp. leiocalyx Jacksonia scoparia Alphitonia excelsa
Tree 3	-	-	-	-
Shrub 1	-	-	-	-
Shrub 2	-	-	-	-
Ground	0-0.5	0.5	-	Brunoniella australis Cyanthillium cinereum Enteropogon unispiceus Eriachne pallescens Paspalidium gracile

	Pterocaulon redolens Sida cordifolia* Triumfetta rhomboidea Xanthorrhoea latifolia	
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GEOLOG Source SPECHT GROUND Litter RAINFOR Struct.	STRU (%)	M JCTURE	CODE	Reli	Code	A/K	Add data	Code Open Fore	Crypto	- ophyt	Colour	Dark Brown	Jnit (Vegetation	Ccs	Clay
Source Source SPECHT GROUND Litter RAINFOR Struct. Complex	STRU STRU O (%)	M JCTURE	CODE	Reli	Code	A/K	Add data	Code Open Fore	Crypto	- ophyt	Colour te 0	Dark Brown	Jnit (Ccs	Clay
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GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURE Storm da	STRU O (%) REST ity	Relia M JCTURE	CODE	Reli	Code	A/K	Add data	Code Open Fore	Crypto Floc	- ophyt	Colour te 0	Dark Brown	Jnit (Vegetation	Ccs	Clay
Source Source Source SPECHT GROUND Litter RAINFOR Struct. Complex DISTURE Storm da (Proporti	STRU O (%) REST ity	Relia M JCTURE	CODE	Reli	Code	A/K	Add data	Code Open Fore O Road We (Proport	Crypto Floc	- ophyt	Colour te 0	Dark Brown	Jnit (Vegetation	Ccs	Clay
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GEOLOG Source SPECHT GROUND Litter RAINFOF Struct. Complex DISTURE Storm da (Proporti	STRU STRU (%) REST ity BANC Image on/Ag	Relia M JCTURE 15 E G ge)	Rock Leaf Size	Reli	Code	A/K	Add data	Code Open Fore O Road W (Proport Salinity	Crypto Floo Con orks ion/Age)	- pphyt	Colour te 0	Dark Brown Map L 0	Jnit (Vegetation	Ccs	Clay
GEOLOG Source SPECHT GROUND Litter RAINFOF Struct. Complex DISTURE Storm da (Proporti Fire (Proporti Logging	STRU STRU (%) REST ity BANC Image on/Ag	Relia M JCTURE 15 E G ge)	Rock Leaf Size	Reli	Code	A/K	Add data	Code Open Fore Road W (Proport Salinity Ringbarl	Crypto Floo Con Orks ion/Age)	- pphyt	Colour te 0	Dark Brown Map L 0 0 0	Jnit (Vegetation	Ccs	Clay
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SITE NUMBER		56		continued
STRUCTURAL SUMM	IARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	10-16	15	46.5	Corymbia citriodora subsp. citriodora Eucalyptus moluccana Eucalyptus platyphylla Eucalyptus portuensis Lophostemon suaveolens Melaleuca quinquenervia
Tree 2	3-7	5	90	Acacia disparrima subsp. disparrima Alphitonia excelsa Drypetes deplanchei Glochidion lobocarpum Planchonia careya Pouteria sericea

Tree 3	-			-			-	-							
Shrub 1							-	Alyxia ruscifol							
								Breynia oblon		ì					
Shrub 2	-			-			-	Lantana cama	ıra*						
Ground	0-0.5						-	Ageratum houstonianum* Arundinella nepalensis Clematocissus opaca Geitonoplesium cymosum Gahnia aspera Hybanthus stellarioides Imperata cylindrica Lomandra confertifolia subsp. pallida Melinis minutiflora* Pandorea pandorana Stephania japonica Triumfetta rhomboides Vernonia cinerea							
BASAL AREA & ST	EM COUN														
				a for p	lot		Volume/ha		Ste	m cou	nt for	plot	(50X1	0m)	
Species	-	(50X	(10m) T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2	
Corymbia tessellaris			2	12	13	31	11	12	_	1	12	13	31	32	
Lophostemon suaved	olens		6	2						7	2				
Eucalyptus portuensi	is		2							2					
Corymbia citriodora s citriodora	subsp.		1												
Corymbia clarksoniai	na			1						3	1				
Alphitonia excelsa											17		11	2	
Alphitonia dispurmun										2	3		1	1	
Drypetes deplanchei											2		1		
Melaleuca quinquene	ervia		1							1					
Lophostemon confer	tus		1							2					
Planchonia careya				1							3				
Lantana camara													2	2	
Ficus opposite														1	

CANOPY COVER DATA (100m TRANSECT)										
Canopy Start (m)	Canopy finish (m)	Species	Strata							
		Drypetes deplanchei								
0	1									
		Alphitonia excelsa								
0	1.5									
		Lophostemon suaveolens								
1.5	12.5									
		Alphitonia excelsa								
4	15.5									
		Eucalyptus portuensis								
14	20.5									
		Acacia disparrima subsp. disparrima								
14	19									
	20.5	Lophostemon suaveolens								
19	23.5									
	00	Alphitonia excelsa								
20	28									
20.5	00	Corymbia tessellaris								
20.5	26									
24.5	40	Eucalyptus portuensis								

26.5	28	Eucalyptus crebra	
29	33.5	Acacia disparrima subsp. disparrima	
34	100	Lophostemon suaveolens	
36	37.5	Planchonia careya	
44	47	Planchonia careya	
61	63	Eucalyptus portuensis	
75	81	Corymbia clarksoniana	

	59	nda.
LEVEL	3	AND THE PERSON NAMED IN
DETAIL SP. LIST	Υ	1
REGIONAL	8.1.2	The same
ECOSYSTEM		Park Control
DATE	23/09/2010	
RECORDER	David Francis & Julia Olsen	
	Saltnan tidal mudflate	



			7	THE REAL PROPERTY.		一个一个	特别是	STATE OF		AND A STATE OF	
SITE DESCRIPTION	Saltpan t	tidal mudflat	S.								
GENERAL NOTES											
COMMUNITY AREA (F	na)	D		COMMUNIT	Y WIDTH	l (m)		В			
MAPPED (Current RE)	8.1.2		REFERENC	E SITE			Υ			
LANDFORM											
Situation V		Element	TDF	Eros patter	n	LP		Patter	'n	TID	
SLOPE											
Type V		S	lope (%)	<1%		As	pect (°	')	-		
SOILS											
Source S Relial	oility M	Code	E Add		ISB/MU	l - C	olour	F	Textu	re I	
2521 221			data	1				<u> </u>			
GEOLOGY				· ·		,				•	
Source O		Reliability	<u>L</u>	Code	1						
SPECHT STRUCTURE	CODE			Open Sedgeland							
GROUND (%)			_		_						
Litter -	Rock	-	Bare ground	-	Crypt	ophyte -			Vegetation	າ -	
RAINFOREST			ground								
Struct	Leaf	Τ.	Leaf fall	Τ-	Flo	or	Τ.	I	In. Gr	Ι-	
Complexity	Size		Lcai iaii		Co				Forms		
DISTURBANCE			1		, 55					1	
Storm damage	0			Road Works	s			0			
(Proportion/Age)				(Proportion	(Proportion/Age)						
Fire	0			Salinity				1			
(Proportion/Age/Heig	ht)										
Logging (#)	N			Ringbarking	Ringbarking /Thinning (#)			N			
Grazing	N			Feral Diggir	ng			N		_	
Weeds (% Cover)	0			Remnant						_	
Erosion (Type/Severit	y) 0		•				,	•			

SITE NUMBER		59	59 continued				
STRUCTURAL SUMM	ARY						
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species			
Emergent	-	-	-	-			
Tree 1	-	-	-	Melaleuca nervosa Aegiceras corniculatum Out of Plot Avicinna marina Excoecaria agallocha			
Tree 2	-	-	-	-			
Tree 3	-	-	-	-			
Shrub 1	-	-	-	-			
Shrub 2	-	-	-	-			

Ground		Ceriops tagal
		Epaltes australis
		Fimbristylis ferruginea
		Juncus kraussii subsp. australiensis
		Sarcocornia quinqueflora
		Schenkia australis
		Sporobolus virginicus
		Out of Plot
		Crinum flaccidum

REFERENCE SITE FOR 8.11.8b

SITE NUMBER	60
LEVEL	2
DETAIL SP. LIST	Υ
REGIONAL	8.11.8b
ECOSYSTEM	
DATE	23/09/2010
RECORDER	David Francis &
	Julia Olsen
LOCALITY	Great Keppel Island



							ATT ALL THE	24					300	1	2127
SITE DESCRIPT	ION	Eucaly	ptus i	moluccar	na closed	forest	2000								
GENERAL NOTE	ES	Soils a	Soils appear colluvial in origin												
COMMUNITY AR	REA (ha	a)	20	-50			COMMU	NITY	WIDT	ΓH (r	n)	75-15	0		
MAPPED (Curre	nt RE)		8.1	11.3a			REFERE	NCE	SITE			Υ			
LANDFORM															
Situation	A		Ele	ement	PLA		Eros pat	tern	L	P		Patter	rn	PL	Α
SLOPE															
Туре	F			S	lope (%))	1				Aspect (°)	300		
SOILS															
Source S	Reliab	oility	M	Code	N	Add	-	ISB	/MU	-	Colour	Dark		re	Sandy
						data						Brow	n		Clay
GEOLOGY												1			
	<u>M</u>		Relia	ability	<u>L</u>		Code B Map Unit Qa								
SPECHT STRUC	TURE	CODE					Closed Forest								
GROUND (%)															
Litter 35	5	Rock		0	Bare		5	Cryptophyte 0		Vegetatio		n	60		
D.111500505					grou	nd									
RAINFOREST		1			11		1		F1				1		
Struct		Leaf Size		-	Leaf	tali	-		Floor	-	-		In. Gr		•
Complexity DISTURBANCE		Size							Com	р			Forms		
Storm damage			0				Road Wo	rko				0			
(Proportion/Age	·)		U				(Proport		ge)			U			
Fire	Fire 0			Salinity 0											
(Proportion/Age/Height)															
Logging (#)			N				Ringbarl			ning	(#)	N			·
Grazing			N				Feral Dig					N			·
Weeds (% Cover			3%				Remnan	1				Υ			·
Erosion (Type/S	everity	()	3/3		-										

SITE NUMBER		60 continued					
STRUCTURAL S	UMMARY						
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species			
Emergent	-	-	-	-			
Tree 1	9-20	14	97	Eucalyptus moluccana			
Tree 2	5-8	6		Eucalyptus moluccana			
Tree 3	-	-	-	-			
Shrub 1	0.5-2	1	-	Alphitonia excelsa Eucalyptus moluccana Opuntia stricta*			
Shrub 2	-	-	-	-			
Ground	0-0.5	0.5	-	Achyranthes aspera Brunoniella australis Cenchrus ciliaris* Cyanthillium cinereum Enteropogon unispiceus			

							Eriachne palle Heteropogon Leptochloa de Megathyrsus i Opuntia stricte Passiflora sub Stachytarphet	conto ecipier maxin a* erosa	rtus ns sub nus* a*	•	ecipier	os	
BASAL AREA & STEM CO	UNTS						-1						
Species		al area (10m)	for p	lot		Volume/ha		Ste	m cou	int foi	plot	(50X1	0m)
•	È	T1	T2	T3	S1	T1	T2	Е	T1	T2	Т3	S1	S2
Eucalyptus moluccana		11	3						7	13		4	
Alphitonia excelsa												1	
Opuntia stricta*												4	

CANOPY COVER DATA (100m TRANSECT)									
Canopy Start (m)	Canopy finish (m)	Species	Strata						
		Eucalyptus moluccana							
0	51.5		T1						
		Stag							
50	59	-	T1						
		Eucalyptus moluccana							
59	97		T1						

REFERENCE SITE FOR 8.11.8a

SITE NUMBER	61
LEVEL	2
DETAIL SP. LIST	Υ
REGIONAL	8.11.8a
ECOSYSTEM	
DATE	23/09/2010
RECORDER	David Francis &
	Julia Olsen
LOCALITY	Great Keppel Island



SITE DES	CRIP	NOIT	Eucal	yptus	crebra clo	osed for	est on u	pper rocky	hillsic	le					
GENERA	L NO	TES													
COMMUN	IITY A	AREA (h	a)	20	0-50			COMMUNITY WIDTH (m) 75-150							
MAPPED	(Curi	rent RE)		8.	11.3a			REFERENCE SITE Y							
LANDFORM															
Situation F Element					SH		Eros pattern UH Pattern HIL					HIL			
SLOPE															
Type		U			S	Slope (%))	35			A	Aspect (°	')	80	
SOILS															
Source	S	Relial	oility	М	Code	N	Add data	-	ISB	/MU	-	Colour	Brown	Texture	Sandy Clay
GEOLOG	Υ														
Source		М		Reli	ability	L		Code		K			Map U	Init C	cs
SPECHT	STRU	JCTURE	CODE					Low Close	d For	est					
GROUND	(%)														
Litter		10	Rock		5	Bare		0	Cı	rypto	phyte	0	'	Vegetation	85
RAINFOR	EST														
Struct.		-	Leaf		-	Leaf	fall	-		Floo	r	-		In. Gr	-
Complexi			Size							Com	р			Forms	
DISTURB															
Storm da				0				Road Wo					0		
(Proportion	on/Ag	ge)						(Proport	ion/A	ge)					
Fire				0				Salinity					0		
(Proportion/Age/Height)												ļ			
	Logging (#) N						Ringbarl			ning (#)	N			
Grazing N						Feral Digging N									
Weeds (% Cover) 5						Remnan	t				Υ				
Erosion (Erosion (Type/Severity) 0														

SITE NUMBER		61 continued							
STRUCTURAL S	UMMARY								
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species					
Emergent	-	-	-	-					
Tree 1	3-8	5	72.5	Acacia disparrima subsp. disparrima Acacia leiocalyx subsp. leiocalyx Corymbia clarksoniana Eucalyptus crebra Eucalyptus drepanophylla Eucalyptus portuensis Lophostemon confertus					
Tree 2	-	-	-	-					
Tree 3	-	-	-	-					
Shrub 1	1.5-3	1.5	-	Jacksonia scoparia					
Shrub 2	0-1	1	-	Xanthorrhoea latifolia					

Ground BASAL AREA & STEM	0-0.5	те		0.5			-	Arundinella ne Brunoniella au Cymbopogon Dianella rara Eremochloa b Indigofera pra Lepidosperma Lomandra cor Periplura diffu Glycine tabac Tephrosia filip Xanthorrhoea	istrali bomb imacu tensis later later fertifo sa ina es su	s pycinus ulata s ale val olia sul	r. late bsp. p			
BASAL AREA & STEW	COON		al area	for n	lot		Volume/ha		Sto	m col	nt fo	nlot	/50Y1	Om)
Species			ai ai ea (10m)	i ioi p	ioi		Volume/na		Stem count for plot (50X					
opeo.ee	-	E	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
Eucalyptus fibrosa			1							3				
Eucalyptus crebra			10							4				
Eucalyptus portuensis			2							5				
Lophostemon confertus			3							5				
Corymbia clarksoniana										1	1			
Acacia disparrima subsp disparrima).													
Grevillea banksii										1			1	1
Jacksonia scoparia													2	
Acacia leiocalyx subsp. leiocalyx											1		6	
Alphitonia excelsa													1	

CANOPY COVER DATA (100m TRANSECT)									
Canopy Start (m)	Canopy finish (m)	Species	Strata						
		Eucalyptus drepanophylla							
0	6		T1						
4.5		Eucalyptus drepanophylla	T4						
15	20	Freehatis desertable	T1						
22	23	Eucalyptus drepanophylla	T1						
		Lophostemon confertus							
24.5	26	•	T1						
		Eucalyptus drepanophylla							
26	40		T1						
0.4	40	Lophostemon confertus	T.						
31	40	Acacia leiocalyx subsp. leiocalyx	T1						
40.5	43	Acacia lelocalyx subsp. lelocalyx	T2						
	.0	Eucalyptus drepanophylla							
40	46		T1						
		Lophostemon confertus							
46	53.5		T1						
		Eucalyptus crebra							
58	64	Last set and the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set o	T1						
62	66	Lophostemon confertus	_{T1}						
02	00	Lophostemon confertus	11						
67	72.5	Lophostemon comentas	T1						
<u> </u>	12.0	Eucalyptus drepanophylla	1 1						
72.5	77	21	T1						
		Acacia leiocalyx subsp. leiocalyx							
75.5	76		T1						
		Eucalyptus drepanophylla							
79	84.5		T1						

		Lophostemon confertus	
80	81		T1
		Lophostemon confertus	
83	84		T1
		Eucalyptus portuensis	
86.5	90		T1
		Lophostemon confertus	
91.5	96.5		T1
		Eucalyptus portuensis	
97	100		T1

							-		and a country officer			No. of the last					-
SITE NUM	/IBER		88			9			给社会				A. N.	Line	Sec.	100	272
LEVEL			2				A SALIT	C TO A STATE OF		PER S		18.2	San of the	2 3	APPE.		A CO
DETAIL S		Т	Υ			\$					Fresh.	10		3		All and	
REGIONA			Non-r	em 8.2	2.8a	8	AL SECTION	分子			900	4					100
ECOSYST	TEM					8				WE							
DATE				/2010		9			创造	金融	KTER	T WEST		新公立	the same	120	The state of
RECORD	ER			Franc	is &	8						The same			STATE		
				Olsen			经是		MALE	253	164			Yeu.			372
LOCALITY	Y		Great	Kepp	el Island				AN STA	O.L.	V	200		Vo N		12-4	制度的
							12.4	人等。這是	200				当的人	10	指標	と戦	100
						7		計學主義			12	E SA	1			\times	
									W. S. C.								1
							No.	() () () ()		37			20				
								"面言意识		200		23	15				4
									治	23	十米						
						9			AS SI						A TOTAL		30
						5	-	2 23		1		4	繼之			a va	7
						8					The second		Those	250	X		\mathcal{J}_{\times}
						9	2	Same of the				X			14.300		
						2	200		15			X		1	Mer.		40
SITE DES	CRIPT	ΓΙΟΝ	Corvr	nbia ci	larksonia	ana open	forest		and the second of	11	- X 1		100				
GENERAL	_																
COMMUN			a)	20)-50			COMMU	NITY WI	DTH (m)		75-150)			
MAPPED																	
	(Curre	ent RE)		8.	2.8a			REFERE	NCE SIT	Έ			N				
LANDFOR		ent RE)		8.	2.8a			REFERE	NCE SIT	Έ			N				
	ŔМ	A A			2.8a ement	PLA		REFERE Eros pat		E GP			Patterr	n	T F	PLA	
LANDFOR	ŔМ					PLA								n	F	PLA	
LANDFOF Situation	ŔМ				ement)				Aspe	ect (°)	Patterr	n O	F	PLA	
LANDFOR Situation SLOPE Type	ŔМ	A			ement	PLA)	Eros pat			Aspe	ect (°)	Patterr		ļ	PLA	
LANDFOR Situation SLOPE	ŔМ	A M	oility		ement) Add	Eros pat		GP	Aspe	` '	Patterr	0	exture		and
LANDFOR Situation SLOPE Type SOILS	RM	A	oility	E	ement	Slope (%		Eros pat	tern	GP		` '	Patterr	0			and
LANDFOR Situation SLOPE Type SOILS	S	A M	oility	E	ement	Slope (%	Add	Eros pat	tern	GP		` '	Patterr	0			and
LANDFOF Situation SLOPE Type SOILS Source GEOLOG Source	S	A M Reliat		M Reli	ement	Slope (%	Add	Eros pat	ISB/MU	GP		` '	Patterr	0 1 Te	exture		and
LANDFOF Situation SLOPE Type SOILS Source	S	A M Reliat		M Reli	Code	Slope (%	Add	Eros pat	ISB/MU	GP J -		` '	Patterr	0 1 Te	exture	S	and
LANDFOF Situation SLOPE Type SOILS Source GEOLOG Source	S Y STRUG	A M Reliak		M Reli	Code	Slope (%	Add	5 Code Open Fore	ISB/MU	GP J -		` '	Patterr	0 1 Te	exture	S	and
LANDFOR Situation SLOPE Type SOILS Source GEOLOG Source SPECHTS	S Y STRUC	A M Reliak		M Reli	Code	Slope (%	Add data	Eros pat	ISB/MU	GP J -	Col	` '	Pattern) Brown Map L	0 1 Te	exture	S	and
LANDFOR Situation SLOPE Type SOILS Source GEOLOG Source SPECHT: GROUND Litter	S Y STRUC	A M Reliak	CODE	M Reli	Code	Slope (%	Add data	5 Code Open Fore	ISB/MU	GP J -	Col	our	Pattern) Brown Map L	0 Te	exture	S	and
LANDFOR Situation SLOPE Type SOILS Source GEOLOG Source SPECHT: GROUND Litter	S Y STRUC	A M Reliak	CODE	M Reli	Code ability	A A Bare grou	Add data	5 Code Open Fore	ISB/MU	GP J -	Col	our	Pattern) Brown Map L	0 Te	exture	hcd 40	and
LANDFOR Situation SLOPE Type SOILS Source GEOLOG Source SPECHT: GROUND Litter RAINFOR Struct.	S Y STRUCE (%) 60 REST	A M Reliak	CODE	M Reli	Code	A A Bare grou	Add data	5 Code Open Fore	ISB/MU	GP - CO	Col	our	Pattern) Brown Map L	Jnit Veget	exture Q ation	S	and
LANDFOR Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter RAINFOR Struct. Complexi	S Y STRUCE (W) 60 REST	A Reliate	CODE	M Reli	Code ability	A A Bare grou	Add data	5 Code Open Fore	ISB/MU	GP J -	Col	our	Pattern) Brown Map L	0 Te	exture Q ation	hcd 40	and
LANDFOR Situation SLOPE Type SOILS SOURCE GEOLOG SOURCE SPECHT S GROUND Litter RAINFOR Struct. Complexi	S Y STRUCE (%) 60 REST	A Reliate	CODE	M Relia	Code ability	A A Bare grou	Add data	Eros pat 5 Code Open Fore 0	ISB/MU	GP - CO	Col	our	Brown Map U	Jnit Veget	exture Q ation	hcd 40	and
LANDFOR Situation SLOPE Type SOILS SOURCE GEOLOG SOURCE SPECHT S GROUND Litter RAINFOR Struct. Complexi DISTURB Storm dai	S Y STRUCE (%) 60 EEST ANCE	A Reliab	CODE	M Reli	Code ability	A A Bare grou	Add data	Eros pat 5 Code Open Fore 0	ISB/MU	GP	Col	our	Pattern) Brown Map L	Jnit Veget	exture Q ation	hcd 40	and
LANDFOR Situation SLOPE Type SOILS SOURCE GEOLOG SOURCE SPECHT: GROUND Litter RAINFOR Struct. Complexi DISTURB Storm dai (Proportio	S Y STRUCE (%) 60 EEST ANCE	A Reliab	CODE	M Relii	Code ability	A A Bare grou	Add data	Eros pat 5 - Code Open Fore 0	ISB/MU	GP	Col	our	Pattern Brown Map U	Jnit Veget	exture Q ation	hcd 40	and
LANDFOR Situation SLOPE Type SOILS Source GEOLOG Source SPECHT: GROUND Litter RAINFOR Struct. Complexi DISTURB Storm dai (Proportic	S Y STRUG (%) 66 EEST ANCE mage	A Reliate M CTURE 0	CODE Rock Leaf Size	M Relia	Code ability	A A Bare grou	Add data	Eros pat 5 Code Open Fore 0	ISB/MU	GP	Col	our	Brown Map U	Jnit Veget	exture Q ation	hcd 40	and
LANDFOR Situation SLOPE Type SOILS Source GEOLOG Source SPECHT: GROUND Litter RAINFOR Struct. Complexi DISTURB Storm dan (Proportic Fire (Proportic	STRUCE CON/Age	A Reliate M CTURE 0	CODE Rock Leaf Size	M Relia	Code ability	A A Bare grou	Add data	Eros pat 5 Code Open Fore 0 Road Wo (Proport) Salinity	ISB/MU	GP J -	/te	our	Brown Map U	Jnit Veget	exture Q ation	hcd 40	and
LANDFOR Situation SLOPE Type SOILS SOURCE SOURCE SPECHT S GROUND Litter RAINFOR Struct. Complexi DISTURB Storm dai (Proportic Fire (Proportic Logging (STRUCE CON/Age	A Reliate M CTURE 0	CODE Rock Leaf Size	M Reliation	Code ability	A A Bare grou	Add data	Eros pat 5 Code Open Fore 0 Road Wo (Proport Salinity Ringbarl	ISB/MU ISB/MU ISB ISB/MU ISB ISB ISB ISB ISB ISB ISB ISB ISB ISB	GP J -	/te	our	Brown Map L 0 0 N	Jnit Veget	exture Q ation	hcd 40	and
LANDFOR Situation SLOPE Type SOILS SOURCE GEOLOG SOURCE SPECHT: GROUND Litter RAINFOR Struct. Complexi DISTURB Storm dai (Proportic Fire (Proportic Logging) Grazing	S Y STRUC (%) 6(ANCE mage on/Age (#)	A Reliate M CTURE 0	CODE Rock Leaf Size	M M Relia	Code ability	A A Bare grou	Add data	Eros pat 5 Code Open Fore 0 Road Wo (Proport Salinity Ringbarl Feral Dig	ISB/MU ISB/MU ISB/MU ISB ISB/MU ISB ISB ISB ISB ISB ISB ISB ISB ISB ISB	GP J -	/te	our	Brown Map U 0 0 N N	Jnit Veget	exture Q ation	hcd 40	and
LANDFOR Situation SLOPE Type SOILS SOURCE SOURCE SPECHT S GROUND Litter RAINFOR Struct. Complexi DISTURB Storm dai (Proportic Fire (Proportic Logging (S Y STRUC (%) 60 EEST ity ANCE mage on/Age on/Age (#)	A Reliate M CTURE 0 Pe/Heigh	Rock Leaf Size	M Reliation	Code ability	A A Bare grou	Add data	Eros pat 5 Code Open Fore 0 Road Wo (Proport Salinity Ringbarl	ISB/MU ISB/MU ISB/MU ISB ISB/MU ISB ISB ISB ISB ISB ISB ISB ISB ISB ISB	GP J -	/te	our	Brown Map L 0 0 N	Jnit Veget	exture Q ation	hcd 40	and

SITE NUMBER		88	88 continued							
STRUCTURAL SUM	MARY									
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species						
Emergent	-	-	-	-						
Tree 1	10-16	13	26.5	Alphitonia excelsa Banksia integrifolia subsp. compar Corymbia clarksoniana						
Tree 2	3-8	5	54.5	Acacia julifera subsp. julifera Allocasuarina littoralis Alphitonia excelsa Planchonia careya						
Tree 3	-	-	-	-						
Shrub 1	1-1.5	1	-	Alphitonia excelsa Lithomyrtus obtusa Opuntia stricta*						

Shrub 2	0.5-1			0.5			-	Breynia oblon						
Ground			0.5			-	Amyema conspicua subsp. conspicua Clematicissus opaca Eriachne pallescens Imperata cylindrica Megathyrsus maximus* Passiflora suberosa*							
BASAL AREA & STEM	COUN		•											
			(10m)	a for p			Volume/ha		Ste				(50X1)m)
		E	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
Acacia julifera subsp. juli	ifera			1							2			
Corymbia clarksoniana			2							1	2			
Banksia integrifolia subs compar	p.			1							4			
Planchonia careya											6			
Alphitonia excelsa				6							27			2
Allocasuarina littoralis				1							11		1	1
Lithomyrtus obtusa													1	1
Breynia oblongifolia														1
Grevillea banksii													1	
Opuntia stricta*													1	1
Ficus opposita											1		<u> </u>	
Acacia leiocalyx subsp. leiocalyx											1			

CANOPY COVER DATA (100m TRANSECT)										
Canopy Start (m)	Canopy finish (m)	Species	Strata							
0	2	Alphitonia excelsa	T2							
4	9	Alphitonia excelsa	T2							
9.5	16.5	Planchonia careya	T2							
10	20	Corymbia clarksoniana	T1							
15.5	18	Allocasuarina littoralis	T2							
18	20.5	Alphitonia excelsa	T1							
19.5	22.5	Allocasuarina littoralis	T2							
23.5	26.5	Alphitonia excelsa	T2							
26.5	28.5	Allocasuarina littoralis	T2							
29.5	32.5	Alphitonia excelsa	T2							
34.5	37.5	Alphitonia excelsa	T2							
36.5	39	Planchonia careya	T2							
39	42.5	Alphitonia excelsa	T2							
45.5	47	Corymbia clarksoniana	T2							
48	51	Acacia leiocalyx subsp. leiocalyx	T2							
49	51.5	Allocasuarina littoralis	T2							

Tertiary																
SITE NUME	RFR		89													
LEVEL	JLIN		3			43.			MARK A	P. Carlotte	ALC: Y	ATTENDED	NC 1-3022	Z SPAN	AND THE REAL PROPERTY.	
DETAIL SP	116	-	<u>У</u>			- 1		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	。成立结	1000		1997年		AND	No. of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of	
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ECOSYSTE	EM .					0.0	N. III	Section 1				人 公公	11/12		19 119 14	NAKEC
DATE				9/2010		4	11年前		20年	776	THE REAL PROPERTY.		Till to		NZA Yest	CARROLL STATE
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			Julia	Olsen			用說果	E SV		No. Par	Visit in	是明治的	學上帶			A THE STATE OF
LOCALITY			Grea	t Kepp	el Island	-80		To Marie	tell to			置清楚。			7	, 但机差而於
													りがは過ぎ			
SITE DESC	RIPT	ION	Cory	mbia te	essellaris	and Aca	cia julit	era open fo	orest			Carrie 1	7		Wha	
GENERAL							-	•								
COMMUNIT			a)	20)-50			COMM	INITY	WIDT	H (m	١)	75-15	50		
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LANDFOR		<u>,</u>			2.0a			I IVEI EIV	LITOL				14			
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Situation		<u> </u>		E	ement	PLA		Eros pa	ittern	G	Р		Patte	ern		PLA
SLOPE											_				1	
Type		M			S	lope (%)	5			/	Aspect (°	°)		320	
SOILS																
Source	S	Reliat	oility	М	Code	Α	Add data	-	ISB	3/MU	-	Colour	Brov	vn	Texture	Sand
GEOLOGY							•	•								•
Source		M		Reli	ability	L		Code		F			Мар	Uni	t Q	chd
SPECHT S	TRUC	TURE	CODI													
GROUND (
Litter	60	<u>, I</u>	Rock		0	Bare		0	1	ryptor	ahvte	e 0		V۵	getation	40
Litter	00	,	NOCE	`	U		-	U	0	ypiop	pilyt	- 10		V C	getation	40
RAINFORE	eT.					grou	ii iu							_		
_	_		1			11	6 6a''	T	-	Flor				1.0	<u> </u>	
Struct.	-		Leaf		-	Lea	f fall	-	l	Floor		-		- 1	. Gr	-
Complexity			Size	<u>; </u>						Com	p			F	orms	
DISTURBA				T -												
DISTURBA Storm dam	age			0				Road W					0			
DISTURBA Storm dam (Proportion	age)						(Propor	tion/A	Age)						
DISTURBA Storm dam (Proportion Fire	age n/Age	•		0					tion/A	\ge)			0			
Storm dam (Proportion Fire (Proportion	age n/Age n/Age	•	nt)	0				(Propor Salinity	tion/A							
Storm dam (Proportion Fire (Proportion	age n/Age n/Age	•	ıt)					(Propor Salinity	tion/A		ing ((#)				
DISTURBA Storm dam (Proportion Fire (Proportion Logging (#	age n/Age n/Age	•	ıt)	0				(Propor Salinity Ringba	tion/A	/Thinn	ing ((#)	0			
DISTURBA Storm dam (Proportion Fire (Proportion Logging (# Grazing	age n/Age n/Age	/Heigh	ıt)	0 Y N				(Propor Salinity Ringba Feral D	tion/A	/Thinn	ing ((#)	0 N N			
DISTURBA Storm dam (Proportion Fire (Proportion Logging (#	age n/Age n/Age	/Heigh		0 Y				(Propor Salinity Ringba	tion/A	/Thinn	ing (#)	0 N			

SITE NUMBER		89	89 continued						
STRUCTURAL SUM	MARY								
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species					
Emergent	-	-	-	-					
Tree 1	6-9	8	-	Corymbia clarksoniana					
Tree 2	3-6	6	-	Acacia julifera subsp. julifera Alphitonia excelsa					
Tree 3	-	-	-	-					
Shrub 1	0.5-0.75	0.75	-	Lithomyrtus obtusa Xanthorrhoea latifolia					
Shrub 2	-	-	-	-					
Ground	0-0.5	0.5	-	Lomandra confertifolia subsp. pallida					

							Paspalidium Setaria surge		m				
BASAL AREA & STEM COU	NTS												
Species		al area (10m)	for p	lot		Volume/ha		Ste	m cou	ınt foı	plot	(50X1	0m)
	Е	T1	T2	T3	S1	T1	T2	Ε	T1	T2	T3	S1	S2
Acacia julifera subsp. julifera													
			8										
Corymbia tessellaris													
		1											

REFERENCE SITE FOR 8.2.6a

SITE NUMBER	98
LEVEL	2
DETAIL SP. LIST	Υ
REGIONAL	8.2.6a
ECOSYSTEM	
DATE	24/09/2010
RECORDER	David Francis &
	Julia Olsen
LOCALITY	Great Keppel Island
	· ·



						11		-2	理能	1		Tori V	1	100		
SITE DESCRI	PTION	Eucalyp	otus camaldi	ulensi	s ope	n fo	rest									
GENERAL NO	OTES															
COMMUNITY	AREA (I	na)	20-50				COMMUNI	TY W	/IDTH	(m)		75-150				
MAPPED (Cu	rrent RE	()	8.2.8a				REFEREN			Υ						
LANDFORM																
Situation	F		Element	F	00		Eros patte	rn	(βP		Patter	'n	R	IS	
SLOPE																
Туре	L		,	Slope	(%)		1				Aspect (°)	200			
SOILS																
Source S	Relial	bility N	Code	D		dd ata	-	ISE	/MU	-	Colour	Brow	n Tex	ture	Loamy Sandy Clay	
GEOLOGY																
Source	М		Reliability	L			Code		F			Map	Unit	Qh	cd	
SPECHT STR	UCTURE	CODE					Open Forest									
GROUND (%)																
Litter	60	Rock	0		are rounc		0	С	rypto	phyt	t e 0		Vegetat	ion	40	
RAINFOREST	•															
Struct.	-	Leaf	-	L	eaf fa	ıll	-		Floo	r	-		In. Gr		-	
Complexity		Size							Com	ıρ			Forms			
DISTURBANC	E															
Storm damag	е	()				Road Work	S				0				
(Proportion/A	ge)						(Proportion	n/Age)							
Fire		()				Salinity					0				
(Proportion/A	ge/Heig															
Logging (#)		1					Ringbarkin		ninnir	ng (#)	N				
Grazing		١					Feral Digging N									
Weeds (% Co			<5%			Remnant Y										
Erosion (Type	/Savarit	tv) (<u> </u>													

SITE NUMBER		98	continued						
STRUCTURAL SU	JMMARY								
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species					
Emergent	-	-	-	-					
Tree 1	10-16	15	54.5	Corymbia clarksoniana Eucalyptus camaldulensis Eucalyptus tereticornis					
Tree 2	4-10	7	66	Alphitonia excelsa Banksia integrifolia subsp. compar Lophostemon confertus Planchonia careya					
Tree 3	-	-	-	-					
Shrub 1	2-3	3	-	Acronychia laevis					

								Breynia oblor Lantana cam	ngifolia ara*					
Shrub 2	0.5-1			1			-	Opuntia strict		ia				
Ground (0-0.5			0.5			-	Cenchrus ecl Chamaecrista Dianella caer Eriachne pall	ninatus a conci ulea va	:* inna ar. pro	tensa			T
								Imperata cylii Melinis minut Melinis repen Neptunia grai Oplismenus a Passiflora sui Xanthorrhoea	ndrica iflora* s* cilis aemulu berosa	IS *				
BASAL AREA & STEM C			al area	for pl	lot		Volume/ha		Ste	m cou	nt for	plot	(50X1)	0m)
Species		(50X	(10m)					T ==				_	•	
Eucalyptus tereticornis		E	T1	T2	T3	S1	T1	T2	E	T1	T2	T3	S1	S2
Eucalyptus camaldulensis	;		3							2			1	
Lophostemon confertus				5						2	14		2	1
Alphitonia excelsa				1							12		3	2
Lantana camara*													3	
Planchonia careya				3							6			2
Acacia disparrima subsp. disparrima				1										
Corymbia clarksoniana			2							1	1		1	
Breynia oblongifolia										-	1		20	12
Ficus obliqua				1							1		20	14
Allocasuarina littoralis													3	
Opuntia stricta*													1	
Glochidion lobocarpum														

CANOPY COVER DATA (100m TRANSECT)											
Canopy finish (m)	Species	Strata									
	Eucalyptus tereticornis										
3		T1									
	Lophostemon confertus										
6.5		T2									
	Alphitonia excelsa										
3.5		T2									
	Planchonia careya										
5		T2									
	Lophostemon confertus										
20		T2									
	Eucalyptus camaldulensis	l									
15	Al-L'endone and	T1									
00.5	Alphitonia excelsa	T0									
20.5	I amb antonion and advis	T2									
22	Lopnostemon contentus	T2									
32	Eucolyntus comoldulonois	12									
20	Eucarypius camarutiensis	T1									
30	Alphitonia ovcolsa	11									
38	Аірініона вховіза	T2									
	Canopy finish (m)	Canopy finish (m) Species Eucalyptus tereticornis Lophostemon confertus 6.5 Alphitonia excelsa 3.5 Planchonia careya Lophostemon confertus Eucalyptus camaldulensis 15 Alphitonia excelsa Lophostemon confertus 20.5 Eucalyptus camaldulensis Lophostemon confertus 20.5 Lophostemon confertus 32 Eucalyptus camaldulensis Alphitonia excelsa Alphitonia excelsa									

		Alphitonia excelsa	
44	48		T2
		Lophostemon confertus	
43.5	44		T2
		Alphitonia excelsa	
56	58.5	·	T2
		Lophostemon confertus	
59	70.5	•	T2
		Eucalyptus tereticornis	
64	69.5		T1
		Eucalyptus camaldulensis	
70	84.5	<i>"</i>	T1
		Lophostemon confertus	
71	77	•	T2
		Corymbia clarksoniana	
84.5	98	,	T1
		Lophostemon confertus	
86	100	,	T2
•			•

Tertiar	y																
SITE NU		₹	99				200	20	Market Company		1960	28/2	A WAR	1 1/4	SHIP Y	AL STAN	
LEVEL		•	3					Bia	一個美國人				NA			4	
DETAIL S	SP I	IST	Ÿ				- Tow	£ .		A	V	10.4					公司
REGIONA			8.11.8	Ra			4			1	4		94			1	The Control of
ECOSYS			0.11.0	Ja			7	大	1	K	11/6	10		A .	1		
DATE			24/09	/2010							1	36		THE SECOND		16.24	
RECORD	ER		David	Franc	is &				*	1							
			Julia (Olsen			SHIP		100	1		VIII.		(四)			
LOCALIT	Υ		Great	Keppe	el Island								100		E S		医
SITE DES			Coryr	nbia ci	itriodora (open f	orest			E.C.					18.	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	
GENERA																	
COMMUN	YTIV	AREA (I	12)	20)-50				COMMU	NITY	WIDT	TH (n	2)	75-150	0		
												11 (11	'/				
		rent RE			2.8a				REFERE				'/	N			
LANDFO	ŘМ	rent RÈ		8	2.8a				REFERE	NCE	SITE		'/	N			
LANDFO Situation	ŘМ			8		H	SL			NCE	SITE	IL.	i)			l I	НL
LANDFO	ŘМ	rent RÈ)	8	2.8a lement				Eros pat	NCE	SITE		·/	N	'n	l e	HIL
LANDFO Situation SLOPE Type	ŘМ	rent RÈ)	8	2.8a lement	H			REFERE	NCE	SITE	IL_	Aspect (N Patter	'n	1 F	HIL
LANDFO Situation SLOPE	ŘМ	rent RÈ)	8	2.8a lement				Eros pat	NCE	SITE	IL_		N Patter	'n	l e	IIL
LANDFO Situation SLOPE Type	ŘМ	F M)	8	2.8a lement		(%) A	dd	Eros pat	tern	SITE	IL_		N Patter	rn 2	l e	Sandy
LANDFO Situation SLOPE Type SOILS	RM	F M	1	8.: EI	2.8a lement	Slope	(%) A		Eros pat	tern	SITE	IL_	Aspect (°	N Patter	rn 2	260	
Situation SLOPE Type SOILS Source	RM	F M	1	8.:	2.8a lement	Slope	(%) A		Eros pat	tern	SITE	IL_	Aspect (°	N Patter	rn 2	260 Fexture	Sandy
LANDFO Situation SLOPE Type SOILS Source GEOLOG	RM S	F Relia	1 ability	8.	2.8a ement S	A/K	(%) A		Eros pat	tern	SITE U	IL_	Aspect (°	Patter P) Brown	rn 2	260 Fexture	Sandy Clay
LANDFO Situation SLOPE Type SOILS Source GEOLOG Source	S STR	F Relia	1 ability	8.	2.8a ement S	A/K	(%) A		Eros pat 5% - Code	tern	SITE U	IL_	Aspect (°	Patter P) Brown	rn 2	260 Fexture	Sandy Clay
LANDFO Situation SLOPE Type SOILS Source GEOLOG Source SPECHT	S STR	F Relia	1 ability	M Relia	2.8a ement S	A/K	(%) A		Eros pat 5% - Code	tern	SITE U	-	Aspect (°	Patter P) Brown	n 2	260 Fexture	Sandy Clay
LANDFO Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND	S S STR	F N Relia	hbility E CODE	M Relia	2.8a lement S Code	A/K	(%) Adda		Eros pat 5% Code Open Fore	tern	SITE U	-	Aspect (°	Patter P) Brown	n 2	260 Fexture	Sandy Clay
LANDFO Situation SLOPE Type SOILS Source GEOLOG Source SPECHT GROUND Litter	S S STR	F N Relia	hbility E CODE	M Relia	2.8a lement S Code	A/K	(%) Adda	ata	Eros pat 5% Code Open Fore	tern	SITE U	phyt	Aspect (°	Patter P) Brown	n 2	260 Fexture Q	Sandy Clay
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SITE NUMBER		99		continued
STRUCTURAL S	UMMARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	10-16	15	-	Corymbia citriodora subsp. citriodora Eucalyptus crebra Eucalyptus exserta
Tree 2	3-5	4	-	Acacia leiocalyx subsp. leiocalyx Alphitonia excelsa
Tree 3	-	-	-	-
Shrub 1	0.5-1.5	1	-	Acacia leiocalyx subsp. leiocalyx Breynia oblongifolia Wikstroemia indica
Shrub 2	-	-	-	-
Ground	0-0.5	0.5	-	Amvema conspicua subsp. conspicua

Corymbia clarksoniana		mbia clarksoniana	_											
Corymbia citriodora subsp Citriodora	9		9											
	E T1		T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
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Eucalyptus crebra

Eucalyptus exserta

Alphitonia excelsa

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Type SOILS Source S GEOLOGY	Relia	bility	// Code	Slo	pe (%)	Add	35	ISB/MU	J -		Dark Brown	Texture	Loamy Sand
Type SOILS Source S GEOLOGY Source	Relia	bility N		Slo	pe (%)	Add	35	ISB/MU) Dark	Texture	Loamy
Type SOILS Source S GEOLOGY Source SPECHT STR	Relia MRUCTURE	bility N	// Code	Slo	pe (%)	Add	35	ISB/MU	J -		Dark Brown	Texture	Loamy Sand
Type SOILS Source S GEOLOGY Source SPECHT STE GROUND (%	Relia M RUCTURE	bility N	A Code	Slo	p pe (%)	Add data	35 - Code	ISB/MU	J -	Colour	Dark Brown	Texture	Loamy Sand
Type SOILS Source S GEOLOGY Source SPECHT STR	Relia MRUCTURE	bility N	// Code	Slo	ppe (%)	Add data	35	ISB/MU	J -	Colour	Dark Brown	Texture	Loamy Sand
Type SOILS Source S GEOLOGY Source SPECHT STE GROUND (%	Relia M RUCTURE 40	bility N	A Code	Slo	p pe (%)	Add data	35 - Code	ISB/MU	J -	Colour	Dark Brown	Texture	Loamy Sand
Type SOILS Source S GEOLOGY Source SPECHT STE GROUND (%	Relia M RUCTURE 40	bility N	A Code	Slo	ppe (%)	Add data	35 - Code	ISB/MU	J -	Colour	Dark Brown	Texture	Loamy Sand
Type SOILS Source SOURCE SOURCE SPECHT STE GROUND (% Litter RAINFORES Struct.	Relia M RUCTURE 40	bility N	// Code	Slo	Bare grou	Add data	35 -	ISB/MU	J -	Colour e 0	Dark Brown	Texture nit Qu /egetation	Loamy Sand
Type SOILS Source S GEOLOGY Source SPECHT STE GROUND (% Litter RAINFORES	Relia MRUCTURE 40	bility N	// Code	Slo	Bare grou	Add data	35 -	ISB/MU	J -	Colour e 0	Dark Brown	Texture nit Q	Loamy Sand
Type SOILS Source SOURCE SOURCE SPECHT STE GROUND (% Litter RAINFORES Struct. Complexity DISTURBANI	Relia MRUCTURE 40 T	bility N CODE Rock Leaf Size	// Code	Slo	Bare grou	Add data	35 -	ISB/MU	J -	Colour e 0	Dark Brown	Texture nit Qu /egetation	Loamy Sand
Type SOILS Source SOURCE SPECHT STE GROUND (% Litter RAINFORES Struct. COMPANIENT DISTURBAN Storm damage	Relia MRUCTURE 40 T CE ge	bility N CODE Rock Leaf Size	Reliability 0	Slo	Bare grou	Add data	35 Code Road Wo	ISB/MU	J - tophytophytophytophytophytophytophytophy	Colour e 0	Dark Brown	Texture nit Qu /egetation	Loamy Sand
Type SOILS Source SOURCE SOURCE SPECHT STE GROUND (% Litter RAINFORES Struct. Complexity DISTURBANI	Relia MRUCTURE 40 T CE ge	bility N CODE Rock Leaf Size	Reliability 0	Slo	Bare grou	Add data	Code Code Road Wo (Proporti	ISB/MU	J - tophytophytophytophytophytophytophytophy	Colour e 0	Dark Brown	Texture nit Qu /egetation	Loamy Sand
Type SOILS Source Source SPECHT STF GROUND (% Litter RAINFORES Struct. Complexity DISTURBAN: Storm dama((Proportion)) Fire	Relia MRUCTURE 40 T - CCE ge Age)	Book Code Code Code Code Code Code Code Code	Reliability 0	Slo	Bare grou	Add data	35 Code Road Wo	ISB/MU	J - tophytophytophytophytophytophytophytophy	Colour e 0	Dark Brown	Texture nit Qu /egetation	Loamy Sand
Type SOILS Source SOURCE SOURCE SPECHT STE GROUND (% Litter RAINFORES Struct. Complexity DISTURBAN Storm damag (Proportion// Fire (Proportion//	Relia MRUCTURE 40 T - CCE ge Age)	Bility No. 10 CODE Rock Leaf Size	Reliability 0	Slo	Bare grou	Add data	Code Code Road Wc (Proporti Salinity	Crype Crype Fic Co Co orks on/Age	tophyt	e 0	Dark Brown	Texture nit Qu /egetation	Loamy Sand
Type SOILS Source SPECHT STF GROUND (% Litter RAINFORES Struct. Complexity DISTURBAN Storm damag (Proportion// Fire (Proportion// Logging (#)	Relia MRUCTURE 40 T - CCE ge Age)	Bility No. 10 CODE Rock Leaf Size (nt)	Reliability 0	Slo	Bare grou	Add data	Code Code Road Wo (Proporti Salinity Ringbark	ISB/MU Crypr Fic Co orks on/Age)	tophyt	e 0	Dark Brown Map U	Texture nit Qu /egetation	Loamy Sand
Type SOILS Source SOURCE SPECHT STE GROUND (% Litter RAINFORES Struct. Complexity DISTURBANI Storm damag (Proportion// Fire (Proportion// Logging (#) Grazing	Relia M RUCTURE) 40 T - CE ge Age) Age/Heigh	Bility ME CODE Rock Leaf Size (nt)	Reliability 0 - O	Slo	Bare grou	Add data	Code Code Road Wc (Proporti Salinity	ISB/MU Crypr Flo Co orks on/Age)	tophyt	e 0	Dark Brown Map U	Texture nit Qu /egetation	Loamy Sand
Type SOILS Source SPECHT STF GROUND (% Litter RAINFORES Struct. Complexity DISTURBAN Storm damag (Proportion// Fire (Proportion// Logging (#)	Relia M RUCTURE 40 T - CE ge Age) Age/Heigh	Bility No. 10 CODE Rock Leaf Size (nt)	Reliability 0 -	Slo	Bare grou	Add data	Code Code Road Wo (Proporti Salinity Ringbark Feral Dig	ISB/MU Crypr Flo Co orks on/Age)	tophyt	e 0	Dark Brown Map U	Texture nit Qu /egetation	Loamy Sand

SITE NUMBER		103		continued
STRUCTURAL SU	JMMARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	7-12	8	-	Allocasuarina littoralis Corymbia clarksoniana
Tree 2	3-5	4	-	Allocasuarina littoralis Banksia integrifolia subsp. compar Grevillea banksii Petalostigma pubescens
Tree 3	-	-	-	-
Shrub 1	2-3	2	-	Acacia disparrima subsp. disparrima Acacia julifera subsp. julifera Grevillea banksii Xanthorrhoea latifolia

Shrub 2 0.5-1		1		1			-	Lithomyn	Lithomyrtus obtusa						
Ground	0-0.9	0-0.5			0.5			Geitonop Lomandr Passiflor Stephani	Dianella caerulea var. protensa Geitonoplesium cymosum Lomandra multiflora Passiflora suberosa* Stephania japonica var. discolor Kanthorrhoea latifolia						
BASAL AREA & STE	M COU							•	1 0				(==)		
Species			al area (10m)	ea for plot			Volume/ha	a	Stem count for plot (50X10						
		E	T1	T2	T3	S1	T1	T2	E	T1	T2	T3	S1		
Corymbia clarksoniana	1		2												
Acacia julifera subsp. Julifera															
	sp														
Acacia disparrima subs disparrima															

Vegetation Mapping Records - Great Keppel Island February 2011

SITE NUMBER	16
LEVEL	2
DETAIL SP. LIST	Υ
REGIONAL	8.2.7e
ECOSYSTEM	
DATE	21/09/2010
RECORDER	David Francis
LOCALITY	Great Keppel Island



							92			/+	7 Z			-4	TO STATE				
SITE DES	CRIP	TION	Coryr	nbia d	clarkso	oniana	a and		euca dealbata	open for	est								
GENERA	L NO	TES																	
COMMUNITY AREA (ha) 5-20						COMMUNIT	LA MID.	TH (n	n)		Not li	near							
MAPPED (Current RE) 8.2.7e							REFERENC	E SITE											
LANDFO	RM																		
Situation R Ele			Element			Eros pattern LP				Pattern			BE	Ā					
SLOPE																			
Туре					6)	<5%			As	spect (°	°) 280								
SOILS														•					
Source	S	Relial	oility	L	Cod	le /	A	Add	-	ISB/M	U	- 0	Colour	В		Texture	е	F	
			-					data											
GEOLOG	Υ																		
Source	Source 0 Reliability L							Code F					Map Unit Qhcb						
SPECHT	STRU	JCTURE	CODI	Ε					Op	en Fore	st								
GROUND	(%)																		
Litter Rock			Bare				Cryptophyte				Vegetation								
							gro	und											
RAINFOR	EST																		
Struct.	t Leaf - Leaf fall		f fall	-	F	loor		-	In. Gr			-							
Complexi			Size							Comp				Forms					
DISTURB																			
Storm damage 1/2				Road Works					0										
(Proportion/Age)				(Proportion/Age)															
Fire 0				Salinity				0											
(Proportion		je/Heig	ht)																
Logging ((#)			-					Ringbarking /Thinning (#)					-					
Grazing				N					Feral Diggi	ng				N					
Weeds (%				0					Remnant					Υ					
Erosion (Type	Severit	:v)	0															

SITE NUMBER		16 continued								
STRUCTURAL S	UMMARY									
Stratum Height Range in Strata (m)		Median Height (m)	Cover (%) (100m transect)	Species						
Emergent	-	-	-	-						
Tree 1	8-15	13	51	Corymbia clarksoniana Leptospermum neglectum Melaleuca dealbata						
Tree 2	3-6	5	51	Allocasuarina littoralis Banksia integrifolia Dodonaea viscosa						

Tree 3			-
Shrub 1	1-2	2	Dodonaea viscosa Lantana camara*
Shrub 2			-
Ground/ vines/ epiphytes/ mistletoes			Abrus precatorius Dianella caerulea Eriachne pallescens subsp. pallescens Cyperus stradbrokensis Imperata cylindrica Lomandra longifolia Oplismenus hirtellus Passiflora suberosa*

BASAL AREA & STEM COUNTS																
Species		al area (10m)	a for p	lot		Volume/ha	Volume/ha			Stem count for plot (50X10m)						
	Е	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2			
Acacia disparrima												1				
Allocasuarina littoralis			1							19		1				
Alphitonia excelsa			4							4		11				
Banksia integrifolia			1						2	3		2				
Breynia oblongifolia													3			
Corymbia clarksoniana																
Dodonaea viscosa			1							8		27	2			
Lantana camara												2	3			
Leptospermum neglectum		1														
Melaleuca dealbata																
Melaleuca quinquenervia									2							
Opuntia stricta												1				
Planchonia careya													1			

CANOPY COVER DATA (100m TRANSECT)									
Canopy Start (m)	Canopy finish (m)	Species	Strata						
0	2.5	Dodonaea viscosa	T2						
1	6.5	Allocasuarina littoralis	T2						
2	20.5	Corymbia clarksoniana	T1						
6	6.5	Dodonaea viscosa	T2						
8	12	Allocasuarina littoralis	T2						
13.5	20.5	Dodonaea viscosa	T2						
26	28	Dodonaea viscosa	T2						
28.5	32	Alphitonia excelsa	T2						
32.5	54.5	Allocasuarina littoralis	T2						
34	37	Dodonaea viscosa	T2						
36	41.5	Melaleuca quinquenervia	T1						
40.5	43	Allocasuarina littoralis	T2						
42.5	51	Banksia integrifolia	T1						
52.5	58	Acacia disparrima	T1						
63	67	Planchonia careya	T2						
89	77	Melaleuca dealbata	T1						
89	72.5	Banksia integrifolia	T2						
77	84	Allocasuarina littoralis	T2						
95.5	98.5	Allocasuarina littoralis	T2						

REFERENCE SITE FOR 8.11.10

SITE NUMBER	52
LEVEL	2
DETAIL SP. LIST	Α
REGIONAL	8.11.10
ECOSYSTEM	
DATE	14/2/11
RECORDER	David Francis &
	Dan Potter
LOCALITY	Great Keppel Island



								All the same				10 m	10.75cm	100	William Child			15/13		
SITE DES	CRIP	TION	Lopho	ophostemon confertus low closed forest																
GENERAL	. NOT	ES																		
COMMUN				>5	50ha				COMMU	NITY	WID.	TH (m)		Not linear					
MAPPED ((Curre	ent RE	Ξ)	8.	11.10/8.	.12.1	14 x 20		REFERE	REFERENCE SITE					Υ					
LANDFOR	M																			
Situation		F		EI	ement		FOO		Eros pat	tern	7	JL			Patte	rn		Н	L	
SLOPE																				
Type		'	/G	Slope (%)			1-3%				Asp	ect (°))		130					
SOILS																				
Source	S	Relia	ability	L	Code	F	+	Add data	-	ISE	3/MU	-	Co	lour	F		Text	ure	В	
GEOLOGY	1							uata							l					
Source		0		Reliability L					Code	Code O					Мар	Unit	: 1	Cc	3	
SPECHT S	STRU	CTUR	URE CODE					Low Close	d Fo	rest								-		
GROUND	(%)																			
Litter	3	0	Rock		-		Bare		0	C	rypto	phy	rte	0		Veg	getatio	on	70	
							grou	nd												
RAINFORI	EST																			
Struct.	-		Leaf		-		Leaf	fall	-		Floo	r		-		In	. Gr		-	
Complexit			Size								Con	ıр				Fo	orms			
DISTURBA																				
Storm dan	_			0					Road Wo						N					
(Proportio	n/Ag	e)							(Proporti	ion/	Age)									
Fire				0					Salinity						0					
(Proportio		e/Heig	iht)				 													
Logging (#)			0			Ringbark			ning	J (#)		0							
Grazing				N			Feral Digging N				N									
Weeds (%				0					Remnant	t										
Erosion (1	ype/	Severi	ty)	0																

SITE NUMBER		52		continued
STRUCTURAL SUMM	ARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	3-6	5	90.5	Lophostemon confertus (D) Lophostemon suaveolens (A) Melaleuca nervosa (S)
Tree 2	1-2	1.5	-	Diospyros geminata Glochidion lobocarpum Scolopia braunii
Tree 3				
Shrub 1				
Shrub 2				
Ground/ vines/ epiphytes/ mistletoes	0.5-1	0.5	-	Digitaria ramularis Enteropogon unispiceus Gahnia aspera Lepidosperma laterale

BASAL AREA & STEM CO	UNTS						Lomandra filit Lomandra leu Oplismenus h Panicum effu Xanthorrhoea	icocep irtellu: sum	S				
Species		al area (10m)	for p	lot		Volume/ha Stem count for plo				plot	ot (50X10m)		
•	Ē	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
Acacia disparrima												7	
Corymbia clarksoniana		1											
Eucalyptus crebra		1											1
Glochidion lobocarpum												1	1
Lophostemon confertus		19							20				
Lophostemon suaveolens		1							6				
Melaleuca nervosa									2				

CANOPY COVER DATA (1	CANOPY COVER DATA (100m TRANSECT)									
Canopy Start (m)	Canopy finish (m)	Species	Strata							
0	7.5	Lophostemon confertus	T1							
7.5	17.5	Melaleuca nervosa	T1							
17	32.5	Lophostemon confertus	T1							
34	43.5	Lophostemon confertus	T1							
43.5	44	Lophostemon suaveolens	Т1							
44	88.5	Lophostemon confertus	T1							
55	62	Alphitonia excelsa	T1							
68	70.5	Lophostemon suaveolens	T1							
88	90	Acacia disparrima	Т1							
96	98	Acacia disparrima	Т1							

SITE NUMBER 55															
DETAIL SP. LIST A	SITE NUMB	ER		55											
REGIONAL	LEVEL			2			(F)	1		300			1 1		
	DETAIL SP.	LIS	Т	Α					ALUKA	N. Y.			A YEAR		
DATE	REGIONAL										M	AVE ST			
David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Francis & David Franci	ECOSYSTE	М					1	联制的	A SO	MARIA		Share II		NAME OF	
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Dan Potter		₹				is &	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	No.	TO VIEW		POLINE A				
COCALITY		-					1	10 TOP 10	N. C.		A DECT		總。		
SITE DESCRIPTION Acacia julifera regrowth	LOCALITY					el Island		4 (2.5)			The second			A DAME	A SECTION
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COMMUNITY AREA (ha)														CAR TAKE OF	1
COMMUNITY AREA (ha)										1	500	439	VIZ:		
COMMUNITY AREA (ha)															1
COMMUNITY AREA (ha)	SITE DESCR	RIPT	ION	Acad	ia julife	ra regrov	vth								
COMMUNITY AREA (ha)	GENERAL N	NOTI	ES												
MAPPED (Current RE)				ia)	>!	50ha			COMMU	W YTIN	IDTH (r	n)	Not line	ear	
Situation T												<i>'</i>	N		
SLOPE															
School	Situation		Т		E	ement	FOO		Eros pat	tern	UH		Patter	n l	IIL
Type	SLOPE								<u> </u>		<u> </u>				
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Source S Reliability L Code A Add data - ISB/MU - Colour B Texture F							лоро (70		0 1070		i_	, copect (100	
GEOLOGY Source O Reliability L Code F Map Unit Qhcb		3	Relia	hility	П	Code	Δ	Δdd	Ι_	ISB/M	Ш -	Colour	R	Texture	TF
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Cryptophyte Vegetation RAINFOREST Struct.				COD		ability				d Fores	-		iviap (Jint Qi	ICD
Cryptophyte Vegetation RAINFOREST Struct.			TORE	. 600					LOW CIUSE	4 1 0168					
RAINFOREST Struct.		/0)		Pool	,		Para	, 1		Cna	ntonh	to l		Vegetation	
Struct.	Litter			KOCI	`					Ciyl	propriy	.6		vegetation	
Struct.	DAINEODE	eT.					grot	iiu							
Complexity Size Comp Forms DISTURBANCE Storm damage (Proportion/Age) 0 (Proportion/Age) 0 (Proportion/Age) Fire (Proportion/Age/Height) 0 Salinity 0 (Proportion/Age/Height) Logging (#) 0 Ringbarking /Thinning (#) 0 (Proportion/Age/Height) Weeds (% Cover) 0 Remnant N		_		Loc	£		Los	f fall			loor			In Cr	
Storm damage 0						-	Lea	I Idil	1 -			-			-
Storm damage (Proportion/Age) 0 (Proportion/Age) Road Works (Proportion/Age) 0 (Proportion/Age) Fire (Proportion/Age/Height) 0 Salinity 0 (Proportion/Age/Height) Logging (#) 0 Ringbarking /Thinning (#) 0 (Proportion/Age/Height) Grazing N Feral Digging N Weeds (% Cover) 0 Remnant N				3126						_ L	omp			i-Oiiil8	
(Proportion/Åge) (Proportion/Åge) Fire 0 Salinity 0 (Proportion/Age/Height) 0 Ringbarking /Thinning (#) 0 Logging (#) 0 Ringbarking /Thinning (#) 0 Grazing N Feral Digging N Weeds (% Cover) 0 Remnant N					Ι ο				Dood Mr.	wlea.			Ι ο		
Fire (Proportion/Age/Height) 0 Salinity 0 Logging (#) 0 Ringbarking /Thinning (#) 0 Grazing N Feral Digging N Weeds (% Cover) 0 Remnant N	Otorm dama	age			U						.,		U		
(Proportion/Age/Height) Ringbarking /Thinning (#) 0 Grazing N Feral Digging N Weeds (% Cover) 0 Remnant N		Age)							on/Age	;)		0		
Logging (#) 0 Ringbarking /Thinning (#) 0 Grazing N Feral Digging N Weeds (% Cover) 0 Remnant N		/ A == -	// 1 - ! !	-41	U				Sailnity				U		
Grazing N Feral Digging N Weeds (% Cover) 0 Remnant N			Heigh				Displaying (This is a (4))								
Weeds (% Cover) 0 Remnant N															
				33 3											
Erosion (Type/Severity) 0							Remnant				N				

SITE NUMBER		55		continued
STRUCTURAL SUMM	ARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	=	-	-
Tree 1	5-10	7	87.5	Acacia julifera (D) Allocasuarina littoralis (C) Alphitonia excelsa (S)
Tree 2	1-3	3		Alphitonia excelsa Grevillea banksii
Tree 3				
Shrub 1	1-1.5	1	3	Alphitonia excelsa
Shrub 2	0.5-1	0.5		Lithomyrtus obtusa
Ground/ vines/ epiphytes/ mistletoes				Cenchrus echinatus* Eriachne pallescens Gahnia aspera

							Passiflor	a suberosa	a*				
BASAL AREA & STEM COL	JNTS												
Species	Basal area for plot (50X10m)					Volume/ha	Stem count for plot (50X10m)						
	Е	T1	T2	T3	S1	T1	T2	Е	T1	T2	Т3	S1	S2
Acacia julifera									64	5		4	1
Allocasuarina littoralis		1							2			1	
Alphitonia excelsa									5	10		4	1
Banksia integrifolia										1			
Breynia oblongifolia												1	
Corymbia clarksoniana		1								1		2	
Corymbia tessellaris									1				
Grevillea banksii										5		2	
Lantana camara												1	
Leptospermum neglectum										1		1	1
Lithomyrtus obtusa													9

CANOPY COVER DATA (1	CANOPY COVER DATA (100m TRANSECT)										
Canopy Start (m)	Canopy finish (m)	Species	Strata								
0	17	Acacia julifera	T1								
18.5	20.5	Acacia julifera	T1								
21.5	22.5	Acacia julifera	T1								
27.5	30	Acacia julifera	T1								
30.5	43.5	Acacia julifera	T1								
32.5	34	Leptospermum neglectum	S1								
34.5	36	Alphitonia excelsa	T1								
40	41.5	Alphitonia excelsa	T1								
43.5	46	Alphitonia excelsa	T1								
44	47	Allocasuarina littoralis	T1								
47.5	49	Alphitonia excelsa	S1								
50	60.5	Alphitonia excelsa	T1								
50	55	Petalostigma pubescens	T1								
57	80	Acacia julifera	T1								
67.5	68.5	Allocasuarina littoralis	T1								
82	84	Acacia julifera	T1								
84	86.5	Allocasuarina littoralis	T1								
86.5	100	Acacia julifera	T1								

REFERENCE SITE FOR 8.2.6a

SITE NUMBER	61
LEVEL	2
DETAIL SP. LIST	A
REGIONAL	8.2.6a
ECOSYSTEM	
DATE	15/2/11
RECORDER	David Francis &
	Dan Potter
LOCALITY	Great Keppel Island



							3									-	BAR .		
SITE DES	CRIP	NOIT	Corym	bia tes	ssellaris	and Co	rymbia d	larksoniana	oper	fores	st								
GENERAI	- NO	TES																	
COMMUN	ITY A	AREA (h	a)	>50	Oha			COMMUNITY WIDTH (m)					Not linear						
MAPPED	(Curi	rent RE)		8.2	.8a			REFERE	NCE	SITE				Υ					
LANDFOR	RM																		
Situation	Situation T					FOC)	Eros pattern UH F			Pattern HIL								
SLOPE																			
Туре		М	Ю		S	Slope (%	6)	10-32%				Asp	ect (°)		320			
SOILS						<u> </u>		•											
Source	S	Relia	bility	L	Code	Α	Add data	-	ISB	/MU	-	Co	lour	В		Text	ture	F	
GEOLOG	Y						uata												
Source		0		Relia	bility	L		Code		F				Мар	Unit		Qch	ıb	
SPECHT STRUCTURE CODE Open Forest																			
GROUND	(%)																		
Litter			Rock			Bar	е		С	rypto	phyt	te			Veg	jetati	on		
						gro	und												
RAINFOR	EST																		
Struct.		=	Leaf		-	Lea	af fall	-		Floo	r		-		ln.	Gr		-	
Complexi	ty		Size							Com	ıp				Fo	rms			
DISTURB	ANC	<u> </u>																	
Storm da	_			0				Road Wo	orks					0					
(Proportion	n/Ag	je)						(Proport	ion/A	ge)									
Fire 0							Salinity						0						
(Proportion/Age/Height)																			
Logging (#) 0						Ringbarking /Thinning (#)													
Grazing				N				Feral Dig						N					
Weeds (%	Cov	er)		0				Remnan	t										
Erosion (Гуре	/Severity	y)	0															

SITE NUMBER		61	continued						
STRUCTURAL SUMM	ARY								
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species					
Emergent	-	-	-	-					
Tree 1	18-22	16	72.3	Corymbia clarksoniana (D) Corymbia tessellaris (S)					
Tree 2	4-8	7	55.5	Allocasuarina littoralis (S) Alphitonia excelsa (A) Banksia integrifolia (D) Planchonia careya					
Tree 3									
Shrub 1	1-3	2		Grevillea banksii					
Shrub 2	0.5-1	1		Breynia oblongifolia Trema tomentosa					
Ground/ vines/ epiphytes/ mistletoes				Abrus precatorius Eriachne pallescens					

Imperata cylindrica Jasminum didymum Passiflora suberosa* Stachytarpheta jamaicensis* Triumfetta rhomboidea Xanthorrhoea latifolia													
										count for plot (50X10m)			
	E	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
Acacia disparrima			1							1			1
Allocasuarina littoralis										1			
Alphitonia excelsa			3										
Banksia integrifolia			3							12		3	1
Breynia oblongifolia												4	5
Corymbia clarksoniana		3							4				
Corymbia tessellaris									1				
Ficus opposita						-						1	
Grevillea banksii										1		2	
Planchonia careya			1							2		4	
Trema tomentosa													

Canopy Start (m)	Canopy finish (m)	Species	Strata
0	2.5	Banksia integrifolia	T2
0	10	Corymbia clarksoniana	T1
0	9.5	Corymbia tessellaris	T1
6.5	11	Banksia integrifolia	T2
11.5	23.5	Alphitonia excelsa	T2
16	27	Corymbia clarksoniana	T1
24	32.5	Banksia integrifolia	T2
28	70	Corymbia clarksoniana	T1
31.5	35.5	Planchonia careya	T2
38.5	39.5	Banksia integrifolia	T2
42	44	Banksia integrifolia	T2
47	50	Banksia integrifolia	T2
50	52.5	Grevillea banksii	T2
59	61.5	Banksia integrifolia	T2
64	67	Allocasuarina littoralis	T2
69.5	78	Allocasuarina littoralis	T2
72.5	75.8	Corymbia clarksoniana	T1
79	82.5	Corymbia clarksoniana	T2
92	100	Corymbia clarksoniana	T1

REFERENCE I	OR R	E 8.3.13	3	
SITE NUMBER	71			
LEVEL	2			to said the said to be said to
DETAIL SP. LIST	Α			
REGIONAL ECOSYSTEM	8.3.13c			
DATE	16/2/11			
RECORDER	David F	rancis & ter		- Week
LOCALITY	Great K	eppel Island		
SITE DESCRIPTION	Melaleu	ca quinquene	ervia open fores	t
GENERAL NOTES				
COMMUNITY AREA (I				COMMUNITY WIDT
MAPPED (Current RE)	8.3.13c		REFERENCE SITE
LANDFORM				
Situation B		Flement	VIF	Fros nattern



SITE DESCRI	SITE DESCRIPTION Melaleuca quinquenervia open forest													
GENERAL NO	OTES													
COMMUNITY	AREA (ha)				COMMU	NITY W	IDTH ((m)		Non li	near		
MAPPED (Cu	rrent RE	<u>:</u>)	8.3.13c			REFERE	NCE SI	TE			Υ			
LANDFORM														
Situation	В	Element	Element VLF			Eros pattern LP				Pattern			SAN	
SLOPE														
Туре	Type VG			Slope (%))	1-3%			Asp	ect (°)		260	
SOILS				<u> </u>										
Source S	Relia	bility	Code	A	Add data	-	ISB/M	U -	Co	lour	I		Texture	F F
GEOLOGY														
Source	0		Reliability	L		Code	Code F				Map Unit (e/m - Qa
SPECHT STRUCTURE CODE Open Forest												•		
GROUND (%)														
Litter		Rock		Bare			Cry	otophy	yte			Veg	etation	
				grou	nd									
RAINFOREST	Γ													
Struct.	-	Leaf	-	Leaf	fall	-	FI	oor		-		ln.	Gr	-
Complexity		Size					С	omp				Fo	rms	
DISTURBANC	CE													
Storm damag	•	(0			Road Wo					0			
(Proportion/A	\ge)					(Proport	ion/Age	·)						
Fire 0						Salinity					0			
(Proportion/Age/Height)														
Logging (#) 0					Ringbarl		inning	g (#)		0				
Grazing N					Feral Digging N									
Weeds (% Cover)			<5			Remnan	t							
Erosion (Type	0													

SITE NUMBER		71	continued							
STRUCTURAL SUMM	ARY									
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species						
Emergent	-	=	-	-						
Tree 1	11-16	15	68	Melaleuca quinquenervia						
Tree 2	4-10	8	52	Alphitonia excelsa Planchonia careya Timonius timon						
Tree 3										
Shrub 1	1-3	2		Ficus hispida						
Shrub 2	0.5-1	0.5								
Ground/ vines/ epiphytes/ mistletoes				Baumea juncea Bidens bipinnata* Blechnum indicum Eriachne pallescens						

							Imperata cylindrica Megathyrsus maximus* Melinis minutiflora* Oplismenus hirtellus Pteridium esculentum Stephania japonica Triumfetta rhomboidea							
BASAL AREA & STEM COL Species	Bas	al area	for p	lot		Volume/ha		Ste	m cou	int for	plot	(50X1	0m)	
opeoies .	E	T1	T2	T3	S1	T1	T2	E	T1	T2	T3	S1	S2	
Acacia disparrima			1									1		
Acacia leiocalyx												1		
Alphitonia excelsa										1		2	1	
Banksia integrifolia		2							2	2				
Breynia oblongifolia													2	
Clerodendron floribundum												1		
Ficus hispida														
Glochidion sumatranum													1	
Melaleuca quinquenervia		13							13					
Pittosporum ferrugineum													2	
Planchonia careya										2		2		
Timonius timon									1	2				
Trema tomentosa												3		

CANOPY COVER DATA (100m TRANSECT)											
Canopy Start (m)	Canopy finish (m)	Species	Strata								
0	2.5	Banksia integrifolia	T1								
0	5	Melaleuca quinquenervia	T1								
3	4	Planchonia careya	T2								
9.5	39.5	Melaleuca quinquenervia	T1								
10.5	15.5	Banksia integrifolia	T2								
16	18.5	Alphitonia excelsa	T2								
18	20	Banksia integrifolia	T1								
43.5	56.5	Timonius timon	T2								
45.5	60	Melaleuca quinquenervia	T1								
60	69	Planchonia careya	T2								
62	100	Melaleuca quinquenervia	T1								
67.5	80	Alphitonia excelsa	T2								
86		Planchonia careya	T2								
89.5	100	Alphitonia excelsa	T2								

SITE NUMBER	75
LEVEL	2
DETAIL SP. LIST	Α
REGIONAL ECOSYSTEM	
DATE	16/2/11
RECORDER	David Francis & Dan Potter
LOCALITY	Great Keppel Island



								THE RESERVE		M. The	在心思		N PER S	The Table	7	15 Tale
SITE DES	CRI	PTION	Acacia	low	open fore	st										
GENERA	L NC	TES														
COMMUN	ITY	AREA (h	a)	>:	50			COMMU	NITY V	VIDTH	(m)		Not linear			
MAPPED	(Cui	rrent RE		8.3.13c				REFERE	REFERENCE SITE							
LANDFOR	RM															
Situation		В		Е	lement	VLF		Eros pat	Eros pattern LP			Pattern			SAN	
SLOPE																
Type		G	Ε		S	lope (%	<u>)</u>	1-3%			As	pect (°)	8	0	
SOILS																
Source	S	Relia	bility	L	Code	Α	Add data	-	ISB/I	/IU -	C	olour	В	Т	exture	F
GEOLOG	Υ	_														
Source O					iability	L		Code		F			Мар	Unit	Q	a
SPECHT STRUCTURE CODE Low Open Forest																
GROUND	(%)															
Litter			Rock			Bare	9		Cry	ptoph	yte			Veget	ation	
						gro	und									
RAINFOR	EST															
Struct.		-	Leaf		-	Lea	f fall	-	-	loor		-		In. G	-	-
Complexi	,		Size						(Comp				Forn	ns	
DISTURB	ANC	E														
Storm da	_			0				Road Wo					0			
(Proportion	on/A	ge)						(Proport	ion/Ag	e)						
Fire 0							Salinity					0				
(Proportion/Age/Height)																
	Logging (#) 0					Ringbarl		hinnin	g (#)		0					
Grazing						Feral Digging N										
Weeds (% Cover)				<5				Remnan	t				N			
Erosion (Type/Severity)				0												

SITE NUMBER		75 continued								
STRUCTURAL SUMMA	ARY									
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species						
Emergent	-	-	-	-						
Tree 1	6-13	7 78.5 Acacia disparrima Acacia leiocalyx (D) Melaleuca quinquenervia Melaleuca viridiflora								
Tree 2	2-5	4	0.5	Acacia dispari Acacia leiocal						
Tree 3										
Shrub 1				Lantana cama	nra*					
Shrub 2										
Ground/ vines/ epiphytes/ mistletoes										
BASAL AREA & STEM	COUNTS			<u> </u>						
Basal area for plot Volume/ha Stem count for plot (50X10m)										

Species	(50)	(10m)											
	E	T1	T2	T3	S1	T1	T2	E	T1	T2	T3	S1	S2
Acacia leiocalyx		5							13				
Acacia disparrima		1							3	2			
Acacia leiocalyx									8	1		3	1
Alphitonia excelsa									1				
Breynia oblongifolia													1
Corymbia clarksoniana									3				
Corymbia tessellaris										1			
Ficus opposita												2	
Lantana camara*													
Lithomyrtus obtusa													1
Melaleuca dealbata		1							1	1		2	
Melaleuca quinquenervia		1							3				

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	3.5	Melaleuca quinquenervia	T1
1.5	4.5	Acacia disparrima	T1
5.5	6	Melaleuca viridiflora	T2
6.5	11	Acacia leiocalyx	T1
6.5	8.5	Melaleuca quinquenervia	T1
11.5	13.5	Corymbia tessellaris	T1
14.5	18.5	Acacia leiocalyx	T1
19.5	29.5	Acacia leiocalyx	T1
29.5	33	Acacia disparrima	T1
33	37.5	Acacia leiocalyx	T1
37	46	Corymbia clarksoniana	T1
37.5	41.5	Acacia leiocalyx	T1
41	43	Acacia disparrima	T1
44	46.5	Acacia leiocalyx	T1
49	53	Acacia disparrima	T1
53.5	55	Acacia leiocalyx	T1
54	63	Acacia disparrima	T1
63	65	Acacia leiocalyx	T1
64.5	69	Alphitonia excelsa	T1
68	72	Acacia leiocalyx	T1
71.5	76.5	Alphitonia excelsa	T1
77.5	78.5	Acacia disparrima	T1
79.5	87.5	Acacia leiocalyx	T1
89.5	94.5	Acacia leiocalyx	T1
89.5	100	Acacia disparrima	T1

SITE NUMBER	77
LEVEL	2
DETAIL SP. LIST	Α
REGIONAL	
ECOSYSTEM	
DATE	16/2/11
RECORDER	David Francis &
	Dan Potter
LOCALITY	Great Keppel Island



							10/200	7 47 X 2	AVE DE	F T F 65	_0_QA		1137075			The second	N. C. C.
SITE DESC	RIP	TION	Acacia	leio	calyx clos	ed fore	st										
GENERAL	TON	TES															
COMMUNI	ΓΥ Α	REA (h	a)	^	50			COMMU	NITY W	IDTH	(m)		Not lir	near			
MAPPED (Curr	ent RE)		8	.3.13c/noi	n-rem		REFERE	NCE S	TE			no				
LANDFOR	VI																
Situation		В		Е	lement	PL	4	Eros pat	tern	LP			Patte	rn		PLA	
SLOPE																	
Туре		GI	E		S	lope (%)	1-3%			Ası	ect (°)	55	5		
SOILS																	
Source	S	Reliab	oility	L	Code	D	Add	-	ISB/N	U -	C	olour	D	To	exture	: I	
							data										
GEOLOGY																	
Source		0		Reli	iability	L		Code		F			Мар	Unit	С	CS	
SPECHT S	TRU	CTURE	CODE					Low Close	d Fores	t							
GROUND (%)																
Litter			Rock			Ва	re		Cry	ptoph	yte			Veget	ation		
						gro	ound										
RAINFORE	ST																
Struct.	-		Leaf		-	Le	af fall	-		loor		-		In. G	-	-	
Complexit			Size						C	omp				Form	ıs		
DISTURBA																	
Storm dam				0				Road Wo					0				
(Proportion	1/Ag	e)						(Proport	ion/Age	?)							
Fire				0				Salinity					0				
(Proportion		e/Heigh	it)					<u> </u>									
Logging (#)			0				Ringbarl		innin	g (#)		0				
Grazing				N				Feral Dig					N				
Weeds (%								Remnan	t				N				
Erosion (T	ype/	Severity	/)	0													

SITE NUMBER		77		continued
STRUCTURAL SUMMA	ARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	=	-	-
Tree 1	4-8	6	89	Acacia disparrima Acacia leiocalyx Melaleuca nervosa
Tree 2	2-3.5	2.5	1	Acacia disparrima Acacia leiocalyx Melaleuca nervosa
Tree 3				
Shrub 1				Lantana camara*
Shrub 2				
Ground/ vines/ epiphytes/ mistletoes				Megathyrsus maximus* Stephania japonica Stylosanthes humilis

							Triumfetta rho	mboid	dea					
BASAL AREA & STEM COU	NTS													
Species		al area (10m)	for p	lot		Volume/ha		Stem count for plot (50X10m)						
	Е	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2	
Acacia disparrima		9												
Acacia leiocalyx		40	14		2									
Melaleuca nervosa		6	11											

CANOPY COVER DATA (1			
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	13	Acacia leiocalyx	T1
15.5	20	Acacia leiocalyx	T1
20.5	27.5	Acacia disparrima	T1 T1
25.5	29	Melaleuca nervosa	
25	30	Acacia leiocalyx	T1
30.5	31	Melaleuca nervosa	T1
305	34.5	Acacia disparrima	T1
36	41	Acacia leiocalyx	T1
44	46.5	Melaleuca nervosa	T1
49	54	Acacia leiocalyx	T1
54.5	60	Corymbia tessellaris	T1
55	56	Melaleuca nervosa	T2
56	61	Acacia leiocalyx	T1
61	63	Melaleuca nervosa	T1
63	66.5	Acacia disparrima	T1
65	66.5	Acacia leiocalyx	T1
67	70	Corymbia tessellaris	T1
67	68.5	Acacia leiocalyx	T1
70.5	73	Melaleuca nervosa	T1
70.5	75	Corymbia tessellaris	T1
76	76	Melaleuca nervosa	T1
77.5	78.5	Alphitonia excelsa	T1
79	80	Acacia leiocalyx	T1
82	82	Corymbia tessellaris	T1
84	84	Alphitonia excelsa	T1
93	93	Acacia leiocalyx	T1
94	94	Alphitonia excelsa	T1

REFERENCE SITE FOR 8.1.1

SITE NUMBER	80
LEVEL	3
DETAIL SP. LIST	Α
REGIONAL	8.1.1
ECOSYSTEM	
DATE	16/2/11
RECORDER	David Francis &
	Dan Potter
LOCALITY	Great Keppel Island



						Not the second	1124	311	W 60	用三百二	- Sale	The second		
SITE DESCRIPT	TION	Tidal ma	angrove com	munity										
GENERAL NOT	ES													
COMMUNITY AI	REA (h	a)	>50ha			COMMU	NITY '	WIDT	ΓH (m	1)	Not li	near		
MAPPED (Curre	ent RE)		8.1.1			REFERE	NCE :	SITE		•	Υ			
LANDFORM			•											
Situation	V		Element	TDF		Eros pat	tern	L	.P		Patte	ern	T-	ΓID
SLOPE														
Туре	LE			Slope (%))	<1%				Aspect (P)	0		
SOILS	<u> </u>													
Source S	Reliat	oility L	Code	E	Add data	=	ISB/	MU.	-	Colour	K	Т	exture	F
GEOLOGY														
Source	0		Reliability	L		Code		В			Мар	Unit	Q	he/m
SPECHT STRUC	CTURE	CODE				-							-	
GROUND (%)														
Litter 0)	Rock	0	Bare		50	Cr	ypto	phyt	e 0		Vege	tation	50
RAINFOREST												L		
Struct		Leaf	-	Leaf	fall	-		Floo	r	-		In. G	ir	-
Complexity		Size						Com	р			Forn	ns	
DISTURBANCE														
Storm damage		C)			Road Wo	rks				0			
(Proportion/Age	e)					(Proporti	ion/A	ge)						
						Salinity					Υ			
Fire		C)			Sammity					T			
	e/Heigh	-)			Samily					Ť			
Fire	e/Heigh	-				Ringbark		Thinr	ning	(#)	0			
Fire (Proportion/Age	e/Heigh	t))					Thinr	ning	(#)	ļ .			
Fire (Proportion/Age Logging (#)		t))			Ringbark	ging	Γhinr	ning ((#)	0			

SITE NUMBER				80				contir	ued					
STRUCTURAL SUMMA	ARY													
Stratum	Height Ran Strata (m)	ge in		Media (m)	an Hei	ght	Cover (%) (100m transect)	Species						
Emergent	-			-			-	-						
Tree 1	2-5			3				Avicenna ma Rhizophora s			alyptif	olia		
Tree 2	-			-			-	-						
Tree 3	-			-			-	-						
Shrub 1	-			-			-	-						
Shrub 2	-			-			-	-						
Ground/ vines/ epiphytes/ mistletoes	-			-			-	-						
BASAL AREA & STEM	COUNTS													
Species			al area (10m)	a for p	lot		Volume/ha		Ste	m cou	ınt for	plot	(50X1	0m)
		E	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
Avicenna marina var. e	ucalyptifolia		1											
Rhizophora stylosa			1											

SITE NUMBER	₹	81												
LEVEL		2										A STATE		源治
DETAIL SP. LI	ST	Α				T	2000年	A	E V				PA.	No. II
REGIONAL ECOSYSTEM								1				Ve.		
DATE		16/2/	11			1		4		於增		THE VA	- C	192
RECORDER			d Franc Potter	cis &		4	197		To the					
LOCALITY				el Island				34					は何ノジン	
SITE DESCRIE		Loph	ostem	on suave	olens, Co	orymbia	clarksoniar	na, closed f	ores	st				
GENERAL NO	TES	Hear		idence sı	uggests tl	nat this a	area was fr	equently in	und	lated prior	to 1990's. I	No signs	s cur	rently
COMMUNITY	AREA	(ha)					COMMU	NITY WIDT	ГН (m)	Not linear	•		
MAPPED (Cur	rent R	E)	8.	11.10/8.	12.14 x 2	С	REFERE	NCE SITE						
LANDFORM														
Situation	D		E	lement	VLF		Eros pat	tern V	′L		Pattern		PL	A
SLOPE														
Туре		GE			Slope (%)	1-3%			Aspect (°	<u>'</u>	0		
SOILS														
Source S	Rel	iability	L	Code	Α	Add data	-	ISB/MU	-	Colour	1	Textu	re	F

Source	S	Relia	bility	L	Code	Α	Add data	-	ISB/	MU	-	Colour	I	Text	ure	F
GEOLOG	Υ						Julia		1				ı			
Source		0		Reli	ability	L		Code		F			Мар	Unit	Ccs	
SPECHT	STRU	ICTURE	CODE		-			Closed Fo	rest							
GROUND	(%)															
Litter			Rock			Bar gro	e und		Cr	ypto	ohyt	e		Vegetati	on	
RAINFOR	REST															
Struct.		_	Leaf		-	Lea	af fall	-		Floor	•	-		In. Gr		
Complex	ity		Size							Com	р			Forms		
DISTURB	ANC	Ε														
Storm da	mage)		0				Road Wo	orks				0			
(Proporti	on/Ag	je)						(Proport	ion/Aç	ge)						
Fire				0				Salinity					0			
(Proporti	on/Ag	je/Heigl	nt)													
Logging	(#)			0				Ringbar		Thinn	ing	(#)	0			
Grazing				N				Feral Dig	gging				N			
Weeds (%	6 Cov	er)						Remnan	t							
Erosion (Type/	Severit	y)	0												
· <u> </u>																
SITE NUM	ИBER				8	31					С	ontinued				
STRUCTI	JRAL	SUMM	ARY													
Stratum			Heig	ht Rai	nge N	/ledian H	leight	Cover	(%)	Spec	cies					

SITE NUMBER		81		continued
STRUCTURAL SUMM	ARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	=	=	-
Tree 1	8-13	12	88	Acacia disparrima (S) Corymbia clarksoniana (A) Lophostemon suaveolens (D)
Tree 2	3-7	5	38.3	Glochidion lobocarpum Glochidion sumatranum
Tree 3				
Shrub 1	1	1		Trema tomentosa
Shrub 2				
Ground/ vines/ epiphytes/ mistletoes				Ageratum houstonianum* Bidens bipinnata* Enteropogon unispiceus Flemingia parviflora

BASAL AREA & STEM COU	INITE						Hybanthus en Imperata cylir Oplismenus h Passiflora sub Stephania jap	ndrica irtellu perosa	S a*	S			
Species	Bas	al area	a for p	lot		Volume/ha		Ste	m cou	ınt foı	r plot	(50X1	Jm)
•	È	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
Acacia disparrima		2							1				
Banksia integrifolia										1			
Corymbia clarksoniana		6							3				
Eucalyptus platyphylla									1	1			
Ficus hispida												1	
Glochidion sumatranum										2			
Lophostemon suaveolens		11							3				
Planchonia careya		1							1	1			
Trema tomentosa												4	

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	13.5	Lophostemon suaveolens	T1
3	9.5	Acacia disparrima	T1
17	32	Planchonia careya	T1
19.5	27.5	Lophostemon suaveolens	T1
28	45	Lophostemon suaveolens	T1
33	35	Banksia integrifolia	T2
41	45	Planchonia careya	T2
42.5	47.5	Eucalyptus platyphylla	T1
44	74	Lophostemon suaveolens	T1
43.5	49.5	Glochidion sumatranum	T2
53	56	Acacia disparrima	T2
56.5	59	Glochidion lobocarpum	T2
59	61.5	Acacia leiocalyx	T2
61	63.5	Acacia disparrima	T2
69	71.5	Glochidion lobocarpum	T2
73	76.5	Acacia disparrima	T2
76	93.5	Lophostemon suaveolens	T1
81.5	85.3	Acacia disparrima	T2
82.5	84	Glochidion sumatranum	T2
86.5	90	Acacia disparrima	T2
94	96.5	Acacia disparrima	T2
97	100	Glochidion sumatranum	T2
98.5	100	Planchonia careya	T2

SITE NUMBER	85
LEVEL	2
DETAIL SP. LIST	A
REGIONAL	
ECOSYSTEM	
DATE	16/2/11
RECORDER	David Francis &
	Dan Potter
LOCALITY	Great Keppel Island



SITE DESC	RIP	TION	Acaci	a mix	a mixed low closed forest													
GENERAL I	10.	TES																
COMMUNIT	ΥA	REA (I	na)	>!	50			COMMUNIT	Y WID	ΓH (m))		Not li	near				
MAPPED (C				8.	11.3a			REFERENC	E SITE				N					
LANDFORM	1																	
Situation		Α		E	lement	FOC)	Eros pattern UL					Pattern			PL	A	
SLOPE																		
Type		G	<u> </u>		S	Slope (%	6)	1-3%			Asp	ect (°)		10			
SOILS																		
Source	3	Relial	oility	L	Code	K	Add data	-	ISB/M	U -	Co	lour	В		Textur	е	Α	
GEOLOGY																		
Source	Т	0		Rel	iability	L		Code O I						Map Unit Qa				
SPECHT STRUCTURE CODE								Low Closed F	orest									
GROUND (%	%)																	
Litter			Rock			Bare	е	Cryptophyte						Veg	etation			
						grou	und											
RAINFORE	ST																	
Struct.	-	-	Leaf		-	Lea	f fall	-		oor		-		ln.	_	-		
Complexity			Size			\perp			C	omp				Fo	rms	<u> </u>		
DISTURBA	_		T					T =										
Storm dama	_			0				Road Work	-				0					
(Proportion Fire	/Ag	je)						(Proportion	/Age)				_					
	//	(Aga/Haight)						Salinity					0					
(Proportion	_	je/neigi	111)	0				Ringbarkin	a /Thinr	ina /+	41		0					
Logging (#) Grazing				N						iiig (#	†)		N				-	
Weeds (% C	`^'	or)		<5				Feral Digging Remnant					N					
Erosion (Ty			·v)	0				Neilliant N					-					
LI USIUII (I)	he	Seveni	.y <i>j</i>	U				1										

SITE NUMBER		85		continued
STRUCTURAL SU	UMMARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	=	=	-	-
Tree 1	3-10	6	88.5	Acacia disparrima (S) Acacia leiocalyx (D) Alphitonia excelsa (S) Corymbia clarksoniana (S)
Tree 2		2		Acacia disparrima Acacia leiocalyx Alphitonia excelsa Lophostemon suaveolens
Tree 3				
Shrub 1			1.5	Alphitonia excelsa

Shrub 2															
Ground/ vines/							Ageratum hou	ıstonia	anum*						
epiphytes/ mistletoes							Bracteantha b	racte	ata						
							Brunoniella au	ıstrali	S						
							Cheilanthes s	ieberi							
							Cymbopogon	refrac	ctus						
							Enteropogon	unispi	ceus						
							Epaltes austra	alis .							
							Eriachne palle	escen	S						
							Gahnia aspera	а							
							Glycine tomer	ntella							
							Leptochloa decipiens var. decipiens								
							Melinis multiflora*								
							Murdannia gra	amine	а						
							Pandorea par	idorar	na						
							Panicum effus	sum							
							Passiflora sub	erosa	?*						
							Phyllanthus vi		S						
							Sida cordifolia	*							
							Sida rhombifo	lia*							
							Stephania jap								
				Triumfetta rho		dea									
							Vernonia cinerea								
BASAL AREA & STEM COL	_														
		al area	for p	lot		Volume/ha		Ste	m cou	ınt foı	plot	(50X1	0m)		
Species		(10m)													
	E	T1	T2	T3	S1	T1	T2	Е	T1 6	T2	T3	S1	S2		
Acacia disparrima	2														
Acacia leiocalyx		5					38 6 7								
Alphitonia excelsa									2						
Corymbia clarksoniana		1							5			1			
Ficus opposita															

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	1	Acacia disparrima	T1
0	4.5	Alphitonia excelsa	T1
3	7	Corymbia clarksoniana	T1
4.5	12	Acacia leiocalyx	T1
13	24.5	Acacia disparrima	T1
25	39	Acacia leiocalyx	T1
36	40.5	Corymbia clarksoniana	T1
43	51.5	Acacia disparrima	T1
49	54	Acacia leiocalyx	T1
55	56.5	Alphitonia excelsa	S1
56	61	Acacia disparrima	T1
58.5	63	Corymbia clarksoniana	T1
63	72	Acacia disparrima	T1
69.5	77	Corymbia clarksoniana	T1
73	78.5	Acacia leiocalyx	T1
83.5	86	Corymbia clarksoniana	T1
86.5	100	Acacia disparrima	T1
91	96.5	Corymbia clarksoniana	T1

SITE NUMBER	114
LEVEL	2
DETAIL SP. LIST	Α
REGIONAL	
ECOSYSTEM	
DATE	17/2/11
RECORDER	David Francis &
	Dan Potter
LOCALITY	Great Keppel Island



					0.08	D. REAL S		Mr. Sala	301 - 33					1	A CENTRAL		
SITE DESCR		Melale	ıca qu	inquene	ervia and	Eucaly	ptus robust	a clos	ed for	est.							
GENERAL N																	
COMMUNITY	' AREA (ŀ	na)					COMMU	NITY '	WIDT	H (m)		Not lir	near				
MAPPED (Cu	ırrent RE)	8.3.	.13c			REFERE	NCE :	SITE			Υ					
LANDFORM																	
Situation	Е		Ele	ment	STB		Eros pat	Eros pattern GP					rn	P	LA		
SLOPE																	
Туре	G	iΕ		S	lope (%))	1-3%			As	spect (°)	31	0			
SOILS																	
Source S	Relia	bility	-	Code	Α	-	ISB/	MU	- 0	colour	I	Te	exture	F			
GEOLOGY						data		l .									
Source	0		Relial	bility	L		Code								l		
SPECHT ST		Closed Fo	rest														
GROUND (%)																
Litter		Rock			Bare			Cr	yptop	hyte			Vegeta	ation			
					grou	nd											
RAINFORES	T																
Struct.	-	Leaf		-	Leaf	fall	-		Floor		-		In. G		-		
Complexity		Size							Comp	<u> </u>			Form	S			
DISTURBAN																	
Storm dama			0				Road Wo					0					
(Proportion/	Age)						(Proport Salinity	ion/A	ge)								
Fire	0											0					
(Proportion/	Age/Heig						_										
Logging (#)			0				Ringbarl		hinn	ıng (#)	0					
Grazing			N				Feral Dig	<u>, </u>				N					
Weeds (% Co			<5				Remnan	t									
Erosion (Typ	e/Severit	y)	0														

SITE NUMBER		114		continued
STRUCTURAL SUM	MARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	10-15	12	90	Eucalyptus robusta Melaleuca quinquenervia Melaleuca viridiflora
Tree 2	5-9	6	14	Alphitonia excelsa Ficus hispida Macaranga tanarius Planchonia careya
Tree 3				
Shrub 1	3-4	3		Ficus hispida Lantana camara Livistona decora Timonius timon

Shrub 2	1-2			1										
Ground/ vines/	0.5-2			1.5				Bonamia med	lia					
epiphytes/ mistletoes								Bidens bipinn	ata*					
								Gahnia siebe	riana					
								Imperata cylir	ndrica					
								Megathyrsus						
								Oplismenus h		S				
								Ottochloa nod						
								Passiflora sul						
								Pteridium esc						
								Stephania jap						
								Triumfetta rho	ioama	aea				
BASAL AREA & STEM	COLIN	ITS												
BAGAE AREA & OTEM	0001		al area	for n	lot		Volume/ha		Ste	m cou	int for	nlot	(50X1)	0m)
Species			(10m)	o. p			Voidillo			000		p.o.	(00)(1)	J,
-	•	È	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
Alphitonia excelsa				1							1			1
Eucalyptus robusta			9							4				
Ficus opposita													1	1
Glochidion sumatranum											1			
Lantana camara													1	
Livistona decora													1	
Melaleuca quinquenervia	а		14											
Planchonia careya			1				l			1	1			1

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	8	Eucalyptus robusta	T1
5	8	Planchonia careya	T2
8.5	10.5	Melaleuca quinquenervia	T1
12.5	22.5	Melaleuca quinquenervia	T1
12.5	17	Alphitonia excelsa	T2
25	27	Eucalyptus robusta	T2
30	38	Melaleuca quinquenervia	T1
36.5	55.5	Eucalyptus robusta	T1
53	78.5	Melaleuca quinquenervia	T1
74	78.5	Alphitonia excelsa	T2
78.5	83	Eucalyptus robusta	T1
81	100	Melaleuca quinquenervia	T1

SITE NUMBER	118
LEVEL	2
DETAIL SP. LIST	Α
REGIONAL	
ECOSYSTEM	
DATE	17/2/11
RECORDER	David Francis &
	Dan Potter
LOCALITY	Great Keppel Island



SITE DESCRIPTION	Alphitonia	<i>excelsa</i> an	d <i>Acacia</i>	a disp	arrima low opei	n forest							
GENERAL NOTES													
COMMUNITY AREA (I	na)				COMMUNITY WIDTH (m)				Not linear				
MAPPED (Current RE	8	.11.10/8.12	2.14 x 2c)	REFERENC	E SITE							
LANDFORM													
Situation A	E	lement	PLA		Eros pattern	1	GP			Patte	rn	S	AN
SLOPE													
Туре		Sid	ope (%)		%			Asp	ect (°)	31	0	
SOILS													
Source S Relial	bility L	Code		Add data	-	ISB/MU	- ا	Col	lour	I	Те	exture	F
GEOLOGY				uutu									
Source O	Rel	liability	L		Code		=			Мар	Unit	Сс	:S
SPECHT STRUCTURE	CODE				Low Open For	est							
GROUND (%)													
Litter	Rock		Bare			Cryp	tophy	yte			Vegeta	ation	
			groun	nd		,, , ,							
RAINFOREST													
Struct	Leaf	-	Leaf f	fall	-	Flo	•		-		In. Gr		-
Complexity	Size					Co	mp				Form	s	
DISTURBANCE													
Storm damage	0				Road Works					0			
(Proportion/Age)					(Proportion/	Age)							
Fire (Proportion/Age/Heig	ht) 0				Salinity					0			
Logging (#)	0				Ringbarking	Ringbarking /Thinning (#)				0			
Grazing	N								N	N			
Weeds (% Cover)	-				Remnant								
Erosion (Type/Severit	t y) 0				Extensive C	learing			Υ				

SITE NUMBER		118 continued					
STRUCTURAL SUMMA	ARY						
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species			
Emergent	-	=	-	-			
Tree 1	4-10	6	73.5	Acacia disparrima (D) Alphitonia excelsa (A) Corymbia clarksoniana (S) Corymbia tessellaris (S)			
Tree 2	2-3	2		Alphitonia excelsa			
Tree 3							
Shrub 1	1-2	1		Lantana camara*			
Shrub 2	0.5-1	0.5		Lithomyrtus obtusa			

Ground/ vines/							Abrus precato	rius						
epiphytes/ mistletoes							Amyema cons		ous					
							Bidens bipinna							
							Cryptostegia g		iflora*					
							Eriachne palle							
							Hyptis suaved							
							Imperata cylin							
							Megathyrsus		nus*					
							Pandorea par							
							Passiflora sub							
							Sida cordifolia	*						
							Triumfetta rho	mboio	dea					
							Vernonia cine	rea						
BASAL AREA & STEM COU	BASAL AREA & STEM COUNTS													
	Basal area for plot					Volume/ha		Ste	m cou	count for plot (50X10m)				
Species	(50X10m)					1								
	(307	(TUM)												
,	E	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2	
Corymbia clarksoniana	_	T1 3	T2	T3	S1	T1	T2	Е	T1		T3	S1	S2	
-	_	T1	T2	Т3	S1	T1	T2	Е		T2	Т3	S1 2	S2	
Corymbia clarksoniana	_	T1 3	T2	Т3	S1	T1	T2	E	6 21 1		Т3		S2	
Corymbia clarksoniana Alphitonia excelsa	_	T1 3	T2	T3	S1	T1	T2	E	6		Т3	2	S2	
Corymbia clarksoniana Alphitonia excelsa Acacia disparrima	_	T1 3	T2	T3	S1	T1	T2	E	6 21 1		Т3	2	S2	
Corymbia clarksoniana Alphitonia excelsa Acacia disparrima Glochidion lobocarpum	_	T1 3	T2	T3	S1	T1	T2	E	6 21 1 2		T3	2 1 1	S2	
Corymbia clarksoniana Alphitonia excelsa Acacia disparrima Glochidion lobocarpum Allocasuarina littoralis	_	T1 3 6	T2	Т3	S1	T1	T2	E	6 21 1 2		T3	2 1 1	S2	
Corymbia clarksoniana Alphitonia excelsa Acacia disparrima Glochidion lobocarpum Allocasuarina littoralis Planchonia careya	_	T1 3 6	T2	T3	S1	T1	T2	E	6 21 1 2 10	7	T3	2 1 1	S2	
Corymbia clarksoniana Alphitonia excelsa Acacia disparrima Glochidion lobocarpum Allocasuarina littoralis Planchonia careya Acacia leiocalyx	_	T1 3 6	T2	T3	S1	T1	T2	E	6 21 1 2 10	7	T3	2 1 1 1 2	S2 1	

CANOPY COVER DATA (100m TRANSECT)									
Canopy Start (m)	Canopy finish (m)	Species	Strata						
0	3	Corymbia clarksoniana	T1						
1	11	Alphitonia excelsa	T1						
14.5	16	Corymbia clarksoniana	T1						
15.5	20	Alphitonia excelsa	T1						
20	25	Corymbia clarksoniana	T1						
24.5	28	Alphitonia excelsa	T1						
28.5	30	Alphitonia excelsa	T1						
30	30.5	Corymbia tessellaris	T1						
33.5	36	Allocasuarina littoralis	T1						
43.5	48.5	Allocasuarina littoralis	T1						
48.5	50.5	Alphitonia excelsa	T1						
51.5	54.5	Allocasuarina littoralis	T1						
62.5	66	Acacia disparrima	T1						
63	70	Allocasuarina littoralis	T1						
70	76.5	Corymbia clarksoniana	T1						
79.5	88	Alphitonia excelsa	T1						
84.5	90.5	Allocasuarina littoralis	T1						
90.5	96	Alphitonia excelsa	T1						
92	96	Planchonia careya	T1						
96	100	Allocasuarina littoralis	T1						

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Α
17/2/11
David Francis &
Dan Potter
Great Keppel Island
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							8 W. "			4		THE P	的黑	THE STREET	2000			
SITE DES	CRI	PTION	Allocas	suarir	na littorali	is low clo	sed for	est										
GENERA	L NC	TES																
COMMUN	IITY	AREA (h	na)					COMMU	NITY \	VIDT	ΓH (m)						
MAPPED	(Cui	rrent RE)	8.	.11.10/8.1	12.14 x 2	<u>2</u> c	REFERENCE SITE										
LANDFO	RM																	
Situation		1		E	lement	FOC)	Eros pat	ttern	U	JL_			Patte	rn		SA	۸N
SLOPE																		
Type		G	Ε			Slope (%	5)	3-10%				Aspe	ect (°))		330		
SOILS																		
Source	S	Relia	bility	L	Code	Α	Add data	-	ISB/	MU	-	Cole	our	I		Text	ure	F
GEOLOG	Υ																	
Source		0		Reli	ability	L		Code		F				Мар	Unit		Ccs	
SPECHT	STR	UCTURE	CODE					Low Close	d Fore	est								
GROUND	(%)																	
Litter			Rock			Baro			Cr	ypto	phy	rte			Veg	jetatio	on	
RAINFOR	EST																	
Struct. Complex	itv	-	Leaf Size		-	Lea	f fall	-		Floo Com	•		-			Gr	-	-
DISTURB		E	OIEC							<u> </u>	Υ				1.0	11113		
Storm da				0				Road Wo	orks					0				
(Proporti								(Proport	ion/Ag	qe)								
Fire				0				Salinity	•					0				
(Proporti	on/A	ge/Heigl	nt)															
Logging	(#)			0		•	•	Ringbarl		hinr	ning	(# <u>)</u>		0				
Grazing				N				Feral Dig	gging					N				
Weeds (%	6 Co	ver)		5				Remnan	t									
Erosion (Туре	e/Severit	y)	0														

SITE NUMBER		124 continued						
STRUCTURAL SUMM	ARY							
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species				
Emergent	-	15	-	-				
Tree 1	5-8	7	82	Acacia disparrima Acacia julifera Allocasuarina littoralis Corymbia clarksoniana				
Tree 2	2-4	3	1	Acacia disparrima Acacia julifera Alphitonia excelsa				
Tree 3								
Shrub 1	1-2	2		Alphitonia excelsa Corymbia clarksoniana				
Shrub 2	0.5-1	0.5		Corymbia clarksoniana Lithomyrtus obtusa				
Ground/ vines/ epiphytes/ mistletoes				Cyperus gracilis Digitaria ramularis				

							Enteropogon of Eriachne palle Opuntia stricte Ottochloa grad Passiflora sub Triumfetta rho	escen a* cillima perosa	s a a*				
BASAL AREA & STEM CO	UNTS												
Species		sal area X10m)	a for p	lot		Volume/ha Stem count for plo			plot	` ,			
	Е	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2
Acacia disparrima									1				
Acacia julifera		3							3	2			
Allocasuarina littoralis		11							19	1			
Alphitonia excelsa												1	
Corymbia clarksoniana		1							1	1		1	1
Corymbia tessellaris		1							1				
Lithomyrtus obtusa													2

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	1	Corymbia clarksoniana	T2
5.5	34	Allocasuarina littoralis	T1
25	29	Corymbia clarksoniana	T1
32	35.5	Corymbia tessellaris	T1
35.5	50	Corymbia clarksoniana	T1
50.5	54	Acacia disparrima	T1
56	59.5	Acacia disparrima	T1
59.5	82	Allocasuarina littoralis	T1
70.5	73.5	Acacia julifera	T1
70.5	73.5	Acacia disparrima	T1
81.5	82.5	Corymbia tessellaris	T1
84	86	Acacia julifera	T1
92.5	95	Corymbia tessellaris	T1
97	100	Alphitonia excelsa	T1

TERTIARY		
SITE NUMBER	132	
LEVEL	3	E
DETAIL SP. LIST	A	
REGIONAL ECOSYSTEM		1/44
DATE	17/2/11	
RECORDER	David Francis & Dan Potter	
LOCALITY	Great Keppel Island	



SITE DESCR	RIPT	ION	Eucaly	ptus	exserta ar	nd Lopho	ostemo	n confertus	low	forest							
GENERAL N	IOTE	ES															
COMMUNIT	Y AR	REA (ha	a)					COMMU	NIT	WID'	TH ((m)					
MAPPED (C	urre	nt RE)		8	3.11.10/8.12	2.14 x 20	С	REFERE	NCE	E SITE				N			
LANDFORM																	
Situation		F		Е	Element	HSL		Eros pat	tern	ı	JH			Patte	rn		HIL
SLOPE																	
Туре		VC	3		S	lope (%))	1-3%				Asp	ect (°)		30	
SOILS																	
Source S		Reliab	oility	L	Code	Q	Add	-	ISI	B/MU	-	Co	lour	K		Texture	e G
							data										
GEOLOGY																	
Source	`)		Rel	liability	L		Code		0				Мар	Unit	C	cs
SPECHT ST		TURE	CODE					-									
GROUND (%	6)																
Litter			Rock			Bare			(Crypto	ophy	/te			Veg	jetation	
						grou	nd										
RAINFORES	T							_									
Struct.	-		Leaf		-	Leaf	fall	-		Floo			-			Gr	-
Complexity			Size							Con	np				Fo	rms	
DISTURBAN								_									
Storm dama				0				Road Wo						0			
(Proportion/	Age)						(Proport	ion/	Age)							
Fire				0				Salinity						0			
(Proportion/	Age	/Heigh	_														
Logging (#)				N				Ringbarl			ning	j (#)		N			
Grazing				N				Feral Dig		g				N			
Weeds (% C				0				Remnan	t								
Erosion (Ty	oe/S	everity	')	0													

SITE NUMBER		132		continued
STRUCTURAL SUMM	ARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	=	-	-
Tree 1	1-3	2		Eucalyptus exserta Lophostemon confertus
Tree 2				Acacia leiocalyx Allocasuarina littoralis
Tree 3				
Shrub 1				
Shrub 2				
Ground/ vines/ epiphytes/ mistletoes				Aristida queenslandica var. queenslandica Abildgaardia ovata Fimbristylis cinnamometorum

BASAL AREA & STEM COU	NTS						Cymbopogon Eragrostis sor Tephrosia filip Themeda triar Xanthorrhoea	oria es ndra		3			
Species		al area (10m)	for p	Volume/ha		Ste	m cou	ınt for	plot	(50X10	0m)		
	Е	T1	T2	T3	S1	T1	T2	Е	T1	T2	Т3	S1	S2
Eucalyptus exserta		1											
Lophostemon confertus		1											

SITE NUMBER	140
LEVEL	2
DETAIL SP. LIST	A
REGIONAL	
ECOSYSTEM	
DATE	17/2/11
RECORDER	David Francis &
	Dan Potter
LOCALITY	Great Keppel Island
	1



					7396				STAN .	8 10					10		1	
SITE DESCR	RIPTION	Acacia	a disp	oarrima an	nd Acacia	a julifera	open fores	t										
GENERAL N	OTES																	
COMMUNIT		<u>, , , , , , , , , , , , , , , , , , , </u>					COMMU				m)		Not lir	near				
MAPPED (C	urrent R	E)	8	.11.10/8.1	2.14 x 2	С	REFERE	NCE	SITE									
LANDFORM																		
Situation	Т		E	lement	HSL		Eros pat	tern	U	JH			Patte	rn		HI	L	
SLOPE																		
Туре		VG		S	lope (%))	<1%				Asp	ect (°)		250			
SOILS																		
Source S	Rel	iability	L	Code	Α	Add	-	ISB	/MU	-	Co	lour	В		Text	ure	F	
GEOLOGY						data												
Source	0		Dali	iability	1	1	Code		ΙF				Мар	l lmi4		Ccs		
SPECHT ST	•	E CODE	Kei	іавіііцу	<u> </u>		Low Open	Foros					IVIAP	Unit		CCS	•	
GROUND (%		KE CODE					Low Open	roles	οl									
Litter) 	Rock		l	Bare	. 1		10.		d	40		П	\/aa	-4-4:	- T		
Litter		ROCK			grou	_		C	ypto	pny	te			veg	etati	on		
RAINFORES	T																	
Struct.	-	Leaf		-	Leaf	ffall	-		Floo	r		-		ln.	Gr		-	
Complexity		Size							Com	р				Fo	rms			
DISTURBAN	ICE																	
Storm dama	ge		0				Road Wo	orks					0					
(Proportion/	Age)						(Proport	ion/A	ge)									
Fire			0				Salinity						0					
(Proportion/	Age/Hei	ght)																
Logging (#)			0				Ringbarl	cing /	Thinn	ning	(#)		0					
Grazing			0				Feral Dig	ging					0					
Weeds (% C	over)		0				Remnan	t										
Erosion (Ty	oe/Seve	rity)	0															

SITE NUMBER		140 continued							
STRUCTURAL SUMM	ARY								
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species					
Emergent	-	=	-	-					
Tree 1	5-9	6	70.5	Acacia disparrima (D) Acacia julifera (C) Allocasuarina littoralis (C) Banksia integrifolia (S) Corymbia clarksoniana (S) Corymbia tessellaris (S)					
Tree 2	2-4	3	1.5	Alphitonia excelsa					
Tree 3									
Shrub 1	1-2	2		Alphitonia excelsa					
Shrub 2	0.5-1	0.5		Lithomyrtus obtusa					
Ground/ vines/ epiphytes/ mistletoes				Eriachne pallescens Lomandra leucocephala					

							Passiflor	a suberosa	*						
BASAL AREA & STEM CO	DUNTS														
Species		al area (10m)	for p	lot		Volume/ha	Stem count for plot (50X10m)								
	E	T1	T2	T3	S1	T1	T2	E	T1	T2	T3	S1	S2		
Acacia disparrima		3							10	1					
Acacia julifera		1							3			1			
Acacia leiocalyx												1			
Allocasuarina littoralis		1							3	1					
Alphitonia excelsa		2							2	3		8			
Banksia integrifolia		1							1						
Corymbia clarksoniana									3						
Corymbia tessellaris													1		
Lithomyrtus obtusa													75		

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	5	Acacia disparrima	T1
10.5	19	Acacia disparrima	T1
17.5	22	Banksia integrifolia	T1
20.5	25	Alphitonia excelsa	T1
31	51	Acacia disparrima	T1
49	50.5	Corymbia clarksoniana	T2
51	56	Allocasuarina littoralis	T1
64	66	Acacia disparrima	T1
66	70	Acacia julifera	T1
71	72	Alphitonia excelsa	T1
78	88	Allocasuarina littoralis	T1
84.5	85.5	Alphitonia excelsa	T2
90	92	Acacia julifera	T1
93	100	Allocasuarina littoralis	T1

REFERENCE SITE FOR 8.12.14

SITE NUMBER	142
LEVEL	2
DETAIL SP. LIST	A
REGIONAL	8.12.14
ECOSYSTEM	
DATE	17/2/11
RECORDER	David Francis &
	Dan Potter
LOCALITY	Great Keppel Island



						1		The same of		Page 2		The second	人强级				
SITE DES	CRIP	TION	Eucal	yptus	crebra c	pen fo	rest										
GENERA	L NO	TES															
COMMUN	IITY A	AREA (I	na)					COMMUNIT	TY WID	TH (m	1)		Not lin	near			
MAPPED	(Curi	ent RE)	8.	11.10/8.	12.14 x	2c	REFERENC	E SITI	E			Υ				
LANDFO	RM																
Situation		F		El	ement	HSI	L	Eros patter	'n	UH			Patter	rn	Н	IL	
SLOPE																	
Type		M	0			Slope (%)	10-32%			As	pect (°	')		240		
SOILS																	
Source	S	Relial	bility	Г	Code	Q	Add	-	ISB/N	ıU -	C	olour	1		Texture	E	
							data										
GEOLOG	Υ												•				
Source		0			ability	L		Code		0			Мар	Unit	: Cc	S	
SPECHT		JCTURE	CODI	Ε				Low Open Fo	rest								
GROUND	(%)																
Litter			Rock			Baı	-		Cry	/ptoph	yte			Veg	etation		
						gro	und										
RAINFOR	REST							_				_					
Struct.		-	Leaf		-	Lea	af fall	-	1 -	loor		-			Gr	-	
Complex			Size							Comp				Fo	rms		
DISTURB													•				
Storm da				0				Road Work	-				0				
(Proporti	on/Ag	je)						(Proportion	/Age)								
Fire				0				Salinity					0				
(Proporti		je/Heig	ht)					.			,,,,						
Logging	(#)			0				Ringbarking		ining ((#)		0				
Grazing				N				Feral Diggii	ng				N				
Weeds (%				-				Remnant									
Erosion (Type/	Severit	y)	0													

SITE NUMBER		142		continued
STRUCTURAL SUMMA	ARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	=	=	-
Tree 1	6-10	7	78.5	Eucalyptus crebra
Tree 2	2-5	3	10.5	Acacia disparrima Alphitonia excelsa Acacia leiocalyx
Tree 3				
Shrub 1	0.5-1	0.5		Acacia leiocalyx Alphitonia excelsa
Shrub 2				
Ground/ vines/ epiphytes/ mistletoes				Ageratum houstonianum* Digitaria ramularis

							Enteropogon										
							Glossocardia		!								
							Opuntia stricta	a*									
							Pandorea par										
							Passiflora sub	perosa	*								
							Pteridium esc	ulentu	ım								
							Scleria mackaviensis										
							Sida cordifolia	a*									
							Sida hackettia	ana									
							Tetrastigma n										
							Triumfetta rho	mboio	dea								
BASAL AREA & STEM (COUNTS	3															
	В	asal area	a for p	lot		Volume/ha		Ste	m cou	ınt foı	r plot	(50X1	0m)				
Species	(5	0X10m)															
	E	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2				
Acacia disparrima										1							
Acacia leiocalyx										4		4	1				
Alphitonia excelsa										6		23	2				
Eucalyptus crebra		8							9	5		4	1				

CANOPY COVER DATA (1	00m TRANSECT)		
Canopy Start (m)	Canopy finish (m)	Species	Strata
0	24	Eucalyptus crebra	T1
14	18	Acacia disparrima	T2
28	31	Alphitonia excelsa	T2
33	43	Eucalyptus crebra	T1
40.5	42.5	Acacia disparrima	T2
45	75.5	Eucalyptus crebra	T1
80	84	Eucalyptus crebra	T1
85	86.5	Alphitonia excelsa	T2
88	95	Eucalyptus crebra	T1
97	100	Eucalyptus crebra	T1

TERTIARY

Storm damage (Proportion/Age)

(Proportion/Age/Height)

Logging (#)
Grazing
Weeds (% Cover)
Erosion (Type/Severity)

REFERENCE	SITE FO	OR 8.11.9	a							
SITE NUMBER	165									
LEVEL	3									
DETAIL SP. LIST	Α									60
REGIONAL ECOSYSTEM	8.11.9	а								And .
DATE	18/2/1	1								
RECORDER	Dan P		e de			7				
LOCALITY		Keppel Island								
SITE DESCRIPTION GENERAL NOTES	V Grassl	land								
	\	С		COMMU	WITY WIDTH	/mm\		_		
COMMUNITY ARE					NITY WIDTH NCE SITE	(m)		D Y		
MAPPED (Current LANDFORM	KE)	8.11.9a		KEFEKE	NCE SITE			Y		
Situation N		Flomont	PLA	- Erec not	1aun	JH		Pattern	HI	1
SLOPE		Element	PLA	Eros pat	tern	UΠ		Pattern		<u>L</u>
	GE		1000 (0/)	3-10%		Ι Δ.		<u> </u>	1440	
Type SOILS	GE		lope (%)	3-10%		AS	spect (°)	140	
	liability	L Code		Add -	ISB/MU	- C	olour	K	Texture	G
GEOLOGY									_	
Source O		Reliability	L	Code	0			Map Uı	nit Ccs	
SPECHT STRUCTU	IRE CODE			-	, -				,	
GROUND (%)										
Litter	Rock		Bare ground	d	Crypto	phyte		٧	egetation	
RAINFOREST										
Struct Complexity	Leaf Size	-	Leaf fa	all -	Floo Con		-		n. Gr Forms	-
DISTURBANCE										
Storm domogo				Dood Wa	wl.o					

SITE NUMBER		165		continued
STRUCTURAL SUMM	ARY			
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species
Emergent	-	-	-	-
Tree 1	-	-	-	-
Tree 2	-	-	-	-
Tree 3	-	-	-	-
Shrub 1	-	-	-	-
Shrub 2	-	-	-	-
Ground/ vines/ epiphytes/ mistletoes	0-1	0.5		Acacia leiocalyx Ageratum houstonianum* Aristida warburgii

Road Works (Proportion/Age)

Ringbarking /Thinning (#) Feral Digging Remnant

Salinity

Bothriochloa pertusa*
Cassytha filiformis
Centella asiatica
Crotalaria montana
Emilia sonchifolia*
Epaltes australis
Evolvulus alsinoides
Glossocardia bidens
Heliotropium pauciflorum
Hibbertia vestita
Hybanthus enneaspermus
Leucopogon leptospermoides
Lomandra confertifolia subsp. pallida
Pseuderanthemum variable
Pteridium esculentum
Richardia brasiliensis
Solanum ellipticum
Sida cordifolia*
Stachytarpheta jamaicensis *
Zornia dyctiocarpa

SITE NUMBER	167
LEVEL	2
DETAIL SP. LIST	Α
REGIONAL	
ECOSYSTEM	
DATE	18/2/11
RECORDER	David Francis &
	Dan Potter
LOCALITY	Great Keppel Island
	• •



SITE DES	CRI	PTION	Acac	ia leid	ocalyx an			noluccana forest	1										
GENERA	L NC	TES	Trans	ect te	erminates	at a fe	nce tha	t runs east to w	/est										
COMMUN	IITY	AREA (ha)					COMMUNIT	Y WIDT	H (m)									
MAPPED	(Cui	rent RE	:)	8.	.11.3a			REFERENC	REFERENCE SITE										
LANDFO	RM																		
Situation A			Е	lement	PLA		Eros pattern	1	GP			Patte	rn		PLA				
SLOPE																			
Type		V	G			Slope (%	6)	1-3%			Asp	ect (°)		30				
SOILS																			
Source	S	Relia	bility	L	Code	Α	Add	-	ISB/M	U -	Co	olour	I		Textur	е	F		
							data												
GEOLOGY																			
Source		0			iability	L		Code						Map Unit Ccs					
SPECHT		UCTUR	E COD	<u> </u>				Low Open For	est										
GROUND	(%)																		
Litter			Rock	Bare				Cryptophyte					Veg	etation					
						gro	und												
RAINFOR	EST		1																
Struct.		-	Leaf		-	Lea	f fall	-		oor		-			Gr	-			
Complexi		_	Size						C	omp				Fo	rms	<u> </u>			
DISTURB								T =					_						
Storm da				0				Road Works					0						
(Proportion	on/A	ge)		•				(Proportion/	Age)										
Fire	/ A	// 1 - !		0				Salinity					0						
(Proportion/Age/Height)								Discoula and discoul							1				
Logging (#)			0 N					Ringbarking /Thinning (#)						0				
Grazing	/ Ca								Feral Digging						N				
Weeds (%			4	<5				Remnant											
Erosion (т уре	e/Severi	ty)															I.	

SITE NUMBER		167	167 continued									
STRUCTURAL S	UMMARY											
Stratum	Height Range in Strata (m)	Median Height (m)	Cover (%) (100m transect)	Species								
Emergent	-	=	-	-								
Tree 1	5-10	6	69.5	Acacia leiocalyx Alphitonia excelsa Eucalyptus moluccana Lophostemon suaveolens								
Tree 2	2-4	3	4	Acacia leiocalyx Melaleuca nervosa								
Tree 3												
Shrub 1												
Shrub 2												

Ground/ vines/ epiphytes/ mistletoes							Mitrasacme py Polygala sp (a Sida cordifolia	unispi elis escens icular chotol drica fertifo gmae ff. line *	priceus ns aris oma a ifolia subsp. pallida aeea nearifolia 'd') rem count for plot (50X10m) T1 T2 T3 S1 S2 1 12 12 5 1 1 1 1 1 1 6 3 2								
BASAL AREA & STEM COU	NTS						Sida atheroph	ora									
Species	Bas	al area (10m)	for p	lot		Volume/ha	Stem count for plot (50X10m)										
•	È	T1	T2	T3	S1	T1	T2	Е	T1	T2	T3	S1	S2				
Acacia leiocalyx			1						1	12		12	5				
Alphitonia excelsa						<u> </u>			1			1	1				
Corymbia clarksoniana									1	6		3	2				
Eucalyptus moluccana		2							11								
Lophostemon suaveolens									1								
Melaleuca nervosa										3		3					

Canopy Start (m)	Canopy finish (m)	Species	Strata
0	18.5	Eucalyptus moluccana	T1
16.5	20	Lophostemon suaveolens	T1
20	26	Eucalyptus moluccana	T1
26.5	29.5	Acacia leiocalyx	T1
31	32	Acacia leiocalyx	T1
35	43	Acacia leiocalyx	T1
43.5	44.5	Melaleuca nervosa	T2
44	45	Acacia leiocalyx	T2
45	46	Eucalyptus moluccana	T2
47.5	48.5	Eucalyptus moluccana	T2
50	50.5	Alphitonia excelsa	T2
53.5	55.5	Eucalyptus moluccana	T1
55	71	Alphitonia excelsa	T1
56.5	60	Acacia leiocalyx	T1
79	81.5	Eucalyptus moluccana	T1
81.5	92	Alphitonia excelsa	T1
99	100	Acacia leiocalyx	T1

APPENDIX C – Quaternary Sites

Number	Tree1i	Tree1ii	Tree1iii	Tree1iv	Tree1v	Tree1vi	Tree2i	Tree2ii	Tree2iii	Tree2iv	Tree2v	Tree2vi	Shrub1i	Shrub1ii	Shrub2i	Shrub2ii	Ground	T1 Ht	Geology	Notes
	1	ı	1	1	1	ı		1	ı	I		ı	ı	1	ı			Ī	1	Í
3	Lophostemon confertus	Melaleuca quinquenervia	Eucalyptus tereticornis				Planchonia careya	Alphitonia excelsa	Allocasuarina littoralis											
4	Corymbia clarksoniana	Eucalyptus crebra	Lophostemon confertus				Petalostigma pubescens													
5	Allocasuarina littoralis	Alphitonia excelsa	Banksia integrifolia	Acacia julifera																Possibly historically cleared
6	Corymbia clarksoniana						Leptospermum neglectum	Banksia integrifolia	Grevillea banksii				Breynia oblongifolia		Lithomyrtus obtusa		Triumfetta rhomboidea			
7	Alphitonia excelsa	Allocasuarina littoralis	Acacia disparrima	Trema tomentosa				g					- sarangaan							
•		intorans	изратта	tomentosa			A1 1 %	5	5 .											
8	Corymbia clarksoniana						Alphitonia excelsa	Banksia integrifolia	Drypetes deplanchei								Xanthorrhoea latifolia, Jasminum didymum			
10	Corymbia clarksoniana						Trema tomentosa	Acronychia laevis									Vernonia cinerea	20		
																	Heteropogon contortus, Dianella rara,			
11	Corymbia citriodora	Eucalyptus portuensis															Arundinella nepalensis, Brunoniella australis, Glycine tomentella			
12	Corymbia citriodora	Melaleuca nervosa																		
13	Allocasuarina littoralis	Eucalyptus platyphylla																		Disturbed
14	Melaleuca quinquenervia	Corymbia tessellaris	Banksia integrifolia	Melaleuca dealbata	Planchonia careya								Lantana camara				Pteridium esculentum, Cryptostegia grandiflora,		Sand	Rubber vine abundant
	Corymbia clarksoniana	Corymbia tessellaris					Acacia disparrima	Arytera divaricata									Cryptostegia grandiflora			
16	Corymbia	Corymona tecconamo					Glochidion lobocarpum	arrarroata									eryptostogia granamera			
	Lophostemon						ююсагрип													
	suaveolens Corymbia	Corymbia					Allocasuarina	Pouteria												
18	Allocasuarina	clarksoniana					littoralis	sericea					Clerodendrum							
19	littoralis	Acacia disparrima											floribundum						Sand	
00	Allocasuarina	Alabitaria assalta	Annais indifferen	Banksia									Acacia leiocalyx subsp.				Wahlenbergia gracilis, Sida cordifolia, Ageratum houstonianum, Emilia sonchifolia*, Perotis rara, Amyema conspicuosa, Chenopodium carinatum, Poranthera microphylla, Vittadinia dissecta var. hirta, Chenopodium carinatum			
20	littoralis	Alphitonia excelsa	Acacia julifera	integrifolia									leiocalyx				Спепоровит саппашт			
21	Eucalyptus portuensis	Drypetes deplanchei	Ficus obliqua	Pouteria sericea	Euroschin us falcatus												Desmodium gunnii, Oplismenus aemulus, Eustrephus latifolius, Adiantum hispidulum, Gahnia aspera, Drynaria sparsisora, Cheilanthes sieberi, Brunoniella australis			
	Corymbia		Allocasuarina	sericea	us iaicaius	sparsisora														
	clarksoniana Corymbia	Corymbia tessellaris	littoralis				Alphitonia	Planchonia					Alyxia				Cryptostegia grandiflora			
23	clarksoniana						excelsa	careya					ruscifolia				Ipomoea pes-caprae, Hibbertia scandens, Opuntia stricta*, Cynodon			
																	dactylon, Imperata cylindrica, Stephania japonica, Hyptis suaveolens*, Billardiera scandens, Cryptostegia grandiflora*, Lantana camara*, Sida cordifolia*, Boerhavia pubescens, Triumfetta rhomboidea, Mukia maderaspatana*, Ageratum houstonianum*, Heteropogon contortus, Vittadinia dissecta var.			
24							1									+	hirta, Evolvulus alsinoides			No trees; photo with goats
26	Allocasuarina littoralis	Acacia leiocalyx	Melaleuca nervosa														Lomandra confertifolia subsp. pallida, Hibbertia stricta, Themeda triandra, Hibbertia scandens, Ageratum houstonianum, Ipomoea pes-caprae, Vernonia cinerea, Gahnia aspera, Stylosanthes humilis*, Pterocaulon esculentum, Crotalaria montana, Velleia paradoxa		Metasediment	Wind sheared vegetation
28	Allocasuarina	Lophostemon suaveolens	Banksia integrifolia	Acacia leiocalyx	Acronychia laevis								Lithomyrtus obtusa				Pandorea pandorana, Cryptostegia grandiflora		Sand	Abundant Rubber Vine
	Corymbia clarksoniana	Allocasuarina littoralis	Acacia disparrima	Alphitonia excelsa									Lithomyrtus obtusa				g. 2.10mora	5	Sand	Max 6m, Median 5m, Min 3m; felled logs everywhere
30 32a	Corymbia clarksoniana	Allocasuarina littoralis	Banksia integrifolia	Acacia leiocalyx	Glochidion lobocarpum								Jacksonia scoparia				Lomandra confertifolia, Gahnia aspera, Enteropogon unispiceus, Emilia sonchifolia, Evolvulus pilosus, Crotalaria montana	5	Saliu	logs everywhere Wind sheared top of headland
32a 32b	Eucalyptus	Eucalyptus crebra	Lophostemon confertus	івіосаїух	ююсагрит			1					всорана				Grotalaria mofitafia	6 to 7	Metasediment	Wind sheared top of headland Wind sheared; gully

Number	Tree1i	Tree1ii	Tree1iii	Tree1iv	Tree1v	Tree1vi Tree2i	Tree2ii	Tree2iii	Tree2iv	Tree2v	Tree2vi	Shrub1i	Shrub1ii Shrub2i	Shrub2ii	Ground	T1 Ht	Geology	Notes
		1			1				1	1	1							1
33	Eucalyptus portuensis	Allocasuarina littoralis										Xanthorrhoea latifolia					Metasediment	Wind sheared
34	Lophostemon confertus	Eucalyptus portuensis				Pouteria sericea	Jagera pseudorhus	Drypetes deplanchei				Scolopia braunii			Drynaria rigidula, Entolasia stricta,			
36	Corymbia clarksoniana	Mallotus discolor	Lophostemon confertus	Lophostemon suaveolens	Glochidion lobocarpum										Adiantum hispidulum			
37	Corymbia clarksoniana	Eucalyptus portuensis	comortac	Saarosions	iobodaipam	Planchonia	Pittosporum	Drypetes	Diospyros	Acronychia		Wikstroemia indica			Triumfetta rhomboidea			
	Corymbia	,	Eucalyptus	Eucalyptus		careya	ferrugineum	deplanchei	geminata	laevis		indica						
38	clarksoniana	Corymbia tessellaris	portuensis	platyphylla											Stachytarpheta jamaicensis Achyranthes aspera, Evolvulus			
39	Lophostemon suaveolens	Melaleuca dealbata	Corymbia tessellaris	Eucalyptus portuensis	Alphitonia excelsa										alsinoides, Macroptilium atropurpureum*			
															Triumfetta rhomboidea, Cryptostegia			
40	Melaleuca quinquenervia	Melaleuca dealbata				Livistona decora	Acacia leiocalyx	Acacia disparrima							grandiflora*, Bidens pilosa*, Ageratum houstonianum*, Sida rhombifolia, Sonchus oleraceus*		Sand	Disturbed
	Corymbia citriodora															18	Cana	5.000.500
	Lophostemon															16		
43	confertus Eucalyptus	Ficus virens Lophostemon				Drypetes	Glochidion											Gully
44	camaldulensis Lophostemon	suaveolens Corymbia	Corymbia			deplanchei	sumatranum	Ficus obliqua										Creek
45	suaveolens Melaleuca	clarksoniana	tessellaris Banksia			Damatas	Acacia	Alphitonia									Sand	Looks remnant
47	quinquenervia	Melaleuca dealbata	integrifolia			Drypetes deplanchei	disparrima	excelsa										
49	Melaleuca quinquenervia					Acacia disparrima	Alphitonia excelsa	Planchonia careya	Breynia oblongifolia						Cryptostegia grandiflora	7	Sand	
51	Eucalyptus crebra					Acacia leiocalyx	Alphitonia excelsa								Passiflora foetida, Cassytha filiformis		Metasediment	
52	Eucalyptus crebra					Acacia leiocalyx											Metasediment	Remnant
54	Eucalyptus crebra	Alphitonia excelsa														8	Metasediment	Large rock outcrops
55	Melaleuca viridiflora	Acacia leiocalyx														5		
	Corymbia					Acacia	Aphananthe									3		
57	tessellaris Corymbia	Melaleuca dealbata Eucalyptus	Alphitonia			leiocalyx	philippinensis											T1 sparse; abundant Acacia
58	clarksoniana Lophostemon	camaldulensis	excelsa Eucalyptus	Corymbia											Parsonsia plaesiophylla			
62	confertus	Eucalyptus crebra	portuensis	citriodora												8	Metasediment	
63	Eucalyptus crebra	Lophostemon confertus	Eucalyptus portuensis	Corymbia clarksoniana								Jacksonia scoparia	Xanthorrhoea latifolia			7		
	Corymbia		portuorioro	olarnoomaria.								осорила	idinona .			16		
	citriodora Eucalyptus	Eucalyptus crebra														16		
	Eucalyptus		Lophostemon	Corymbia														
66	exserta Lophostemon	Eucalyptus crebra	confertus Corymbia	citriodora Corymbia		Acacia julifera Grevillea						Jacksonia				7		
67	confertus Corymbia	Eucalyptus crebra	clarksoniana	citriodora		banksii						scoparia						
68	citriodora											last i						
69	Corymbia citriodora	Alphitonia excelsa										Jacksonia scoparia						Appears disturbed
70	Eucalyptus moluccana	Melaleuca quinquenervia										1						Remnant
71	Casuarina equisetifolia	Vitex trifolia																
72	Casuarina equisetifolia					Drypetes deplanchei												
73	Casuarina equisetifolia														Spinifex sericea, Canavalia rosea			
	Eucalyptus crebra	Agranushia kassis	Diospyros geminata	Ficus	Pouteria													
		Acronychia laevis	Ficus	platypoda Acronychia	sericea							†			Heteropogon contortus			
75	Pouteria sericea Melaleuca	Diospyros	rubiginosa Timonius	laevis Melaleuca		Planchonia	Glochidion								Drynaria rigidula, Trophis scandens			
76	quinquenervia	Corymbia tessellaris Corymbia	timon Banksia	dealbata		careya	lobocarpum								Sporobolus africanus			
77	Corymbia tessellaris	clarksoniana	integrifolia					1				1			Hyparrhenia rufa, Melinis minutiflora			
78	Corymbia tessellaris	Corymbia clarksoniana										1			Crotalaria medicaginea var. neglecta			
79	Corymbia clarksoniana	Allocasuarina littoralis	Banksia integrifolia			Leptospermui neglectum	n Alphitonia excelsa	Acacia julifera				1				8		

Number	Tree1i	Tree1ii	Tree1iii	Tree1iv	Tree1v	Tree1vi	Tree2i	Tree2ii	Tree2iii	Tree2iv	Tree2v	Tree2vi	Shrub1i	Shrub1ii	Shrub2i	Shrub2ii	Ground	T1 Ht Geology	Notes
i		İ	İ	i	Í	Ī	İ	i	Ī	ı	ı	1	i i		Ī	Ĭ	1	1 1	1
80	Corymbia tessellaris	Corymbia clarksoniana															Dianella caerulea	10	
81	Corymbia tessellaris	Banksia integrifolia	Allocasuarina littoralis	Acacia julifera															
82	Corymbia clarksoniana						Leptospermum neglectum	Allocasuarina littoralis									Boronia occidentalis		Previously cleared
83	Corymbia clarksoniana						Planchonia careya	Grevillea banksii	Pelatostigma pubescens				Xanthorrhoea latifolia				Lomandra leucocephala		Remnant
84	Corymbia tessellaris	Mallotus discolor							·								Oplismenus aemulus, Jasminum simplicifolium		
85	Corymbia clarksoniana																	11 Sand	
86	Corymbia clarksoniana																	11 Sand	
	Allocasuarina	Alabitania	Banksia																Davidous la sant d
87	littoralis Corymbia	Alphitonia excelsa	integrifolia															5 Sand	Previously cleared
90	intermedia						Acacia julifera						Hibiscus				Catharanthus roseus, Thunbergia		
91	Acacia salicina Melaleuca												tiliaceus				alata Agave vivipara, Macroptilium atropurpureum, Duranta erecta,		All planted in resort area Cleared with scattered large
92	quinquenervia	Melaleuca dealbata															Chloris inflata, Megathyrsus maximus		Melaleucas
93	Melaleuca dealbata												Senna occidentalis						
94	Lophostemon suaveolens	Corymbia clarksoniana					Dodonaea viscosa	Leptospermum neglectum	Acacia julifera										
	Eucalyptus	Melaleuca	Lophostemon	Lophostemon															
95	camaldulensis Corymbia	quinquenervia	suaveolens	confertus			Livistona												
96	clarksoniana Corymbia	Corymbia citriodora					decora Alphitonia											Sand	
97	clarksoniana Corymbia						excelsa										Pseuderanthemum variabile		
100	clarksoniana Corymbia	Corymbia tessellaris	Allocasuarina															18	Surrounded by disturbance
101	clarksoniana Corymbia	Banksia integrifolia Leptospermum	littoralis Allocasuarina	Acacia julifera	Grevillea	Banksia												7	
102	clarksoniana	neglectum	littoralis	Acacia julifera	banksii	integrifolia												6	
104	Araucaria cunninghamii	Cocos nucifera	Corymbia tessellaris	Melaleuca dealbata			Schefflera actinophylla	Delonix regia											Norfolk Island Pine is planted
104	Garringrami	Cooce nacional	tododiiano	doubata			иотпортупа	Dolorlix regia											Noticik Island I line to planted
					Plumeria rubra,														
					Alphitonia excelsa,												Cryptostegia grandiflora*, Thunbergia		
	Corymbia tessellaris	Syagrus	Melaleuca quinquenervia	Araucaria heterophylla Wodyotia	Ficus benjamina, Schefflera		Glochidian	Pongamia		Cupaniopsis			Rougenvilles	Tocomo	Banksia integrifolia	Brownia	alata*, Chrysalidocarpus lutescens, Sphagneticola trilobata*, Thevetia		
Resort	Corymbia clarksoniana	romanzoffiana, Cocos nucifera*	Melaleuca dealbata	Wodyetia Bifurcata	digitata*		Glochidion sumatranum	pinnata (planted)	Pinus sp.*	anacardioide s			Bouganvillea sp.*	Tecoma stans*	Hibiscus (cultivar)	Breynia oblongifolia	peruviana, Duranta erecta, Sporobolus indicus*, Rhoea disclor*		

ID	Tree1i	Tree1ii	Tree1iii	Tree1iv	Tree1v	Tree1vi	Tree2i	Tree2ii	Tree2iii	Tree2iv	Tree2v	Tree2vi	Shrub1i	Shrub1ii	Shrub1iii	Shrub1iv	Shrub1v	Shrub2i	Shrub2ii	shrub 2iii	Ground	T1 ht	Geology	Notes
1	Melaleuca dealbata						Acacia disparrima	Dodonaea viscosa					Cassia coluteoides *								Megathyrsus maximus*, Euphorbia cyathophora*	15	not wetland soil	T1 14-18m, T2 3-5m median 4m. S1 1-2m
2	Acacia disparrima	Allocasuarina littoralis	Alphitonia excelsa				Dodonaea viscosa						Hibbertia linearis var. floribunda									4		Ecotone of mangrove and marine couch with terrestrial approx 5-7m rise above marine. T1 3-5m T2 2m
3 4	Corymbia intermedia Melaleuca quinquenervia	Corymbia clarksoniana Excoecaria agallocha	Planchonia careya	Acacia julifera			Dodonaea viscosa Melaleuca quinquenervia						Cyclophyllum coprosmoides	Jasminum didymum							Fimbristylis ferruginea,	5	Dark soil to 30cm, mild	T1 4-8m T2 2m T1 5-8m, T2 3- 4m med 3m
5	Eucalyptus	Melaleuca					Planchonia	Acacia					Lantana								Leersia hexandra, Paspalum argentum Megathyrsus	10	anaerobic smell 2cm humic	T1 8-13, T2 2-6
	moluccana	quinquenervia					careya	disparrima					camara*								maximus* and Cyperus difformis		material, mottling 30cm. Fine grained sediment (not clay), moist through profile.	med 6, S1 1m.
6	Melaleuca quinquenervia	Eucalyptus camaldulensis (S)																				15	2cm humic material, mottling 30cm. Fine grained sediment (not clay), moist through profile.	T1 12-18m.
7	Melaleuca quinquenervia	Melaleuca dealbata					Planchonia careya	Acacia julifera	Banksia integrifolia												Imperata cylindrica, Cynodon dactylon	17	Grey wet sand to dept, no peat, no anaerobic smell	T1 11-19m, T2 3-8m med 6m. NB culvert under road
8	Melaleuca quinquenervia	Melaleuca dealbata					Planchonia careya	Acacia julifera	Banksia integrifolia												Imperata cylindrica, Cynodon dactylon		No organic at surface. Grey throughout profile, anaerobic smell	
9	Corymbia tessellaris	Melaleuca dealbata					Allocasuarina littoralis	Banksia integrifolia	Planchonia careya				Dodonaea viscosa					Lantana camara*			Megathyrsus maximus*, Imperata cylindrica	16		T1 15-18. T2 4- 10 med 8, S1 2- 3m, S2 1-2m. Junction at end of <i>Melaleuca</i> dominant T1.
10	Melaleuca quinquenervia						Planchonia careya	Banksia integrifolia	Allocasuarina littoralis													15	Anaerobic smell. No distinct organic at surface. 40cm - brown layer 10cm thick. Brown layer sandy. Water seeped in to hole at 30cm depth.	T1 low point 12- 15, T2 4-10 med 8
11	Corymbia clarksoniana	Melaleuca dealbata					Banksia integrifolia	Leptospermum neglectum	Allocasuarina littoralis	Acacia julifera			Dodonaea viscosa					Hibbertia Iinearis var. floribunda	Lithomyrtus obtusa	Boronia occidentalis	Dianella caerulea	15		T1 10-15, T2 3- 6 med 5, S1 2m, S2 0.5-1m
13	Corymbia						Leptospermum	Acacia julifera	Banksia													15m		fill T1 sparse, 10m
14	clarksoniana Melaleuca quinquenervia	Melaleuca dealbata					neglectum		integrifolia													18	Soil waterlogged. Suspect continuous with brown soil	tall. Melaleuca dealbata at edge only.
15	Corymbia clarksoniana	Melaleuca quinquenervia																					3011	End <i>M.</i> quinquenervia
17	Corymbia clarksoniana	Melaleuca dealbata																						

ID Tree1i	Tree1ii	Tree1iii	Tree1iv	Tree1v	Tree1vi	Tree2i	Tree2ii	Tree2iii	Tree2iv	Tree2v	Tree2vi	Shrub1i	Shrub1ii	Shrub1iii	Shrub1iv	Shrub1v	Shrub2i	Shrub2ii	shrub 2iii	Ground	T1 ht	Geology	Notes
18 Corymbia clarksoniana (possibly intermedia)						Leptospermum neglectum	Banksia integrifolia	Allocasuarina littoralis												Imperata cylindrica, Megathyrsus maximus*, Dianella caerulea	15		T2 10m
19 Melaleuca quinquenervia	Melaleuca dealbata																						low point in staff compound
20 Corymbia tessellaris	Melaleuca dealbata																				16		cleared but at edge of vegetation
21 Corymbia tessellaris	Melaleuca dealbata Melaleuca					Blanchania	Banksia	Dodonoso													15		T2 8m
22 Corymbia tessellaris 23 Corymbia	dealbata Melaleuca					Planchonia careya Planchonia	integrifolia Banksia	Dodonaea viscosa Dodonaea													16		T2 8m
tessellaris 24 Corymbia	dealbata Melaleuca					careya	integrifolia	viscosa													15		
tessellaris 25 Melaleuca dealbata	dealbata Corymbia tessellaris																				15		
26 Eucalyptus crebra						Acronychia laevis	Lophostemon confertus													Fimbristylis ferruginea, Sporobolus virginicus	8		Approx. 4m² marine plants on rocks, other vegetation above rocks. Insufficient width and canopy to be EPBC community
27 Eucalyptus crebra						Drypetes deplanchei														Cymbopogon refractus, Cheilanthes sieberi, Vernonia cinerea, Brunoniella australis, Heteropogon contortus, Lantana montevidensis*, Sida hackettiana*, Phyllanthus virgatus, Ageratum houstonianum, Opuntia stricta*, Megathyrsus maximus*	8		insufficient width and canopy to be EPBC community.
28 Pouteria sericea	Ficus obliqua	Drypetes deplanchei																		Trophis scandens, Stephania japonica	6		10m wide and all canopy scrub
29 Acacia leiocalyx	Drypetes deplanchei	Pouteria sericea	Acronychia laevis	Opuntia stricta																			1m wide - too narrow to be EPBC
30 Alphitonia excelsa	Pouteria sericea	Ficus obliqua																					community Alphitonia excelsa 3m at cliff top and other 1m on cliff - too narrow to map as EPBC community
31 Acacia leiocalyx	Vitex trifolia	Pouteria sericea	Grevillea banksii																				5m wide too narrow to map as EPBC
32 Acacia leiocalyx	Grevillea banksii	Drypetes deplanchei										Vitex trifoliat	a							Xanthorrhoea latifolia, Lomandra confertifolia subsp. pallida			community 2m wide too narrow to map as EPBC community

																					T1		
ID Tree1i	Tree1ii	Tree1iii	Tree1iv	Tree1v	Tree1vi	Tree2i	Tree2ii	Tree2iii	Tree2iv	Tree2v	Tree2vi	Shrub1i	Shrub1ii	Shrub1iii	Shrub1iv	Shrub1v	Shrub2i	Shrub2ii	shrub 2iii	Ground	ht	Geology	Notes
33 Ficus oblid	ua Drypetes deplanchei	Pouteria sericea				Acronychia laevis	Acacia leiocalyx	Grevillea banksii												Themeda triandra, Heteropogon contortus, Xanthorrhoea latifolia	5		maybe scrub
34 Pandanu tectoriu		ii Acacia leiocalyx										Vitex trifolia											T1 at 4m. not EPBC
35 Corymbi clarksonia		Lophostemon confertus																			12	sand	community
36 Eucalypt crebra	s Eucalyptus exserta	Eucalyptus portuensis	Lophostemon confertus																		4	rock	
37 Acacia leio	alyx Lophostemon confertus	Allocasuarina littoralis	Eucalyptus crebra																		3	rock	
38 Eucalypt crebra 39 Corymbi						Allocasuarina														Eriachne	6		
clarksonia 40 Allocasua	na suaveolens	Acacia julifera	Corymbia			luehmannii														stipacea	6		
littoralis		, casia jamora	clarksoniana																				
41 Eucalypt	ıs Allocasuarina	Acacia										Jacksonia					Leucopogo			Xanthorrhoea	1		
exserta		leiocalyx	<u> </u>									scoparia					n leptosperm oides			latifolia			
43 Lophoster confertu		Allocasuarina littoralis	Grevillea banksii																	Xanthorrhoea latifolia, Gahnia aspera, Lepidosperma laterale	0.5- 1		Collected Acacia juncifolia. Edge of low vegetation
44 Lophoster confertu		Corymbia clarksoniana																			5		collected Tephrosia juncea and
																							Clerodendron floribunda nearby
45 Lophoster confertu	s portuensis																				4		
46 Lophoster confertu																					6		Collected herb and <i>Marsdenia</i> .
47 Acacia leio	alyx Banksia integrifolia																				3	sand	regrowth
48 Acacia leio	•																			Gahnia aspera,	2	metasedimen t	grandand with
49 Acacia leioù	anyx																			Adiantum hispidulum, Sida cordifolia* Oplismenus* aemulus, Centella asiatica			grassland with occasional T1
50 Lophoster confertu																							Gully splits 1-2 Lophostemon from grassland.
51 Lophoster confertu	5																				3		edge of grassland
53 Eucalypt crebra	is																				6		Occasional scrub not sufficient to map.

																						T1		
ID	Tree1i	Tree1ii	Tree1iii	Tree1iv	Tree1v	Tree1vi	Tree2i	Tree2ii	Tree2iii	Tree2iv	Tree2v	Tree2vi	Shrub1i	Shrub1ii	Shrub1iii	Shrub1iv	Shrub1v	Shrub2i	Shrub2ii	shrub 2iii	Ground	ht	Geology	Notes
54	Eucalyptus crebra																					10		slope
56	Corymbia tessellaris	Corymbia clarksoniana					Banksia integrifolia	Allocasuarina littoralis														12		
57	Corymbia tessellaris						Banksia integrifolia	Allocasuarina littoralis														12		
58	Allocasuarina littoralis	Alphitonia excelsa	Banksia integrifolia																			7		
59	Corymbia clarksoniana																					15		patch
60	Corymbia clarksoniana	Corymbia tessellaris	Corymbia clarksoniana																			15m wes t,		T1i to west 15m, T1ii and iii to east, 10m
0.4																					Ii	10m east		cast, rom
61																					Jasminum didymum, Abrus			
																					precatorius, Triumfetta			
																					rhomboidea, Imperata cylindrica,		1	
																					Eriachne pallescens,			
																					Xanthorrhoea latifolia, Stephania			
																					japonica, Passiflora			
																					suberosa*			
62	Lophostemon confertus	Corymbia clarksoniana																			Chamaecrista nomame	15	sand	
63	Corymbia citriodora	Eucalyptus crebra																					metasedimen t	
64	Corymbia citriodora	Eucalyptus crebra																			Murdannia graminea			
65	Melaleuca									1											Cynodon			Duck pond in
	dealbata																				dactylon			resort. planted cotton trees
66	Allocasuarina	Corymbia	Planchonia	Pittosporum																		8		has been
	littoralis	clarksoniana	careya	ferrugineum																				cleared (cut stumps present)
																							1	but appears to achieve remnant status.
67	Casuarina equisetifolia																				Cryptostegia grandiflora*,			
68	Drypetes	Thespesia	Ficus virens	Diospyros																	Jasminum didymum			edge of scrub
69	deplanchei Casuarina	populnea		geminata																	Hibbertia			0090 0: 00:00
	equisetifolia																				scandens, Dactyloctenium		1	
																					radulans, Epaltes			
																					australis, Axonopus compressus		1	
70	Corymbia tessellaris	Cocos nucifera*																			Sporobolus pyramidalis*			cleared
72	Corymbia intermedia/clark soniana	Eucalyptus portuensis																				15	metasedimen t colluvium	
73	Corymbia intermedia/clark																					15	colluvium	break in slope
	soniana																							towards ck
74	Melaleuca quinquenervia																							centreline ck
76	Melaleuca quinquenervia	Livistona decora																				10		1 Livistona
78	Acacia leiocalyx	Melaleuca dealbata	Corymbia tessellaris																			5		
79	Melaleuca nervosa	Melaleuca viridiflora																				6		remnant
80	Avicenna	Rhizophora								1												3		3m2 basal
	marina var. eucalyptifolia	stylosa																						sweep 1 of each T1. 2-5m tall
		J.	1	1	j	<u> </u>		I		L	1	<u> </u>	<u> </u>						<u> </u>					

ID Tree1i	Tree1ii	Tree1iii	Tree1iv	Tree1v	Tree1vi	Tree2i	Tree2ii	Tree2iii	Tree2iv	Tree2v	Tree2vi	Shrub1i	Shrub1ii	Shrub1iii	Shrub1iv	Shrub1v	Shrub2i	Shrub2ii	shrub 2iii	Ground	T1	Geology	Notes
00 000	ti- Oti-	Alabitania		1					1	1				1		1		1	1	1	1 40		0
82 Corymb tessella		Alphitonia excelsa																			10		Corymbia - 10m Alphitonia - 5m. Disturbed.
83 Corymb		Acacia leiocalyx																		Wikstroemia indica	6		
84 Corymb		-																		Pseuderanthem um variable			Remnant in gully. In Gully
																					_		along leeks dam.
86 Acacia leio																					5		Corymbia
00 Appaia laig	citriodora	Commis																					citriodora taller nearby
88 Acacia leic	ocalyx Corymbia citriodora	Corymbia clarksoniana																					Joins with Corymbia clarksoniana. Wattle 300°
89 Acacia leio	ocalyx Corymbia citriodora	Corymbia clarksoniana																		Geodorum densiflorum			
90 Corymb																							Canopy tall on creek
91 Eucalyp crebra																					15		at edge with wattles
92 Acacia leio	ocalyx Corymbia citriodora																				5		Corymbia citriodora - 17m
93 Melaleu nervos																					5		at edge 2 x 10m patches, young
94 Acacia leio	ocalyx																				5		
95 Acacia leid 96 Eucalyp																					5 17		on creek
97 Eucalyp	ana	v .																			5		Clearing.
molucca 98 Acacia leio	ana	`																			5		small area of
						Malalausa																	clearing
99 Eucalyp drepanop	hylla clarksoniana					Melaleuca nodosa															12		T2 8m
100 Eucalyp molucca																							remnant on creek
101 Acacia leid	ocalyx Eucalyptus moluccana																				10		
102 Alphitor excels		Allocasuarina littoralis																			5		1 Eucalyptus moluccana emergent
103 Eucalyp molucca																					14		emergent
104 Acacia leio	ocalyx																				4		
105 Eucalyp molucca	otus ana																						
106																							20m to west appears cleared
107 Plancho careya		Pouteria sericea	Drypetes deplanchei																			metasedimen t	too narrow for scrub community
108 Casuari equisetife																							
109 Casuari equisetifi	ina folia																						
110 Drypete deplance	es Mallotus chei discolour	Exocarpos latifolius	Ficus opposita	Excoecaria agallocha	Alphitonia excelsa																		small patch of scrub community
111 Casuari equisetifi																						beach	
112 Excoeca agalloci	aria Lumnitzera																			Sporobolus virginicus, Fimbristylis ferruginea			Edge of weeds. T1 occasional.

Tre	ee1i	Tree1ii	Tree1iii	Tree1iv	Tree1v	Tree1vi	Tree2i	Tree2ii	Tree2iii	Tree2iv	Tree2v	Tree2vi	Shrub1i	Shrub1ii	Shrub1iii	Shrub1iv	Shrub1v	Shrub2i	Shrub2ii	shrub 2iii	Ground	T1 ht	Geology	Notes
	Eucalyptus	Melaleuca											Lantana								Gahnia	T		Mela
	robusta	quinquenervia											camara*								sieberiana			quinqu dea hole
																								that it i
	Melaleuca iinquenervia	Eucalyptus robusta																				as per		in
																						114 tran		
	Melaleuca dealbata						Alphitonia excelsa	Acacia disparrima					Lantana camara*									sect 10		T2 6m
/	Melaleuca dealbata						Alphitonia excelsa	Acacia disparrima					Lantana camara*									11		T2 6m
	acia leiocalyx						exceisa	uispariiria					Camara									4		15 (
	Melaleuca dealbata	Corymbia clarksoniana	Corymbia tessellaris				Acacia leiocalyx						Lantana camara*									15		
	Acacia disparrima	Lantana camara*	Banksia integrifolia	Alphitonia excelsa			-															5		
/	Melaleuca	oamara		5,05,04							1										Cryptostegia grandiflora*	+		
Lo	ophostemon	Melaleuca	Corymbia																		granumora	15		Good
	Suaveolens Corymbia	dealbata Corymbia	tessellaris Allocasuarina	Acacia julifera																		6		Abı
	tessellaris Eucalyptus	clarksoniana Eucalyptus	littoralis				Acacia																rocky outcrop	A Re
	crebra	exserta					leiocalyx															7	Touring Carrotte	
	Eucalyptus crebra Eucalyptus																					7		
(crebra Corymbia	Eucalyptus																				15		
	citriodora ophostemon	crebra Corymbia					Cupaniopsis															+		Co
	confertus	citriodora					anacardioides																	citrioc ea:
																								Lopho the we Collec
																								in gul
	ophostemon confertus	Eucalyptus exserta	Eucalyptus portuensis								1										Xanthorrhoea latifolia,	5		Lopho
'	Comentas	exseria	portuensis																		Hardenbergia violacea			doi
	ophostemon	Eucalyptus	Eucalyptus																		Desmodium	10		
1	confertus	portuensis	fibrosa																		brachypoda			
	Diospyros geminata	Dendrobium discolor																						9
	Corymbia citriodora																					1		entry
(Corymbia citriodora	Eucalyptus platyphylla																				+		
<u> </u>	Chinodora	piatypriyna																					metasedimen	1
	ophostemon	Eucalyptus																				+	t in creek sand	
	confertus Corymbia	platyphylla Eucalyptus		Callicarpa																		+		
cla	larksoniana Acacia	portuensis Allocasuarina		pedunculata																				re
c	disparrima	littoralis																						
	Corymbia larksoniana																							Rem fence
	Corymbia	Eucalyptus							+													+		re
(Corymbia Corymbia	crebra Eucalyptus platyphylla																				+	metasedimen	1
	larksoniana Corymbia	platyphylla Eucalyptus																				+	t rise metasedimen	1
•	citriodora	portuensis	Allocasuarina	Melaleuca	Conymbia	Grevillea																4	t. metasedimen	
	acia leiocalyx	Eucalyptus exserta	littoralis	nervosa	Corymbia tessellaris	banksii																	t	
	Eucalyptus crebra								1									1				6		
AUâ	acia leiocalyx																					2		

ID	Tree1i	Tree1ii	Tree1iii	Tree1iv	Tree1v	Tree1vi	Tree2i	Tree2ii	Tree2iii	Tree2iv	Tree2v	Tree2vi	Shrub1i	Shrub1ii	Shrub1iii	Shrub1iv	Shrub1v	Shrub2i	Shrub2ii	shrub 2iii	Ground	T1 ht	Geology	Notes
157	Eucalyptus exserta	Lophostemon suaveolens	Allocasuarina littoralis	Corymbia citriodora																		4		Allocasuarina to east, Corymbia citriodora to west at 8m
158	Lophostemon confertus	Eucalyptus portuensis	Eucalyptus exserta																			2		
159	Lophostemon suaveolens																					2		
160	Eucalyptus crebra																					6		
161 162	Eucalyptus crebra GRASSLAND																				Cymbopogon	6		grassland
102	CIVIOLAND																				refractus, Enteropogon unispiceus, Panicum effusum			grassiand
163	Lophostemon suaveolens	Allocasuarina littoralis																				5		
164	Lophostemon suaveolens	Acacia leiocalyx	Allocasuarina littoralis																			1		
166	Acacia leiocalyx	Alphitonia excelsa																			Megathyrsus maximus*, Stephania japonica	3		T1 sparse
168	Clerodendrum inerme	Pittosporum ferrugineum	Drypetes deplanchei																					Scattered scrub sp. Maybe too narrow to map
169	Pandanus tectorius	Vitex trifolia	Grevillea banksii	Drypetes deplanchei	Ficus obliqua	Pouteria sericea																		unlikely to be EPBC Community
170	Corymbia tessellaris	Allocasuarina littoralis																					beach	Community

Point Number	150.945977 150.944316 150.939974 150.94067 150.941247 150.941484 150.943425 150.9434361 150.943861 150.943861 150.943861 150.943861 150.943861 150.937245 150.9354
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	150.9711
	150.970601
51 Quaternaries -23.178236 150.957966 T31S Secondaries -23.182559	150.965098
52 Quaternaries -23.178617 150.958241 T31M Secondaries -23.182956	150.965238
54 Quaternaries -23.179416 150.958931 T31E Secondaries -23.183307	
	150.964061
	150.964351
58 Quaternaries -23.17719 150.952614 T35E Secondaries -23.183193	
62 Quaternaries -23.180635 150.94855 T42S Secondaries -23.176038	
63 Quaternaries -23.179242 150.948672 T42M Secondaries -23.175836	
64 Quaternaries -23.176199 150.952837 T42E Secondaries -23.175541	
65 Quaternaries -23.176095 150.94786 T46aS Secondaries -23.176804	
66 Quaternaries -23.178735 150.946792 T46aM Secondaries -23.176641	
67 Quaternaries -23.177951 150.945135 T46aE Secondaries -23.176419	
68 Quaternaries -23.177336 150.944049 T48M Secondaries -23.177043	
69 Quaternaries -23.177775 150.94177 T48S Secondaries -23.176718 70 Quaternaries -23.178042 150.941089 T48E Secondaries -23.177164	
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71 Quaternaries -23.174726 150.937155 1565 Secondaries -23.176526 72 Quaternaries -23.174126 150.937851 T56M Secondaries -23.178526	
72 Quaternaries -23.174126 150.937631 130M/Secondaries -23.176326 74 Quaternaries -23.17236 150.937232 T56E Secondaries -23.178707	
75 Quaternaries -23.171250 150.936343 T60S Secondaries -23.178487	
76 Quaternaries -23.181121 150.937875 T60M Secondaries -23.178709	
77 Quaternaries -23.187362 150.945909 T60E Secondaries -23.178974	
78 Quaternaries -23.188108 150.946903 T61S Secondaries -23.178647	
79 Quaternaries -23.187499 150.947312 T61M Secondaries -23.178992	
80 Quaternaries -23.187858 150.947752 T61E Secondaries -23.17938	
81 Quaternaries -23.187463 150.94802 T88E Secondaries -23.185099	
82 Quaternaries -23.187162 150.948519 T88S Secondaries -23.185433	
83 Quaternaries -23.187041 150.948654 T88M Secondaries -23.185136	150.945484
84 Quaternaries -23.187065 150.949365 T98E Secondaries -23.181028	150.945484 150.945433
85 Quaternaries -23.185883 150.949196 T98M Secondaries -23.180834	150.945484 150.945433 150.945328
T98S Secondaries -23.180492	150.945484 150.945433 150.945328 150.943753

	Wat Sana	on Quaternar	ion		Wat Casa	on Quaternar	ioo	1	Wat Cass	on Secondari	ioo
Point	Point Type		Longitude	Point	Point Type	Latitude	Longitude	Point	Point Type	Latitude	Longitude
	Quarternary	-23.176841	150.937756		Quarternary	-23.179743	150.953879		Secondary	-23.182151	150.94148
	Quarternary	-23.176187	150.939685		Quarternary	-23.180236			Secondary	-23.183711	150.946801
3	Quarternary	-23.17649	150.939643	92	Quarternary	-23.180505	150.953234	T61M	Secondary	-23.183438	150.946609
4	Quarternary	-23.177273	150.940174	93	Quarternary	-23.18009	150.952135	T61S	Secondary	-23.183132	150.946272
	Quarternary	-23.178184	150.940849		Quarternary	-23.180043	150.951573		Secondary	-23.174252	150.957641
	Quarternary	-23.1792	150.941466		Quarternary	-23.179956			Secondary	-23.174608	150.957616
7	Quarternary	-23.180502	150.937824		Quarternary	-23.179869	150.95095		Secondary	-23.174998	150.957456
	Quarternary	-23.180256	150.938159		Quarternary	-23.179467	150.950785		Secondary	-23.175094	150.959269
	Quarternary	-23.179349	150.938361		Quarternary	-23.179253	150.950068		Secondary	-23.17483 -23.174468	150.959154
	Quarternary Quarternary	-23.17949 -23.179553	150.939408 150.940122		Quarternary	-23.179086 -23.178959	150.94902 150.949333		Secondary Secondary	-23.174468	150.95902 150.956078
	Quarternary	-23.179353	150.940619		Quarternary Quarternary	-23.179511	150.949396		Secondary	-23.175925	150.956262
	Quarternary	-23.179938	150.940535		Quarternary	-23.177296	150.94909		Secondary	-23.176337	150.956453
	Quarternary	-23.178788	150.939094		Quarternary	-23.177182	150.948376		Secondary	-23.178056	150.972694
	Quarternary	-23.178365	150.939109	_	Quarternary	-23.176908	150.948342		Secondary	-23.178348	150.972842
17	Quarternary	-23.177962	150.939009		Quarternary	-23.174833	150.947402		Secondary	-23.178781	150.973003
18	Quarternary	-23.179665	150.938902	106	Quarternary	-23.17331	150.947695	T85S	Secondary	-23.179348	150.953548
19	Quarternary	-23.180774	150.938705	107	Quarternary	-23.171006	150.941245	T85M	Secondary	-23.179627	150.953211
20	Quarternary	-23.180383	150.937066		Quarternary	-23.171692	150.950057	T85E	Secondary	-23.179876	150.95286
	Quarternary	-23.179593	150.936972		Quarternary	-23.167539	150.954994		Secondary	-23.175249	150.961433
	Quarternary	-23.178708	150.936837		Quarternary	-23.170409	150.953562		Secondary	-23.17536	150.96176
	Quarternary	-23.178046	150.936695		Quarternary	-23.170154	150.953392		Secondary	-23.175676	150.962212
	Quarternary	-23.178339	150.937133		Quarternary	-23.176834	150.940279		Secondary	-23.178084	150.962984
	Quarternary	-23.178328	150.937625		Quarternary	-23.175404			Secondary	-23.17817	150.963306
	Quarternary	-23.172224	150.937219 150.936752		Quarternary Quarternary	-23.176676	150.962892 150.962992		Secondary Secondary	-23.178282	150.963791
27	Quarternary Quarternary	-23.171895 -23.171385	150.936752		_	-23.177082 -23.177498	150.962992		Secondary	-23.179834 -23.179563	150.971998 150.971894
	Quarternary	-23.171363	150.935969		Quarternary Quarternary	-23.177438	150.952154		Secondary	-23.179288	150.971371
	Quarternary	-23.170581	150.935835		Quarternary	-23.179052	150.966382		Secondary	-23.1815	150.965363
	Quarternary	-23.170143	150.935855		Quarternary	-23.179306	150.967137		Secondary	-23.181558	150.965848
	Quarternary	-23.169634	150.935392		Quarternary	-23.179326			Secondary	-23.181565	150.966328
	Quarternary	-23.169428	150.93514		Quarternary	-23.179462	150.969931		Secondary	-23.1816	150.961951
	Quarternary	-23.169082	150.93485		Quarternary	-23.180229	150.963172		Secondary	-23.182017	150.961767
35	Quarternary	-23.181677	150.962915	126	Quarternary	-23.180995	150.962135	T142E	Secondary	-23.18241	150.96163
36	Quarternary	-23.181719	150.962678	127	Quarternary	-23.181127	150.961861	T167E	Secondary	-23.179893	150.949091
	Quarternary	-23.181772	150.962449		Quarternary	-23.181391	150.961776		Secondary	-23.1797	150.949243
	Quarternary	-23.181824	150.961916		Quarternary	-23.181881	150.961479	T167S	Secondary	-23.179296	150.949419
	Quarternary	-23.181233	150.963195		Quarternary	-23.182107	150.960866				
	Quaternery	-23.180438	150.963324	_	Quarternary	-23.182372	150.960498				
41	Quarternary	-23.182567	150.962141		Quarternary	-23.181703	150.959348				
42	Quarternary Quarternary	-23.183364 -23.183378	150.962602 150.962597		Quarternary Quarternary	-23.181768 -23.180682	150.958855 150.959903				
	Quarternary	-23.183543	150.962908		Quarternary	-23.17963	150.960799				
		-23.182934	150.964		Quarternary	-23.178968					
46	Quarternary	-23.183325	150.964226		Quarternary	-23.178735	150.9607				
47	Quarternary	-23.184709	150.96539		Quarternary	-23.181157	150.964532				
48	Quarternary	-23.184938			Quarternary	-23.18129	150.964226				
49	Quarternary	-23.185167	150.965227	150	Quarternary	-23.178655	150.971813				
	Quarternary	-23.18646	150.964082		Quarternary	-23.171461	150.957664				
	Quarternary		150.963207		Quarternary		150.958289				
	Quarternary	-23.186276			Quarternary		150.958388				
	Quarternary	-23.185612			Quarternary		150.962919				
	Quarternary	-23.187919			Quarternary	-23.160743					
	Quarternary Quarternary	-23.187074 -23.186442			Quarternary Quarternary	-23.163357 -23.16567	150.963874				
	Quarternary	-23.186442	150.946274 150.945812		Quarternary	-23.10007	150.963572 150.964701				
	Quarternary	-23.1843			Quarternary	-23.174047	150.970502				
	Quarternary	-23.181455			Quarternary	-23.175828					
	Quarternary	-23.181631	150.944377		Quarternary	-23.177447	150.975685				
	Quarternary	-23.181957	150.945502		Quarternary	-23.178028					
	Quarternary	-23.181288	150.937662		Quarternary	-23.180762	150.980517				
66	Quarternary	-23.187625	150.945206		Quarternary	-23.18046	150.98331				
	Quarternary	-23.190196			Quarternary	-23.176993					
	Quarternary	-23.188744			Quarternary	-23.169372	150.93633				
	Quarternary	-23.189821	150.95576		Quarternary	-23.16872	150.93466				
	Quarternary	-23.177877	150.9348	170	Quarternary	-23.171844					
	Quarternary	-23.172847	150.958666	00		son Tertiarie					
	Quarternary	-23.173255 -23.173731	150.959233		Tertiary		150.954772 150.960043				
	Quarternary Quarternary	-23.173731	150.959327 150.958511		Tertiary Tertiary	-23.182496	150.960043 150.992312				
	Quarternary	-23.174661	150.955843	103		on Secondar					
	Quarternary	-23.175186	150.955777	T16S	Secondary	-23.177925					
	Quarternary	-23.178564	150.964916		Secondary	-23.177772					
	Quarternary	-23.177826			Secondary		150.938617				
	Quarternary	-23.178995	150.953486		Secondary	-23.186139	150.962604				
86	Quarternary	-23.179735	150.954134		Secondary	-23.186273					
	Quarternary	-23.179638	150.95434		Secondary	-23.186548	150.963014				
	Quarternary	-23.179344	150.954228		Secondary	-23.181602					
89	Quarternary	-23.179864	150.95445	T55M	Secondary	-23.181831	150.94177				

APPENDIX D – Wetland Assessment Pro formas

	Ē	IYDR	OLOG'	/ ASSI	ESSN	IENT		VEC	SETATION AS	SESSMENT	SOILS	SAS	SES:	SMENT															
		Motion coils 2	Wetland landform Pattern ³	Wetland landform element 4	Poweh to weekely (cm)	Are Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Every and Ev	necdotal vidence	Type (2°,3° or 4°)	Species / Layer / Height	Image	WETLAND SOILS Organic material ⁵	P Horizon (Y/N)	Thickness of P Horizon (cm)	WETLAND SOIL INDICATORS Organic material (within 0.3m of soils surface (YM)	οĮ	Texture qualifier (Fabric, Sapric, Hemic)	ACID SULFATE MATERIALS Hydrogen sulphide gas (Y/N)	Monosulphide black ooze (Y/N)	Sulphuroius segregations (Y/N)	Grey colours (Y/N) Thistened of along long (am)	Depth of gley layer (cm)	Soil water interface (Y/N)	Depth of soil water interface	Mottles (<0.3m of surface) (Y/N)	Segregations (<0.3m of surface) (Y/N)	Ferruginous root channel and pore linings (<0.3m of surface) (Y/N)	SOIL MATRIX CHROMA Are chroma values <2 in wettest lowest lying area? (Y/N)	roma ng into consic	Image
1	x	Z	BEA	BRI		wh	ry deep hite – grey andy profile	4	Melaleuca dealbata T1 14-18m		N	N	-	N	1	1	N	N	N N	1 -		N	-	Z	N	N	N	N	
2	x	N				ab inf	te elevated bove tidal fluence ee photo)	4	Acacia disparrima T1 3-5m																				X
3	х	N	BEA	BRI				4	Corymbia intermedia T1 4-8m	х																			х
4	x	N						4	Melaleuca dealbata Excoecaria agallocha T1 5-8m		К	-	-	N	-	1	Y (mild)	N	N -	-	-	N	-	N	N	N	Y	Y	
5	х	Y	BE#	BRI				4	Melaleuca quinquenervia T1 8-13m	x	R	Y	Z	Y	Z	Hemic	N	N	N Y	3 0				Y	N	N	-	-	

6	X	Y	BEA	DDE			4	Melaleuca quinquenervia T1 12-18m	R	Y	Z	Y	Z	Hemic	N	N	N Y	/ 3 0				Y	N	N	-	-	
7	х		MAD			Clearly artificial owing to water backed up behind culvert	4	Melaleuca quinquenervia T1 11-19m	N	N		N	-		N					N		N		Z			
8	x	N		DDE			4	Melaleuca quinquenervia T1 11-19m	K	Y	Z	Y	Z	Hemic	N	N	N N	1 -	-	N	-	N	N	N	Y	Y	
9	х	N	BEA	BRI			4	Melaleuca dealbata T1 15-18m	X																		X
10	х	Y	BEA	BRI	30 cm		4	Melaleuca quinquenervia T1 12-18m	K	Y	Z	Y	Z	Hemic	N	N	N N	1 -	-	N	-	N	N	Z	Y	Υ	
11	х	N	BEA	BRI			4	Corymbia clarksoniana T1 10-15m																			х
12	х	N	MAD	LAK		Artificial water body (excavated hole) at the edge of an area of fill containing concrete etc	4	N/A																			x

							,					1		1				1				
13	Х	N				4	Corymbia clarksoniana T1 15m	x														X
14	х	Υ	BEA	DDE		4	Melaleuca quinquenervia T1 18m															X
15			BEA	BRI		4	Corymbia clarksoniana T1 -	x														x
16	x	N	BEA	BRI	Test holes dug at 0m, 50m and 100m (plus in a minor swale) along a transect. No wetland soils encountered.	2	See secondary form		N	N	- N	-	-	N	N N	N -	- N	-	N	N	N N	N
17				BRI		4	Corymbia clarksoniana T1	х														x
18	Х	N	BEA	BRI		4	Corymbia clarksoniana T1 15m	х														х
			BEA	BRI		4	Melaleuca quinquenervia T1	х														x
20	х	Ν	BEA	BRI		4	Melaleuca dealbata T1 16m	х														х
21	Х	N	BEA	BRI		4	Corymbia tessellaris T1 15m	x														х
22	х	N	BEA	BRI		4	Corymbia tessellaris T1 15m	х														х
23	Х	N	BEA	BRI		4	Corymbia tessellaris T1	х														х
24	Х	N	BEA	BRI		4	15m Corymbia tessellaris T1	х														х
25	х	N	BEA	BRI		4	15m Melaleuca dealbata T1 15m	x														X

Х	N	TID	TDF			3	See tertiary	*																	х
							form																		
х	N	LP	VLF			2	See secondary form																		X
Х	N	BEA	TDC			4	Casuarina equisetifolia T1 -	х																	X
х	N	TID	TDF			4	Avicenna marina var. eucalyptifolia T1	х																	х
			DUN		species area may have been wet once. Relicts of dead <i>Gahnia</i> and <i>M.</i> quinquenervi a. Dominated	4	Eucalyptus robusta T1 -		N	N -	N	-	- N	N	N	N	-	- N	-	N	N	N	N	N	
х	N	PLA	DDE			2	See secondary form																		X
х	N	PLA	DUN			4	Melaleuca quinquenervia T1	x																	х
x	N	PLA	DUN			4	Melaleuca	х																	X
3	x	x N	x N BEA x N TID x N PLA	x N BEA TDC x N TID TDF x N PLA DUN x N PLA DDE	X N BEA TDC X N TID TDF X N PLA DUN X N PLA DDE	x N BEA TDC x N TID TDF x N PLA DUN Based on species area may have been wet once. Relicts of dead Gahnia and M. quinquenervi a. Dominated by terrestrial species.	x N LP VLF 2 x N BEA TDC 4 x N TID TDF 4 x N PLA DUN Based on species area may have been wet once. Relicts of dead Gahnia and M. quinquenervi a. Dominated by terrestrial species. x N PLA DDE 2	X N LP VLF 2 See secondary form	X N LP VLF 2 See secondary form	X	X N LP VLF 2 See secondary 1	x N LP VLF 2 See secondary form x N BEA TDC 4 Casuarina equisetifolia T1 x N TID TDF 4 Avicenna Avicenna Avicenna anna y have been wet once. Relicts of dead Gahnia and M. Quinquenerori Dominated by terrestrial species. x N PLA DDE 2 See secondary form x N PLA DDE 2 See secondary form x Melaleuca guirnyeneroria x guirnyeneroria x guirnyeneroria x guirnyeneroria T1 x N PLA DUN 4 Melaleuca x dealbata T1 x N PLA DUN 4 Melaleuca x dealbata T1 x N PLA DUN 4 Melaleuca x dealbata T1	X	X N LP VLF 2 See secondary form X N LP VLF 2 See secondary form X N N EAA TDC 4 Cesuarina equiparilolita T1 X N TID TDF 4 Alexandra X marina xar. oucupyrifolita T1 X N N TID TDF 4 Alexandra X marina xar. oucupyrifolita T1 X N N PLA DUN Separies area may have been wet once. 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Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Average Ave	X	X	X	X N LP VLF 2 See secondary	X N LP VLF 2 See secondary	x N IEA TDC 4 Cassame requiremental process area may have occupyor/foring T1 N PLA DUN 4 Administration of the control of the control of the control of 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^{1 -} Potentially includes (A) Debil Debil, (B) Aerial roots, (C) Swamp hummock, (D) Iron staining, (E) Flood carried debris, (F) Flood staining, (G) Wetland drainage patterns, (H) Mud cracks, (I) Surface staining, (J) Algal flakes, (K) Salt crusts

^{2 –} Part 1 of wetland key in soils field guide

^{3 –} As per "Table 26 CORVEG landform pattern description codes" of Neldner et al., 2005. Where ALF = Alluvial fan; ALP = Alluvial plain; BEA = Beach Ridge; DEA = Delta; FLO = Flood plain; Lac = Lacustrine plain; MAD = Man made; MEA = Meander plain; PLA = Plain; TER = Terrace; TID = Tidal flat; PLA = Plain

^{4 –} As per "Table 27 CORVEG Landform element codes of Neldner *et al.*, 2005. Where BKP = Back plain; BAN = Bank (stream bank); BAR = Bac (stream bank); BAR = Beach Short; BRI = Beach ridge; CBE = Channel bench; DDE = Drainage depression; DUN = Dune; EST = Estuary Stream; FLD = Flood-out; GUL = Gully ITF = Intertidal flat; LAG = Lagoon; LAK = Lake; OXB = Oxbow; PLA = Plain; PST = Prior stream; STB = Stream bed Linear; STC = Stream Channel; STF = Supratidal; SWL = Swale Linear; SWP = Swamp; TDC = Tidal creek; TDF = Tidal flat; VLF = Valley flat. 5 – (a) Acidic; (k) Kandosolic; (r) Redoxic - Hydrosol

APPENDIX E – Consolidated Flora Species List

March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March March Marc					ı	Sen	-10	Feb	L-11
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### Appearance in Appearance in Appearance in Appearance in Company of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Part of the Par	Agavaceae		Agave vivipara	Agave	×	x	X X		
Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Management Man	Asteraceae	•	Ageratum houstonianum	Blue Billygoat Weed	×	x x	X X	x x	x x
Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment Programment	Poaceae Rhamnaceae		Allopteropsis semialata	Cockatoo Grass		x	x x	x	x x
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	Araucariaceae Araucariaceae		Araucaria heterophylla	Norfolk Island Pine		x x			
Transport	Poaceae		Aristida gracilipes	Wiregrass	x				
	Poaceae		Aristida queenslandica var queenslandica	Wiregrass	X		X Y		X Y
	Poaceae		Arundinella nepalensis	Reedgrass		x x	x		^
	Apocynaceae Asteraceae	•	Asclepias curassavica	Red Head Cotton Bush	x x				
	Avicenniaceae Avicenniaceae		Avicennia marina subsp. australasica Avicennia marina subsp. eucalyptifolia	Grey Mangrove Grey Mangrove	x x		x	x	
Botto payment	Poaceae Proteaceae	•	Banksia integrifolia subsp. compar	Coastal Banksia	x	x	x x	x x	x
Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Microbine Micr	Cyperaceae Asteraceae		Bidens bipinnata	Cobblers Pea	x		x x		x x
A Tar Vine	Asteraceae Blechnaceae Asteraceae		Blechnum indicum	Bungwall Fern	X	^	x		х
	Nyctanginaceae		Boerhavia pubescens		x	х	x		x
	Rutaceae Poaceae		Boronia occidentalis	Indian Bluegrass	х	х	x x	x	x
Thyleidenseed Payros obtogetists Colle Bouth S C S S	Nyctaginaceae Asteraceae	•	Bougainvillea sp.	Bougainvillea Paper Daisy		х	х		х
Combination Pursuage automity Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage Pursuage	Phyllanthaceae Acanthaceae		Breynia oblongifolia Brunoniella acaulis subsp. ciliata		х	х	x		x
Scientification	Acanthaceae Cyperaceae		Bulbostylis barbata	Watergrass		х	x x	x	
Canada Foods Canada Foods Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison Say Abdison	Dicksoniaceae		Calochlaena dubia	soft bracken			x x	x	x
Cognetic contents	Fabaceae	la and	Canavalia rosea	Beach Bean	x	х	х		
Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition Composition	Capparaceae	local	Capparis arborea	Bush Caper Berry	X Y		ν		
Caspinal condessed Caspinal following Easter Caspinal	Aizoaceae		Carpobrotus glaucescens	Angular Pigface	x x		^		
Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Comm	Caesalpiniaceae Lauraceae	•	Cassia coluteoides *				x x	х	x
Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control o	Casuarinaceae Apocynaceae	•	Catharanthus roseus			х	x x	x	
Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Comm	Vitaceae Poaceae		Cenchrus ciliaris		x		x		
Prisopherorieses	Apiaceae		Centella asiatica		x		xx	x	x
A	Rhizophoraceae		Ceriops tagal		x		X		
Comment	Caesalpiniaceae Caesalpiniaceae		Chamaecrista nomame				X X	x	
Chicking gayaran	Adiantaceae Chenopodiaceae			Crumb Weed	x	x x	х	x	х
Choirs vertricosa	Poaceae Poaceae	•	Chloris gayana	Rhodes Grass	x		х		
Chryselikocarpus blescens	Poaceae		Chloris ventricosa	Feathertop Rhodes Grass	x	Х			
Interest	Arecaceae		Chrysalidocarpus lutescens	Golden Cane Palm	X	x	•		v
Telephone	Asteraceae	•	Cirsium vulgare		x x		x		
amisoaeae Clerodendrum inamere	Vitaceae Lamiaceae		Clematicissus opaca		x	x	x x		x
	Lamiaceae Arecaceae	•	Clerodendrum inerme Cocos nucifera*			x	x x	x x	
Corginal achicotorian Commission Control achicotorian Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commissi	Commelinaceae Asteraceae		Conyza bonariensis		x				
Nytlaceae	Asteraceae Boraginaceae	-	Cordia dichotoma	Laman agented Cum	x		x		
Myrtaceae Corymbia tessellaris Moreton Bay Ash X X X X X X X X X	Myrtaceae		Corymbia clarksoniana	Clarkson's Bloodwood	X	x	X X	X X	x
Babaceae Crotolaria medicaginea var. neglecta Tefoil Ratlepod X	Myrtaceae Myrtaceae Amaryllidaceae		Corymbia tessellaris	Moreton Bay Ash	х	х	x	x	х
Cucumis maderaspatanus	Fabaceae Fabaceae		Crotolaria medicaginea var. neglecta Crotolaria montana			x x	x		x
Steraceae Cyanthillum cinereum X	Apocynaceae Cucurbitaceae	* class 2	Cucumis maderaspatanus		x x	х	х	x	x
Pelypteridaceae Cyclosorus interruptus X	Sapindaceae Asteraceae		Cyanthillium cinereum		х	x	x		
Cymbopogon refractus	Rubiaceae Thelypteridaceae		Cyclosorus interruptus	Coast Canthium	х		•	X	v
Cyperus conclus var conicus	Poaceae Poaceae Poaceae		Cymbopogon refractus				X X	x x	x
Viperaceae Cyperus eglobosus X	Cyperaceae		Cyperus conicus var conicus				х	x	
Viperaceae Cyperus javanicus X	Cyperaceae Cyperaceae		Cyperus eglobosus Cyperus enervis		x x				
Viperaceae Cyperus rotundus X	Cyperaceae Cyperaceae		Cyperus javanicus Cyperus polystachyos		x x		-		
Dacchicctenium radulans Button Grass X X X	Cyperaceae Cyperaceae		Cyperus rotundus Cyperus scariosus		x		х		
ubiaceae Dentella repens x x abaceae Desmodium brachypoda x x abaceae Desmodium gunnii x x abaceae Desmodium sylidophylum x x temerocalildaceae Dianella caerulea var. protensa x x x temerocalildaceae Dianella rara x x x oaceae Digitaria ammophila x x x aceaea Digitaria pystrichoides x x x aceaea Digitaria violascens x x x benaceae Diopyros germitate x x x	Cyperaceae Poaceae	local	Dactyloctenium radulans				x x	x	x
Babaseae Desmodium gunni	Fabaceae Rubiaceae	-	Dentella repens	Poinciana	x	x	•	v	
Imenrocalilidoceae Dianella caerulea var. protensa x x x x x x x x x	Fabaceae		Desmodium gunnii		^	x	^ x	^	
Caceae	Hemerocallidaceae Hemerocallidaceae		Dianella caerulea var. protensa		х	x x	x x	х	х
caceae Digitaria ramularis x x caceae * Digitaria violascens x benaceae Diospyros gerninata x x	Poaceae Poaceae		Digitaria ammophila		x		x		x
	Poaceae Poaceae		Digitaria ramularis Digitaria violascens		х		x	-	х
	Ebenaceae Sapindaceae				х	x x	x x	x	x

Polypodiaceae Polypodiaceae		Drynaria rigidula Drynaria sparsisora		x x	x x			
Putranjivaceae Verbenaceae	•	Drypetes deplanchei Duranta erecta	Duranta		x x	x	х	х
Chenopodiaceae Celastraceae		Einadia hastata Elaeodendron melanocarpum		X Y				
Cyperaceae Cyperaceae		Eleocharis equisetina Eleocharis geniculata		x				
Asteraceae	•	Emilia sonchifolia var. javanica	Little Emily	x	х	х		x
Poaceae Poaceae		Enneapogon lindleyanus Enneapogon robustissimus		x				
Poaceae Poaceae		Enteropogon unispiceus Entolasia stricta		х	x	x x	х	x
Asteraceae Poaceae		Epaltes australis Eragrostis brownii		x x		х	х	x
Poaceae Poaceae		Eragrostis curvula Eragrostis interrupta				X X		
Poaceae Poaceae		Eragrostis sororia Eragrostis spartinoides				x		х
Poaceae Poaceae		Eremochloa bimaculata Eriachne pallescens var pallescens		^		x		
Poaceae	lI	Eriachne rara		х		^	^	^
Poaceae Poaceae	Local	Eriachne stipacea Eriochloa procera		x				
Myrtaceae Myrtaceae		Eucalyptus camaldulensis Eucalyptus crebra	River Red Gum Narrow-leaved Ironbark	x x	X X	X X	X X	x
Myrtaceae Myrtaceae		Eucalyptus drepanophylla Eucalyptus exserta	Grey Ironbark Queensland Peppermint	x	x	x	x	x
Myrtaceae Myrtaceae			Broad-leaved Ironbark Grey Box	x	x	x x	x	x
Myrtaceae Myrtaceae		Eucalyptus platyphylla Eucalyptus portuensis	Poplar Gum White Mahogany	x	x x	X X	x x	х
Myrtaceae Myrtaceae	local	Eucalyptus robusta	Swamp Mahogany Red Gum	x	··	X		х
Euphorbiaceae	•	Eucalyptus tereticornis Euphorbia cyathophora	red Guill		^	x	х	
Anacardiaceae Laxmanniaceae		Euroschinus falcatus Eustrephus latifolius	Wombat Berry		x x	х		
Convolvulaceae Convolvulaceae			Blue eyes		x x	X		х
Euphorbiaceae Santalaceae		Excoecaria agallocha Exocarpus latifolius	Blind your eye mangrove Native Cherry			x x	x x	
Moraceae Moraceae		Ficus benjamina Ficus congesta var. congesta	•	x	х			
Moraceae Moraceae		Ficus hispida Ficus obliqua			×	x	×	x x
Moraceae Moraceae		Ficus opposita		x		х		x
Moraceae		Ficus rubiginosa var. glabrescens Ficus rubiginosa var. rubiginosa		x				
Moraceae Moraceae		Ficus virens var. sublanceolata Ficus virens var. virens		x x	х	х	x	
Cyperaceae Cyperaceae		Fimbristylis acicularis Fimbristylis cinnamometorum				x x		x x
Cyperaceae Cyperaceae		Fimbristylis dichotoma Fimbristylis ferruginea		x x		x x	x	x
Cyperaceae Cyperaceae		Fimbristylis microcarya Fimbristylis nutans		X Y				
Cyperaceae Fabaceae		Fimbristylis polytrichoides		x				
Cyperaceae		Flemingia parviflora Gahnia aspera			x	X	x	×
Cyperaceae Hererocallidaceae		Gahnia sieberiana Geitonoplesium cymosum		х		XX X	X	x
Orchidaceae Phyllanthaceae		Geodorum densiflorum Glochidion lobocarpum		x	x	x x	х	x
Phyllanthaceae Asteraceae		Glochidion sumatranum Glossocardia bidens		x x	х	x x		x x
Fabaceae Fabaceae		Glycine tabacina Glycine tomentella			x x	X X		x
Proteaceae Fabaceae		Grevillea banksii Hardenbergia violacea			x	X	X	x
Asteraceae	•	Helianthus argophyllus		x				
Boraginaceae Poaceae		Heliotropium pauciflorum Heteropogon contortus	Barbed-wire Grass	x	x	x x	x	X
Dileniaceae Dileniaceae	local	Hibbertia linearis var. floribunda Hibbertia scandens		x x	x	x	x	
Dileniaceae Dileniaceae		Hibbertia stricta Hibbertia vestita		x	х	x		x
Malvaceae Malvaceae	•	Hibiscus cultivar Hibiscus tiliaceus	Hibiscus	x	x x			
Apocynaceae Violaceae		Hoya australis subsp. australis Hybanthus enneaspermus	Spade Flower	x		×		v
Violaceae		Hybanthus stellarioides	Spade Flower			x		×
Poaceae Lamiaceae	•	Hyparrhenia rufa Hyptis suaveolens	Thatch Grass	х	x	x		x
Poaceae Fabaceae		Imperata cylindrica Indigofera pratensis	Blady Grass	х	Х	X X	Х	x x
Convolvulaceae Bignoniaceae	•	Ipomoea pes-caprae subsp. brasiliensis Jacaranda mimosifolia	Goats foot convolvulus Jacaranda		x x			
Fabaceae Sapindaceae		Jacksonia scoparia Jagera pseudorhus var. pseudorhus		x	x x	x x	х	
Oleaceae Oleaceae		Jasminum didymum subsp. didymum Jasminum simplicifolium subsp. australiense		X Y	x	xx	х	x
Juncaceae Juncaceae		Juncus continuus						
Juncaceae				X		*		
	* Claer ?	Juncus kraussii Juncus polyanthemus	Lantana	x x		x	·	·
Verbenaceae Verbenaceae	* Class 3 * Class 3	Juncus polyanthemus Lantana camara Lantana montevidensis	Lantana Creeping Lantana	x x x		x x x	x x	x
Verbenaceae Verbenaceae Poaceae Cyperaceae		Juncus polyanthemus Lantana camara Lantana montevidensis Leersia hexandra Lepidosperma laterale var. laterale		x x x		x x x x	x x x x	x
Verbenaceae Verbenaceae Poaceae		Juncus polyanthemus Lantana camara Lantana montevidensis Leersia hexandra	Creeping Lantana	x x x	x	x x x x x x x x x x x x x x x x x x x	x x x x x	x x x x x
Verbenaceae Verbenaceae Poaceae Cyperaceae Poaceae		Juncus polyanthemus Lantana camara Lantana montevidensis Leersia hexandra Lepidosperma laterale var. laterale Laptochloa decipiens var decipiens	Creeping Lantana	x x x	x	X X X X X X	x x x x	x x x x
Verbenaceae Verbenaceae Poaceae Cyperaceae Poaceae Myrtaceae Poaceae Fabaceae Ericacea		Juncus polyanthemus Lantana camara Lantana montevidensis Leersia hexandra Lepidosperna laterale var. laterale Lepidosperna laterale var decipiens Lepitoshoa decipiens var decipiens Lepitospernum neglectum Lepiturus repens Leucana leucocephala Leucapon lepitospermoides	Creeping Lantana	x x x x	x	X X X X X X X	x x x x	x x x x x x x x x x x x x x x x x x x
Verbenaceae Verbenaceae Poaceae Cyperaceae Poaceae Myrtaceae Poaceae Fabaceae Ericacea Plumbaginaceae Lindsaeaceae		Juncus polyanthemus Lantana camara Lantana montevidensis Leersia hexandra Leptoshia aterale var. laterale Leptochloa decipiens var decipiens Leptospermun neglectum Lepturus repens Leucapran leucocephala Leucapran leutospermoides Limonium solanderi Limdaea ensificia subsp. ensificiia	Creeping Lantana	X X X X X X	X	X X X X X X X X X X X X X X X X X X X	X X X X X	X X X X X X X X X X X X X X X X X X X
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Poaceae		Melinis minutiflora	Molasses Grass	х	х	x		х
Poaceae Polypodiaceae		Melinis repens Microsorum grossum		x	x			
Polypodiaceae Loganiaceae		Microsorum punctatum Mitrasacme pygmaea	Pygmy Bishop's Hat			×		~
Fabaceae		Mucuna gigantea	r ygriy bishop's riat	x				^
Cucurbitaceae Commelinaceae		Mukia maderaspatana Murdannia graminea		x	x	x	x	x
Myoporaceae		Myoporum acuminatum	Beach Myorporum					
Mimosaceae Poaceae		Neptunia gracilis Oplismenus aemulus			x	x	x	
Poaceae	* -! 0	Oplismenus hirtellus	Common Brights Book			x		x
Cactaceae Myrtaceae	* class 2	Opuntia stricta Osbornia octodonta	Common Prickly Pear	х	*		^	^
Poaceae Poaceae		Ottochloa gracillima Ottochloa nodosa		x		x x		x x
Oxalidaceae		Oxalis radicosa		x				
Asteraceae Pandanaceae		Ozothamnus cassinioides Pandanus tectorius		X		x	x	
Bignoniaceae Poaceae		Pandorea pandorana Panicum effusum		x	х	X	v	X
Apocynaceae		Parsonsia plaesiophylla	Parsonsia		x			
Poaceae Poaceae		Paspalidium distans Paspalidium gausum		x		x x		х
Poaceae		Paspalidium gracile				x		
Poaceae Poaceae		Paspalum argentum Paspalum plicatulum				x	x	
Poaceae Poaceae		Paspalum scrobiculatum Paspalum vaginatum		x		x		x
Passifloraceae	•	Passiflora foetida	stinking Passionfruit	x	x			
Passifloraceae Poaceae		Passiflora suberosa Pennisetum ciliare	Corky Passionfruit	x		x	X	x
Asteraceae Poaceae		Peripleura diffusa Perotis rara	Comet Grass	х		x		х
Picrodendraceae		Petalostigma pubescens	Quinine Berry	x	x	x		x
Poaceae Phyllanthaceae	1	Phragmites australis Phyllanthus fuemrohrii		x				
Phyllanthaceae		Phyllanthus virgatus	Fuelia Bia	х		х		х
Coniferae Urticaceae		Pinus sp. Pipturus argenteus	Exotic Pine	х	A	х		
Pittosporaceae Lecythidaceae		Pittosporum ferrugineum subsp. linifolium Planchonia careya	Cocky Apple	x	×	x x	x x	x x
Apocynaceae	•	Plumeria rubra	Frangipani		x			
Polygaliaceae Fabaceae		Polygala sp (aff. linearifolia 'd') Pongamia pinnata	Native Wisteria		x	x		X
Phyllanthaceae Sapotaceae	local	Poranthera microphylla Pouteria sericea			x	Y	v	
Acanthaceae	ioodi	Pseuderanthemum variabile	Love Flower		x	x	x	х
Asteraceae Dennistaedtiaceae		Pseudognaphalium luteoalbum Pteridium esculentum		x	x	x		x
Asteraceae Ramalinaceae		Pterocaulon redolens Ramalina litorea		x		x		
Rhizophoraceae		Rhizophora stylosa	21	x		x	х	
Commelinaceae Rubiaceae	•	Rhoeo discolor Richardia brasiliensis	Rhoea	x	X	x		x
Chenopodiaceae Goodeniaceae		Sarcocornia quinqueflora Scaevola calendulacea		v		x		
Araliaceae		Schefflera actinophylla	Umbrella Tree	x	х			
Araliaceae Getianaceae	-	Schefflera digitata Schenkia australis	New Zealand umbrella tree Spiked Centuary		X			
Poaceae Poaceae		Schizachyrium fragile Scleria brownii	Firegrass			Y		
Poaceae		Scleria ciliaris		x				
Poaceae Flacourtiaceae		Scleria mackaviensis Scolopia braunii		x		x		x
Caesalpiniaceae Caesalpiniaceae		Senna gaudichaudii Senna occidentalis		X	x			
Caesalpiniaceae	•					х		
		Senna pendula	Con Burnlana					
Aizoaceae Malvaceae		Sesuvium portulacastrum Sida atherophora	Sea Purslane	х		x		x
	•	Sesuvium portulacastrum	Sea Pursiane Flannel Weed Spiked Sida	x x x	x	x x x	x x	x x x
Malvaceae Malvaceae Malvaceae Malvaceae	•	Sesuvium portulacastrum Sida atherophora Sida cordifolia Sida hackettiana Sida rhombifolia	Flannel Weed Spiked Sida Arrowleaf Sida	x x x	x	x x x	x x	x x x x
Malvaceae Malvaceae Malvaceae Malvaceae Malvaceae Asteraceae	•	Sesuvium portulacastrum Sida atherophora Sida cordifolia Sida hackettiana Sida hackettiana Sida rhornblolia Sida spinosa Sidaspinosa Sidaspinosa	Flannel Weed Spiked Sida Arrowkaaf Sida Spiny Sida Indian Weed	x x x	x	x x x	x x	x x x x
Malvaceae Malvaceae Malvaceae Malvaceae Malvaceae Asteraceae Solanaceae	•	Sesuium portulacastrum Sida atherophora Sida socialiolia Sida hackettiana Sida hackettiana Sida rhombilolia Sida spinosa Siegasbackia orientaliis Solanum ellipiticum	Flannel Weed Spiked Sida Arrowleaf Sida Spiny Sida Indian Weed Potato Bush	x x x	x	x x x x	x x	x x x x x x x x x x x x x x x x x x x
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APPENDIX F – Habitat Assessment Forms

<u>HABITAT ASSESSMENT – Terrestrial woody ecosystem</u> (20m radius from observer)

GPS Waypoint/Site #: Photo #: Date:

Location:

Vegetation type (e.g Eucalypt open forest):

Feature	Count	% Projective Cover	Presence/Absence	Comments
Condition (circle relevant)				
• Integral (little disturbance)				
• Remnant (or regrowth but >70%				
height, >50% cover of RE)				
• Regrowth (<70% height,				
<50%cover)				
Exotics/weeds		%		
Human Disturbance				
Vegetation Density		Circle relevant		
		category *		
Canopy		D M S V Absent		
Understorey		D M S V Absent		
Ground Cover		(Total must be 100%)		
Fallen woody debris (timber				
>10cmdiameter, 0.5m length)		%		
Bark/Leaf Litter		%		
Rocks		%		
Grass		%		
Bare ground		%		
Hollow Bearing Trees				
Mature Koala Food Trees				
(Angophora, Corymbia, Eucalyptus,				
Lophostemon, Melaleuca) >4m height, 10cmDBH				
Rocky Outcrops				
Cliffs, caves, large boulder stacks				
Aquatic Resources			(Circle relevant and	Description (if present):
ponding/wetland/low lying			give type/description)	
areas/creek				
			Ephemeral Perennial	
			None present	

^{*} D(Dense) = crowns touching/overlap; M (Mid-dense) = touching – slight separation; S (Sparse) = clearly separated; V(Very Sparse) = well separated

Opportunistic Observations (tick and describe)

Scratches	Type:
Diggings	Type: (e.g. bandicoot, echidna)
Nests	Type: (e.g. raptor, other)
Hollow use	Species:
Scats	Type:

Other Notes (including direct fauna sightings) –

WATERWAY HABIT	FAT ASSESSMENT
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GPS Waypoint/Site #: Photo #: Date:

Location:

Rain in last week?:

Vegetation Community surrounding (e.g Eucalypt open forest):

DESKTOP

Vegetation integrity (based on site mapping)

Remnant		Regrowth		Not woode	ed
(>70% height, >50%	%)	(<70% height, <50% cover)			
Stream Order					
1	2	3	4		5

FIELD ASSESSMENT

Water Permanency (circle applicable)

Ephemeral	Permanent	Tidal influence	OTHER?

Watercourse form (circle most appropriate)

		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		Secretary of the second
Ephemeral	Ephemeral	Ephemeral	Ephemeral	Permanent
Little change in topography	incised	Some rounding of watercourse, no ponding	Minor alluvial deposits, some ponding	Water present

Aquatic vegetation

Aquaiic vegetation
Terrestrial vegetation same as surrounding environment
Ground and canopy species associated with wetter environs (e.g ferns, Brush box)
Riparian vegetation (e.g Melaleuca, Waterhousia)
Aquatic obligates
n/a

Exotic species

%	Species present:
of all vegetation	

Habitat Features

Ephemeral - complete habitat pro-forma Permanent water – habitat features (tick applicable)

Banks suitable for burrowing species (e.g platypus, crabs)	
Coarse woody debris in stream	
Riffles	
Runs	
Pools	
Overhanging vegetation	
Stagnant water	
Appears flushed	

Disturbance (circle most accurate description)

Disturbance level	Riparian vegetation / vegetation adjacent to watercourse
Extreme	Absent or severely reduced. Vegetation if present is dominated by exotic species. Native species are rare or absent. Agriculture and/ or cleared both side
Very high	Some native vegetation present, but is severely modified both sides by grazing or intrusion of introduced species. Native species severely reduced in numbers (species richness) and cover. Agriculture and/ or cleared both sides
High	Moderately disturbed by stock or through the intrusion of introduced species, though native species remain in reasonable numbers. Agriculture and/ or cleared one side; native vegetation on the other is clearly disturbed.
Moderate	Native vegetation present on both sides of the river. The intrusion of introduced species is minor and of moderate impact.
Low	Native vegetation present on both sides of the river in generally good condition with few introduced species present. Any disturbance is minor.
Very low	Native vegetation on both sides of the river in an undisturbed state. Introduced species are rare or insignificant. Representative of pristine conditions.

Other Notes (including aquatic/semi-aquatic fauna sightings)

APPENDIX G - Habitat & Waterway Assessments

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Scats (Type					-									
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 $\underline{\textbf{Habitat Value Ranking:}} \, \mathsf{High} - \mathsf{Very \ High}$

Type															
Type Terrestrial woody ecosystem	SITE NUMBI	ΕR								12	大型 果故	1 2			
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 $\underline{\textbf{Habitat Value Ranking:}} \ \mathsf{High-Very \ High}$

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Habitat Value Ranking: Moderate - High

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 $\underline{\textbf{Habitat Value Ranking:}} \, \mathsf{High} - \mathsf{Very \ High}$

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Habitat Value Ranking: High - Very High

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<u>Habitat Value Ranking:</u> High – Very High

SITE NUMB	ER	H 26												
Location		Tidal Inl	et											
Туре		Marine I	nlet											
DATE		22/09/20)10		nu.	MATE .								
RECORDER		Amy Pro			انه	47						-	-	
LOCALITY		Great K	eppel Is	sland		141	-		en amount	102	ALC: N			
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SITE DESCR						couch and	d sand	dfire.	的					
GENERAL N		Earth br		ross i	nlet.					_				
Exotics/Wee			0%)			w Bearing			0		
Human Distu				rth bri	dge at p	oint)		Rock	y Outcrop	os		N		
Mature Koala Feature	reed He	es	0									<u> </u>		
	Τ		Remr	ant.		Y (RE v	60-	0.1.2\	D.	growth		Τ.		
Integral Vegetation I			Keiiif	ıaılı		I I (KEV	0.0 =	0.1.2)	Re	growth		1-		
Canopy	Jensity	Ab	sent				I	Unde	rstorey		Abs	ent		
Ground Cov	er	I AD	JUIL					Jiluei	Storey		1 703	CIIL		
Fallen Woody	0%	Bark/ Litter		0%		Rocks	5%		Grass/ Vegeta		25%		Bare Ground	70%
Debris														
Aquatic Res					ı					Lv		1		
Ephemeral	-		erenn			No 1.	N	larine		Υ		No	one	-
Description		tidal syst	em. Pa	rt of L	eekes (геек.								
Opportunist		ations												
Scratches (T					- Crobo									
Diggings (Type					Crabs	<u> </u>								
Nests (Type					-									
Hollow Use Scats (Type					-									
Fauna at sit					Beach	Stone Cu	ırlow							
i dulla at Sit	•				Dodoi	. Storie Ot	411044							

Habitat Value Ranking: High -Very High

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SITE NUMBER	H 33			-		A M	11/2	Sec. 1	The second of		(July	- Jakie		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
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Туре	Terrestr		dy	A .			C - Lat		4	C	赵小	, in [13490
	ecosyst				Total Till				A A	4	Y T		a de	
DATE	23/09/20			H	FIX						730	1 24	land)	发现
RECORDER	Amy Pro	owd		*			MS.	200			7			
LOCALITY	Great K	eppel Is	sland						To the X		REGIN	美国		全国共享
CITE DECODIDATION	1 a A a.	! .		58					7 20 电路	* State of the	9	阿尔多	3	
SITE DESCRIPTION GENERAL NOTES	Low Aca		d Snal	(O. WOOO	and Gree	n Dar	vic							
Exotics/Weeds	vveeus			nd laye		ıı raf		w Po	aring Trees		0			
Human Disturbance		Y (tra		inu laye	#1		Rocky	w De	aring riees		N			
Mature Koala Feed Tr	000	0	ick)				KOCK	y Out	crops		IN			
Feature	ees	<u> </u>												
Integral -		Remi	nant		Y (RE v	6 N =	0 2 120	٠,	Regrowth		Τ-			
Vegetation Density		Keiiii	iaiit		I (NL V	0.0 =	0.3.130	·)	Regiowiii					
Canopy	M					1	Undo	rotor	01/	D				
Ground Cover	I IVI						Under	SION	БУ	I D				
Fallen 5%	Bark	Loof	0%		Rocks	0%		Gra	iss/	90%	Т	Bare		5%
Woody	Litter		0 /0		NUCKS	0 /0			jetation	<i>30 /</i> 0		Ground	ıl	J /0
Debris	Litte							v G(joudion			Jiounu	'	
Aquatic Resources						1								
Ephemeral Y	Ti	Perenn	ial	-		I N	larine		T -		No	ne	Τ-	
	ponded ir			as follo	wing rain	1 10					140			
Opportunistic Obser		. 10 vv 1y1	ing air	40 10110	ming rain.									
Scratches (Type)	TUITOTIS													
Diggings (Type)				-										
Nests (Type)				-										
Hollow Use (Species)			-										
Scats (Type)				-										
Fauna at site				Crow										
i dulla at Site				Pheas Olive-	sant couca backed Su d Marsh F	unbird								

Habitat Value Ranking: Moderate - High

SITE NUMBI	ER	H 34			13	energy	W. 7.				1 / L	1/6	- Cala		
Location		Along th	e track		100	NAV.		1		1	i i		着	1775	A
Туре		Terrestr	ial woo	dy	-	Sign		1	X	松間				加及世	1000
••		ecosyste	em	•				25.7		South 19	Total Line	1		100	
DATE		23/09/20			N	1		No.		V SP		100		16 12	
RECORDER		Amy Pro	owd		D.	TOTAL	新山			1.00		II.	11/23		注意
LOCALITY		Great K		sland					到。李	1			-	L PART	
								NA ANDREAS							Vin
					43		A SAME	772	LAK	TA ST		米沙拉		走	
SITE DESCR		ironbark	and A	ngopn	ora ope	n forest.									
GENERAL N		vveeas		rouna	layer o	nly are exc	otic gra			-		•			
Exotics/Wee			30%							ng Trees		0			
Human Distu			Y (tra					Rocky Outcrops				N			
Mature Koala	a Feed Tre	es	100%	of ca	nopy										
Feature			_			L) / (D.E.	0.0	0.44.0	\ -			T			
Integral	- -		Remi	nant		Y (RE v	b.U =	<u>в.11.3а</u>) F	Regrowth		<u> </u>			
Vegetation I	Jensity										10				
Canopy		M						Under	storey		S-V				
Ground Cov	-					T	1	-							
Fallen	0%	Bark/		20%)	Rocks	0%		Grass	-	80%		Bare	_	%
Woody		Litter	•						Veget	ation			Ground		
Debris				1											
Aquatic Res	ources														
Ephemeral			Perenn	ial			N	/larine		<u> </u>		No	ne	Υ	
Opportunist		ations													
	Scratches (Type)						-								
			-												
Diggings (Ty					-										
Nests (Type					-										
Nests (Type Hollow Use) (Species)														
Nests (Type) (Species)				-										

<u>Habitat Value Ranking:</u> Moderate - High

				D- 1	PARTY DAVIS	N. SICIENTO	- OF LUMBS		3.90.00		COLUMN TO SERVICE			0.00
SITE NUMBER	H 36				A SHIT		美罗	1	AK X	A	1	11.1	X	L. Chit
Location	Track						1	71-62	K K	5				
Туре	Terrestr		dy	X	100	XX	01		M		1		1	
	ecosyst					1	Jak.	W	M		17	A		A THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE
DATE	23/09/20				A		1				NA	/ /W		A
RECORDER		Amy Prowd			FAN I	1		11/12	Y	体入人	A DE	XI		L Subject
LOCALITY	Great K	Great Keppel Island			1 THE	55		-	1		VV		15	
SITE DESCRIPTION	Eucalyp	tus ope	en fore	st			STATE OF STATE		ASSES	T. Hinds		ALERS OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY		
GENERAL NOTES				asses only										
Exotics/Weeds		30%	<u> </u>											
Human Disturbance			ck and	fence)	ce) F			Rocky Outcrops						
Mature Koala Feed Ti	rees		of car								N			
Feature				1,7										
Integral -		Remi	nant	Y (RE v 6.0 = 8.11.3a) Regrowth -										
Vegetation Density		<u> </u>												
Canopy	V						Under	storey		M-S	;			
Ground Cover														
Fallen 5%	Bark	/Leaf	0%		Rocks	0%		Grass	s/	95%		Bare	0%	,
Woody	Litter							Veget				Ground		
Debris														
Aquatic Resources														
Ephemeral Y		Perenn	ial	-		N	larine		-		Nor	пе	-	
Description Area	swampy af	ter the	rain –	could b	e some ov	erflow	from th	ne Leek	es Dam to	the SE.			•	
Opportunistic Obser	rvations													
Scratches (Type)				-										
Diggings (Type)														
Nests (Type)	-													
Hollow Use (Species	-													
Scats (Type)														
Fauna at site	Pseudophryne major Striped Marsh Frog Eastern Sedgefrog Pheasant Coucal Crow Laughing Kookaburra Bar-shouldered Dove													
				Dai-81	iouiueiea	אטטע								

Habitat Value Ranking: Moderate - High

SITE NUMBE						No. 2			1		国际外的			1111	
Location								1		JAPAN X	A fre	ME		11 / 61	
Type		Terrestri	al woo	dy		N A		100	图	7	1xx		At	A	
		ecosyste				TOTAL			ACC S		II.		学长	THE REAL PROPERTY.	
DATE 22/09/2010						工作义		100	V	CVA		T MA			
RECORDER		Amy Pro	wd						WI	Y J	OV.			The Marie	
LOCALITY		Great Ke	eppel Is	sland	200			WIN	*	SC			West to		
SITE DESCR	IDTION	Eugobyo	tuo ono	n foro	ot.	100			27 3	學學學		AL PARTY	2000年19一个特别		
GENERAL N		Eucalyp	ius ope	niore	St										
Exotics/Weed			E0/ /F	Dri aldu	Door)			Llelle	u Doo	ring Trees		1			
Human Distur		5% (Prickly P				له ماریمه ما	\					N			
Mature Koala		ees 100% canor						Rocky Outcrops				IN .			
Feature	reeu me	568	100 /6	Carlo	ру										
			Domi	nont.		Y (RE v 6.0 = 8.11.3a)				Regrowth			-		
Integral	- encity		Remi	iant		I (KE V	0.0 =	0.11.38	1)	Regrowth		<u> </u>			
Vegetation D Canopy	ensity	Ιм					I	Unda	rotoro	.,	ΙV				
Ground Cove		I IVI						Under	store	у	I V				
Fallen Woody Debris	len 5% Bark/Leaf 50% ody Litter)	Rocks 0%		Grass/ Vegetation					Bare Ground	20%			
Aquatic Reso	ources														
Ephemeral	-	F	erenn	ial	-	- Marine Y None -							-		
Description	Within	100m of tidal inlet.													
Opportunisti															
Scratches (T			-												
Diggings (Type)				-											
Nests (Type)					-										
Hollow Use (Species)				-										
Scats (Type)					Possum										
Fauna at site			Eastern Sedgefrog Noisy Friarbird												

<u>Habitat Value Ranking:</u> High – Very High

DATE																
Type	SITE NUMBER	H	1 38			6	A L					1/1/	H			
DATE	Location						-		以 多种类	The De				一 是		
Arrival Provided Content Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided Provided	Type				dy			美国			A property		are.		(1)	1
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SITE DESCRIPTION Eucalypt forest						《		是是是						1	12	W.
SITE DESCRIPTION Eucalypt forest								a distribution		No. 11				AFIL		30
Exotics/Weeds	LOCALITY	(Great Ke	eppel Is	sland				5-16		V	到 约定				h-162
Exotics/Weeds																
Exotics/Weeds			Eucalypt	t forest					-	PROPERTY.		AND ASSESSED A		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		
Human Disturbance																
Mature Koala Feed Trees																
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Name		eed Trees	3	100%	of ca	nopy										
Vegetation Density Canopy M Understorey M-S Ground Cover Fallen 5% Bark/Leaf Litter S% Rocks 0% Grass/ Vegetation S Bare Ground S Perennial - None - None - None - Description Within 100m of a creek Opportunistic Observations Scratches (Type) Potentially Goanna Diggings (Type) - Nests (Type) - Secription S Potentially Goanna Nest (Type) - Hollow Use (Species) - Scratches (Species)																
M				Remr	nant		Y (RE v	6.0 = 8	8.3.13c)		Regrowth		<u> </u>			
Ground Cover Fallen 5% Bark/Leaf 5% Rocks 0% Grass/ Vegetation 90% Bare Ground Pebris		nsity	1									1				
Fallen 5% Bark/Leaf Litter 5% Rocks 0% Grass/ Vegetation 90% Bare Ground Pebris 90% Perennial - None - None - Description Within 100m of a creek Opportunistic Observations Scratches (Type) Potentially Goanna Diggings (Type) - Nests (Type) - Hollow Use (Species)	Canopy		M						Unders	storey		I M-S				
Woody Debris			Don's!	Loct	E0/		Dooles	00/	ı	Cross	n/	000/		Parc	00/	
Debris Aquatic Resources Ephemeral Y Perennial - Marine - None - Description Within 100m of a creek Opportunistic Observations Scratches (Type) Potentially Goanna Diggings (Type) - Nests (Type) - Hollow Use (Species) -		0%			5%		ROCKS	0%				90%			0%	
Aquatic Resources Ephemeral Y Perennial - Marine - None - Description Within 100m of a creek Opportunistic Observations Scratches (Type) Potentially Goanna Diggings (Type) - Nests (Type) - Hollow Use (Species) -	Dehris		Litter							v ege	lation			Siounu		
Ephemeral Y Perennial - Marine - None - Description Within 100m of a creek Opportunistic Observations Scratches (Type) Potentially Goanna Diggings (Type) - Nests (Type) - - Hollow Use (Species) - -		Irces														
Description Within 100m of a creek Opportunistic Observations Scratches (Type) Potentially Goanna Diggings (Type) - Nests (Type) - Hollow Use (Species) -			F	erenn	ial	_		M	larine		1 -		No	ne	-	
Opportunistic Observations Scratches (Type) Potentially Goanna Diggings (Type) Nests (Type) - Hollow Use (Species)								1 .41			ı		1			
Scratches (Type) Potentially Goanna Diggings (Type) - Nests (Type) - Hollow Use (Species) -				. 510010												
Diggings (Type) - Nests (Type) - Hollow Use (Species) -						Poten	tially Goar	nna								
Nests (Type) - Hollow Use (Species) -							, - 50.									
Hollow Use (Species) -		1				-										
						l										
outs (Type)	Hollow Use (S	pecies)				-										
Fauna at site	Hollow Use (S Scats (Type)	pecies)				-										

Habitat Value Ranking: High - Very High

SITE NUMBER		H 40										475-34		
Location		Area 6							W.79	14	40	1	1	
		Terrestri	al was	d. ,		. 41. 4	k n	***	H	No.	250		V THE	A SAN CA
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RECORDER		Amy Pro			2.0			THE PARTY		A. 1000	8 15	1		
LOCALITY		Great Ke		Jand		一等。					1	- And	1	
LOCALITY		Great Ke	eppei is	siand								7	T THE	
SITE DESCRIP	TION	Melaleu	ca and	Bank	sia wood	dland					100	e DX		1.62
GENERAL NOT		Underst												
Exotics/Weeds			0%					Holloy	v Bea	ring Trees		1		
Human Disturba	ance		Y (Tra	ack)				Rocky				N		
Mature Koala Fe		s	20	,										
Feature												<u> </u>		
Integral	<u> </u>		Remn	ant		Y (RE v 8.12.14x	6.0 = 3 (2c)	8.11.10	/	Regrowth		-		
Vegetation Der	nsity													
Canopy		S						Under	store	у	S-V			
Ground Cover														
Fallen 1 Woody Debris	0%	Bark/ Litter		30%	6	Rocks	0%		Gras Veg	ss/ etation	50%		Bare Ground	10%
Aquatic Resou	rces													
	-	F	Perenni	ial	-		N	larine		-		No	ne	Υ
Opportunistic (Observa													
Scratches (Typ					-									
Diggings (Type					-									
Nests (Type)					1 -									
Hollow Use (Sp	pecies)				-									
Scats (Type)					-									
Fauna at site					Ospre	y fly over								

SITE NUMB	ER	ΗΔ	43												
Location			ea 7			200									
Type		Te	rrestria	l wood	dy	40	W. No.								
			osyster			- 2-8	THE SALE								
DATE			/09/201					Elan.							- Mary and
RECORDER	}	An	ny Prov	vd		26	A Halling		-						
LOCALITY		Gr	eat Kep	ppel Is	land			The state of	WALES		The same of			19	
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GENERAL N							n hoooma	o mor	o otupt	od prid	or to steep o	looont to	000	n groop on	d booob
Exotics/Wee		_ ru		0%	uasi	vegetatio	on become	5 11101			ring Trees	ieceni ic	0	ii grass and	Deach.
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Mature Koala				0	CK, EI	081011)			NOCK	y Outo	ιυρδ		IN		
Feature	a i eeu	11663		<u> </u>											
Integral		-		Remn	ant		Y (RE v	60-			Regrowth		Τ-		
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Vegetation	Doneity	,					0.11.10/	3.12.1	4,20)						
Canopy	Density		ΙD					П	Under	retore	V	ΙV			
Ground Cov	ıρτ		10						Onaci	31010	<u>y</u>				
Fallen	5%		Bark/L	eaf	5%		Rocks	0%		Gras	:e/	50%		Bare	40%
Woody	0 70		Litter	.cu.	0 70		ROOKS	0 70			etation	0070		Ground	4070
Debris										. og	olulion.			O Cana	
Aquatic Res	sources	-													
Ephemeral	-		Pe	erenni	ial	I -		N	larine		-		N	one	Υ
Opportunis	tic Obs	ervatio													
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Diggings (T						-									
Nests (Type						-									
Hollow Use		es)				-									
Scats (Type		,				-									
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SITE NUMB	ER	H 44			190	A SAN	機					DIA B	
Location		Area 2			12	松湖 。	MA.	4963	A A LANGE	LIV	DATE	ZYIN.	
Туре		Terrestr		dy	V.		TO VE	4 A					
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DATE		25/09/20				AL PARK			ALL ALL AND AND AND AND AND AND AND AND AND AND	10	Marie 1		14条件
RECORDER	1	Amy Pro				建	TAM	1		水循序		NELLAN	大学
LOCALITY		Great K	eppel Is	sland	W	N Sold		W V	AL AND COLOR	mad and			
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SITE DESCI		Beach fi	ont sh	e-oak									
GENERAL N													
Exotics/Wee				(grass)				w Bearing Trees		0		
Human Distu			Y (ca	mp)				Rock	y Outcrops		N		
Mature Koala	a Feed Tre	es	0										
Feature													
Integral	-		Rem	nant		Y (RE v	6.0 =	8.2.1)	Regrowth		-		
Vegetation	Density												
Canopy		М						Unde	rstorey	S-V			
Ground Cov													
Fallen	0%	Bark/	Leaf	5%		Rocks	0%		Grass/	40%	E	Bare	55%
Woody		Litter							Vegetation		0	Ground	
Debris													
Aquatic Res													
Ephemeral	-		Perenn	ial	-		N	larine	-		None	е	Υ
Opportunis		/ations											
Scratches (Type)				-								
Diggings (T	уре)				-								
Nests (Type					-								
Hollow Use					-								
Scats (Type					Possi	ım (Appea	r to be	e eating	She-oaks on the	e beach fi	ont).		
Fauna at sit						, <u> </u>							
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0.75														
SITE NUMBER	R	H 45												
Location		Area 8												
Туре		Terrestri	ial woo	dy										
		ecosyste		•										1111/11
DATE		25/09/20												111111
RECORDER		Amy Pro												
LOCALITY		Great Ke	eppel Is	sland	8.				2					
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								事后	De la	花 灰泥	(7)	\times	级发	次
SITE DESCRI	PTION	Pasture	grassla	and w	th padd	ock dam								
GENERAL NO	ATEC													
GENERAL NC	JIES													
Exotics/Weeds	s		60%	(pastu	re grass	s)		Hollov	v Bearin	g Trees		0		
Exotics/Weeds Human Disturb	s bance				re grass				v Bearin			0 N		
Exotics/Weeds	s bance	es												
Exotics/Weeds Human Disturb Mature Koala Feature	s bance	es	Y (ho						Outcrop	os				
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Exotics/Weeds Human Disturb Mature Koala Feature Integral Vegetation De Canopy	s bance Feed Tree - ensity		Y (ho	meste		ure)		Rocky	Outcrop	os	Abs	N Non-	remnan	t
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Exotics/Weeds Human Disturt Mature Koala Feature Integral Vegetation De Canopy Ground Cove Fallen Woody Debris Aquatic Reso Ephemeral Opportunistic Scratches (Ty Diggings (Typ) Hollow Use (\$6000)	s bance Feed Tree ensity or 0% purces - c Observe ype) pe)	Abs	Y (ho 0 Remi	nant 0%		ure)		Under	Outcrop Restorey Grass/	egrowth	Abs	N Non-	Bare Ground	0%
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Habitat Value Ranking: Very Low - Low

HABITAT ASSESSMENT WET SEASON FEBRUARY 2011

SITE NUMBER	H 18					Visit in the		Contraction of the	THE STATE OF	N. CRONOL	C.Maria	ME (1) W	
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Location	Area 9	l (8	1					A TOP OF		
Type	Swamp	DOX TOR	est		9		The same	新教 中	C VANDS	- 10	C Str	THE RESIDENCE OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF	
DATE	13/2/11	1			1								
RECORDER	Amy Pro					43		Maria N	是一位的	to the same	186	3 7 1/6	
LOCALITY	Great K	eppel Is	sland										
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						A.	AND THE REAL PROPERTY.	The second	4 3 4 6			No. of the second	
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SITE DESCRIPTION	Sandy s	tream l	oed wit	th <i>Euc</i> a	lypt emerg	ent ir	Lopho	stemoi	n suaveolei	ns and A	1elale	euca forests.	
GENERAL NOTES													
Exotics/Weeds		10%					Hollov	w Bear	ing Trees		1		
Human Disturbance		Y - tra	ack					y Outci			N		
Mature Koala Feed Tre	es	100%	canor	οу									
Vegetation Condition			·										
Integral -		Remi	nant		Y (RE v	6.0 =	8.2.8a)		Regrowth		-		
Vegetation Density					, ,								
Canopy	М						Under	store	/	D			
Ground Cover													
Fallen 10%	Bark	/Leaf	60%	,	Rocks	0%		Gras	s/	20%		Bare	10%
Woody	Litter	•						Vege	tation			Ground	
Debris													
Aquatic Resources													
Ephemeral Y		Perenn	ial	-		N	/larine		-		No	one	-
Opportunistic Observ	vations												
Scratches (Type)				-									
Diggings (Type)				-									
Nests (Type)				-									
Hollow Use (Species)				Grour	nd hollow l	ogs p	resent.	Potenti	ially occupi	ed.			
Scats (Type)					tail possur								
Fauna at site					r to Area 9		ies list.						
						27-20							

SITE NUMBER	H 19				1	d ATX	24-2·	1-					
Location	Area	2				The last	C						
Туре	Rocky	y headlan	d										
DATE		/2011			通過			Pre					
RECORDER		Prowd					*	7					
LOCALITY	Great	Keppel Is	sland					The same					
SITE DESCRIPTION	Deale					Ton or		SPA 1		01/11	A STATE OF		
GENERAL NOTES		y headlan ey Headla											
Exotics/Weeds	Putne	0%	na.				Llollo	w Bearing	~ Troos		0		
Human Disturbance			ohina	and wall	ina			y Outcrop			Y		
Mature Koala Feed Tr	200	0	Silling	anu wan	NITIG		NOCK	y Outcrop	<i>)</i> 5		<u> </u>		
Vegetation Condition													
Integral Y	<u> </u>	Remi	nant		l -			R	growth		Τ_		
Vegetation Density		- Itomi	Idill					1.00	giowaii				
Canopy	Ah	sent				T	Unde	rstorey		Abse	ent		
Ground Cover	710.	oone				1	Cilde	otoroy		71000	5110		
Fallen 0% Woody Debris	Ba Lit	rk/Leaf ter	0%		Rocks	100	%	Grass/ Vegeta		0%	Bare Groun	d	0%
Aquatic Resources													
Ephemeral -		Perenn	ial	-		N	larine		Y – tida influenc		None	I-	
Opportunistic Obser	vations												
Scratches (Type)				-									
Diggings (Type)				-									
Nests (Type)				-									
Hollow Use (Species)			-								-	
Scats (Type)				-									
Fauna at site					crabs obletharus rs on rocks		alis	_	_	_			

SITE NUMBER	H 21				1			101		4/2			
Location	Area 3					17						3/12	
Туре	She-oak	forest			A COM	4				1///	1977		干到 400
DATE	14-2-11					7/4	FI				7		
RECORDER	Amy Pro	owd				Mary.				11/1/2	1. CH	7大	
LOCALITY	Great K		sland		100		A COL	V		Pala		A N	
SITE DESCRIPTION	Souther	n end o	f the e	existing	airstrin	1000				K NA	A MIN		
GENERAL NOTES	Allocasi	jarina. <i>I</i>	Acacia	a and G	revillea for	est.							
Exotics/Weeds	7	5%	1001010				Hollo	w Bearin	a Trees		0		
Human Disturbance				le track	and pump	ı		y Outcro			N		
Mature Koala Feed Tre	ees	N											
Vegetation Condition													
Integral -		Remn	ant		Y (Rev6	= 8.2	.8a)	R	egrowth		-		
Vegetation Density									Ť				
Canopy	D						Unde	rstorey		S			
Ground Cover													
Fallen 5% Woody Debris	Bark/ Litter		70%	, D	Rocks	0%		Grass/ Vegeta		25%		Bare Ground	0%
Aquatic Resources													
Ephemeral -		Perenni	ial	-		N	larine		-		No	ne	Υ
Opportunistic Observ	vations												
Scratches (Type)				-									
Diggings (Type)				Y (typ	e unsure)								
Nests (Type)				- ` .	<i>'</i>								
Hollow Use (Species)				-									
Scats (Type)				-									
Fauna at site				Sunbi	arina prese rd n orb spid								

SITE NUMBER	H 23							-		1	1			
Location	Road fo				SPA		50.0	- Jest miles	S. Sint		No.	The Control		
Туре	Low Alp	hitonia	forest				research	1	*		1-97	No. of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of		
DATE	14-2-11							mm)		内头。				
RECORDER	Amy Pro	owd					- 4	10			1			
LOCALITY	Great K	eppel Is	sland		18 W		10	an h	THE PARTY	THE TOTAL		工作的对象	Sec.	
SITE DESCRIPTION	Alphitor	ia exce	lsa wit	h occas	sional talle	r euca	lvpt	20100110011		* A A P 10 P 2 P 2	21 au 21 au 21		Div.	
GENERAL NOTES	'						71							
Exotics/Weeds		5%					Hollo	w Beari	ng Trees		0			
Human Disturbance		Y – Bi	itumer	road				y Outcre			N			
Mature Koala Feed Ti	ees	Y - 3							•					
Vegetation Condition	n													
		Remn	ant		Y (Rev6	= 8.1	1.3a)	F	Regrowth		-			
Vegetation Density														
Canopy	М						Unde	rstorey		S				
Ground Cover														
Fallen 5%	Bark	/Leaf	10%		Rocks	5%		Grass	s/	80%		Bare	0%	
Woody	Litte							Vege	ation			Ground		
Debris														
Aquatic Resources										•				
Ephemeral -		Perenni	ial	-		N	larine		1 -		No	one	Υ	
Opportunistic Obser														
Scratches (Type)				-										
Diggings (Type)				-										
Nests (Type)				-										
Hollow Use (Species	3)			-										\exists
Scats (Type)	•			Possu	ım									\exists
Fauna at site					ow Lorike	et								
					sian Crow									

<u>Habitat Value Ranking:</u> High – Very High

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SITE NUMBER	H 24				23	4			1		SALVE TO		Carlo Sales
Location	Road foo				E 1	100		THE THE	# /s			day .	T. Comment
Туре	Eucalypt	forest			4	den	7		1 /2	4	1	100	
DATE	14-2-11					1	V CIV		1				Market Co
RECORDER	Amy Pro	wd			1		人 3%	1					
LOCALITY					0.00	1	1		4.				
SITE DESCRIPTION	Fucalynt	us mol	uccan	a forest	on hillside			THE ST				A STATE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PAR	es and the
GENERAL NOTES	Lucaiypt	.43 11101	accai	ia iorosi	. On minorue								
Exotics/Weeds		0%					Halloy	v Bearing	Trooc		2 /cr	nall hollo	wc)
Human Disturbance		Y – w	alkina	track				Outcrop			N N	nan nono	w5)
Mature Koala Feed Tr	200			anopy			NUCKY	Outcrop	15		IN		
Vegetation Condition		1 – 10	JO 76 C	апору									
Integral -		Remn	ant		Y (RE v	60-	8 11 3a) Re	growth		Ι-		
Vegetation Density		T(CIIII	iuiit		1 (1 CE V	0.0 - 1	0.11.00	, , , , ,	growth				
Canopy	М						Under	storey		S			
Ground Cover	IVI						Onder	Storey					
Fallen 10%	Bark/l	Logf	10%		Rocks	10%	. 1	Grass/		60%	Т	Bare	10%
Woody	Litter	LGai	10/0	,	NOCKS	10/0	,	Vegeta	tion	30 /6		Ground	10 /0
Debris	Litter							- egeta				Ciouna	
Aquatic Resources										1			
Ephemeral -	Р	erenni	ial	-		M	larine		-		Nor	ne	Υ
Opportunistic Obser		J. J											
Scratches (Type)				Ι-									
Diggings (Type)				-									
Nests (Type)				-									
Hollow Use (Species	1			-									
Scats (Type)				-									
Fauna at site				Lygiso Pheas Noisy Browr	obletharus orus foliorus ant Couca Friarbird n Honeyea sian Crow	im al ter	er						

<u>Habitat Value Ranking:</u> High – Very High

SITE NUMBER	H 41									
Location										
Туре	Low euc	calypt fo	orest	0.5						
DATE	14/2/11			100 CO	No.					
RECORDER	Dan Po			A 1995	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s					
LOCALITY	Great K	eppel Is	sland			10	- Addition	lance when		A STATE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PAR
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OUTE DECODINE						100	DESCRIPTION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF	TUNE		
SHE DESCRIPTION	Mixed v	erv low	eucalvot an	d wattle cor	nmunity					
SITE DESCRIPTION GENERAL NOTES	Mixed v	ery low	eucalypt an	d wattle cor	nmunity on including e	eucalv	otus, acacia	. Casuar	ina. xanthor	rhoea.
GENERAL NOTES Exotics/Weeds	Mixed v Expose	d rocky	eucalypt an slope very l	d wattle cor ow vegetation	on including e			ı, Casuar		rhoea.
GENERAL NOTES	Mixed v Expose	ery low d rocky <5% N	eucalypt an slope very l	d wattle cor ow vegetation	on including e Hollo		ring Trees	ı, Casuar	rina, xanthor 0 N	rhoea.
GENERAL NOTES Exotics/Weeds	Expose	d rocky <5%	eucalypt an slope very l	d wattle cor ow vegetation	on including e Hollo	w Bea	ring Trees	ı, Casuar	0	rhoea.
Exotics/Weeds Human Disturbance Mature Koala Feed Tre	Expose	d rocky <5% N	eucalypt an slope very l	d wattle cor ow vegetation	on including e Hollo	w Bea	ring Trees	ı, Casuar	0	rhoea.
Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Y	Expose	d rocky <5% N	slope very l	ow vegetation	on including e Hollo	w Bea	ring Trees		0	rrhoea.
Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Vegetation Density	Expose	<5% N	slope very l	ow vegetation	on including e Hollo Rock 8.12.14x2c	w Bea	ring Trees crops Regrowth		0 N	rrhoea.
Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Vegetation Density Canopy	Expose	<5% N	slope very l	ow vegetation	on including e Hollo Rock 8.12.14x2c	w Bea	ring Trees crops Regrowth		0 N	rrhoea.
Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Vegetation Density Canopy Ground Cover	ees	d rocky <5% N N	slope very l	Rev6 = 8.11.10/	on including e Hollo Rock 8.12.14x2c Unde	w Bea	ring Trees crops Regrowth	8	0 N	
Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen 15%	ees S	d rocky <5% N N Remr	slope very l	ow vegetation	on including e Hollo Rock 8.12.14x2c	rstore	ring Trees crops Regrowth		O N -	25%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody	ees	d rocky <5% N N Remr	slope very l	Rev6 = 8.11.10/	on including e Hollo Rock 8.12.14x2c Unde	rstore	ring Trees crops Regrowth	8	0 N	25%
Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris	ees S	d rocky <5% N N Remr	slope very l	Rev6 = 8.11.10/	on including e Hollo Rock 8.12.14x2c Unde	rstore	ring Trees crops Regrowth	8	O N -	25%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Y Vegetation Density Canopy Ground Cover Fallen 15% Woody Debris Aquatic Resources	Expose ees S Bark Litter	d rocky <5% N N Remr	nant	Rev6 = 8.11.10/	8.12.14x2c Unde	rstore	ring Trees crops Regrowth y ss/ etation	8	O N Bare Groun	nd 25%
Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources Ephemeral	ees S Bark	d rocky <5% N N Remr	nant	Rev6 = 8.11.10/	on including e Hollo Rock 8.12.14x2c Unde	rstore	ring Trees crops Regrowth	8	O N -	25%
Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources Ephemeral Opportunistic Observ	ees S Bark	d rocky <5% N N Remr	nant 10%	Rev6 = 8.11.10/	8.12.14x2c Unde	rstore	ring Trees crops Regrowth y ss/ etation	8	O N Bare Groun	nd 25%
Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources Ephemeral Opportunistic Observ Scratches (Type)	ees S Bark	d rocky <5% N N Remr	nant 10% ial -	Rev6 = 8.11.10/	8.12.14x2c Unde	rstore	ring Trees crops Regrowth y ss/ etation	8	O N Bare Groun	nd 25%
Exotics/Weeds Human Disturbance Mature Koala Feed Tre Vegetation Condition Integral Y Vegetation Density Canopy Ground Cover Fallen 15% Woody Debris Aquatic Resources Ephemeral - Opportunistic Observ Scratches (Type) Diggings (Type)	ees S Bark	d rocky <5% N N Remr	nant 10%	Rev6 = 8.11.10/	8.12.14x2c Unde	rstore	ring Trees crops Regrowth y ss/ etation	8	O N Bare Groun	nd 25%
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 $\underline{\textbf{Habitat Value Ranking:}} \ \mathsf{High-Very \ High}$

SITE NUMB	ER	H 44				Sec.	7		ALC:		ax	1	7年前的		10 12
Location					1	2	S Table	90		(a)	A	V	1. 1. 1		
Туре		Eucalyp	t forest		1 i			6	NO.			W	TAXAB S		
DATE		14/2/11			1			1			A A	13	WILLIAM STATE		4
RECORDER	1	Dan Pot	tter			4				THE T	96	100	1 33		
LOCALITY		Great K	eppel Is	land	1 1					7	A STATE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PAR	N.			
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GENERAL N		Adiocor	t to droi	Lopriosi	lly on	otoon roo	lov olo	no Eur	o lynti	us crebra, L	onhootor	non c	oonfortuo	Vanthar	rhooo
Exotics/Wee		Aujacei	0%	nage gu	illy Off	i steep ioc	Ky 510	Hollos	A Boo	ring Trees	opnosiei	0	onienus,	Adrillion	noea.
Human Distu			N						w bea						
Mature Koala								Pock		rone					
		rooc						Rocky		rops		N			
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Vegetation (Integral				ant		Rev6 =	R 12 1			Regrowth					
Vegetation (Integral	Condition	n	N	ant		Rev6 = 8.11.10/8	8.12.1			·		N			
Vegetation (Integral Vegetation I	Condition	n	N	ant			8.12.1	4x2c	y Outo	Regrowth	ΙV	N			
Vegetation (Integral Vegetation I Canopy	Condition Density	on Y	N	ant			8.12.1		y Outo	Regrowth	V	N			
Vegetation (Integral Vegetation I Canopy Ground Cov Fallen	Condition Density	y M	Remn	ant 30%			8.12.1	4x2c Under	y Outo	Regrowth y	V 30%	N	Bare Ground	10%	
Vegetation (Integral Vegetation I Canopy Ground Cov	Condition Density	M Bark	Remn			8.11.10/8	Ι	4x2c Under	y Outo	Regrowth		N			
Vegetation (Integral Vegetation I Canopy Ground Cov Fallen Woody Debris	Density /er 5%	M Bark	Remn			8.11.10/8	Ι	4x2c Under	y Outo	Regrowth y		N			
Vegetation (Integral Vegetation I Canopy Ground Cov Fallen Woody	Density /er 5%	M Bark,	Remn	30%		8.11.10/8	25%	4x2c Under	y Outo	Regrowth y		N	Ground		
Vegetation (Integral Vegetation I Canopy Ground Cov Fallen Woody Debris Aquatic Res Ephemeral Opportunist	Density ver 5% sources - tic Obse	M Bark, Litter	N Remn	30%		8.11.10/8	25%	4x2c Under	y Outo	Regrowth y ss/ etation		N -	Ground		
Vegetation (Integral Vegetation I Canopy Ground Cov Fallen Woody Debris Aquatic Res Ephemeral Opportunist	Density ver 5% sources - tic Obse	M Bark, Litter	N Remn	30%		8.11.10/8	25%	4x2c Under	y Outo	Regrowth y ss/ etation		N -	Ground		
Vegetation (Integral Vegetation I Canopy Ground Cov Fallen Woody Debris Aquatic Res Ephemeral	Density ver 5% sources - tic Obse	M Bark, Litter	N Remn	30% al -		8.11.10/8	25%	4x2c Under	y Outo	Regrowth y ss/ etation		N -	Ground		
Vegetation (Integral Vegetation I Canopy Ground Cov Fallen Woody Debris Aquatic Res Aquatic Res Copportunist Scratches (Type	Density ver 5% sources - tic Obse Type) ype)	Bark Litter	N Remn	30% al -		8.11.10/8	25%	4x2c Under	y Outo	Regrowth y ss/ etation		N -	Ground		
Vegetation (Integral Vegetation I Canopy Ground Cov Fallen Woody Debris Aquatic Res Ephemeral Opportunist Scratches (Toliggings (Tolignes)	Density ver 5% sources - tic Obse Type) ype)	Bark Litter	N Remn	30% al -		8.11.10/8	25%	4x2c Under	y Outo	Regrowth y ss/ etation		N -	Ground		
Vegetation (Integral Vegetation I Canopy Ground Cov Fallen Woody Debris Aquatic Res Aquatic Res Copportunist Scratches (Type	Density ver 5% sources - tic Obse Type) ype) (Specie	Bark Litter	N Remn	30% al -		8.11.10/8	25%	4x2c Under	y Outo	Regrowth y ss/ etation		N -	Ground		

Habitat Value Ranking: High -Very High

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Location						1-12	247.1		to Hac		10,00	4	A. J		
Туре		She-oak	c forest				118	N OT	State Comment	A COLUMN	W. Said	1		283	6
DATE		14/2/11					Mary !	X	北海海		19 64 199		in the		
RECORDER		Dan Pot					110			E LOVE					200
LOCALITY		Great K	eppel Is	sland			A. A.		X		Vale		100		
SITE DESCR	IPTION	Casuari	na oper	n fores	st		Die C					N.V.			100000
GENERAL N	OTES					a, Rock my	rtle, E	ucalypt	us						
Exotics/Weed	ls		<5% -	- Prick	ly Pear			Hollov	v Bearii	ng Trees		2			
Exotics/Weed Human Distur			<5% -	- Prick	ly Pear					ng Trees ops		2 N			
	rbance	es		- Prick	ly Pear				v Beari						
Human Distur	rbance Feed Tre	es	Υ	- Prick	ly Pear										
Human Distur Mature Koala	rbance Feed Tre	es	Υ		ly Pear	Y (Rev6 8.11.10/		Rocky	Outcro						
Human Distur Mature Koala Vegetation C Integral Vegetation D	rbance Feed Tre condition		Y 4		ly Pear	Y (Rev6		Rocky	Outcro	ops		N			
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy	rbance Feed Tre Condition - Density	es M	Y 4		ly Pear	Y (Rev6		Rocky	Outcro	ops	S	N			
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy Ground Cove	rbance Feed Tre Condition - Density		Y 4		ly Pear	Y (Rev6		Rocky 4x2c)	Outcro	ops	S	N			
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy	rbance Feed Tre Condition - Density		Y 4 Remr			Y (Rev6		Rocky 4x2c)	Outcro	Regrowth	S	N	Bare Ground		20%
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy Ground Cove Fallen Woody Debris	rbance Feed Tree Condition - Density er 20%	M Bark/	Y 4 Remr	nant		Y (Rev6 8.11.10/	8.12.1	Rocky 4x2c)	F Storey Grass	Regrowth		N			20%
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy Ground Cove Fallen Woody	rbance Feed Tree Condition - Density er 20%	M Bark/ Litter	Y 4 Remr	10%		Y (Rev6 8.11.10/	0%	Rocky 4x2c)	F Storey Grass	Regrowth		N	Ground		20%
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy Ground Cove Fallen Woody Debris Aquatic Reso	rbance Feed Tree Condition - Density er 20%	M Bark/ Litter	Y 4 Remr	10%		Y (Rev6 8.11.10/	0%	4x2c) Under	F Storey Grass	Regrowth		N -	Ground	i	20%
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy Ground Cove Fallen Woody Debris Aquatic Resc Ephemeral Opportunisti	rbance Feed Tree Condition - Density er 20% ources - to Observ	M Bark/ Litter	Y 4 Remr	10%		Y (Rev6 8.11.10/	0%	4x2c) Under	F Storey Grass	Regrowth		N -	Ground	i	20%
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy Ground Cove Fallen Woody Debris Aquatic Resc Ephemeral Opportunisti Scratches (T	Feed Tree condition - 20% Density - 20% Dources - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	M Bark/ Litter	Y 4 Remr	10%		Y (Rev6 8.11.10/	0%	4x2c) Under	F Storey Grass	Regrowth		N -	Ground	i	20%
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy Ground Cove Fallen Woody Debris Aquatic Resc Ephemeral Opportunisti	rbance Feed Tre condition - Density er 20% ources - c Observ (ype) (re)	M Bark/ Litter	Y 4 Remr	10%	-	Y (Rev6 8.11.10/	0%	4x2c) Under	F Storey Grass	Regrowth		N -	Ground	i	20%
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy Ground Cove Fallen Woody Debris Aquatic Resc Ephemeral Opportunisti Scratches (T Diggings (Ty Nests (Type)	Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pensity Pen	M Bark/ Litter	Y 4 Remr	10%	-	Y (Rev6 8.11.10/	0%	4x2c) Under	F Storey Grass	Regrowth		N -	Ground	i	20%
Human Distur Mature Koala Vegetation C Integral Vegetation D Canopy Ground Cove Fallen Woody Debris Aquatic Resc Ephemeral Opportunisti Scratches (T Diggings (Ty	rbance Feed Tre condition - Density er 20% ources - c Observ (ype) (pe) (Species)	M Bark/ Litter	Y 4 Remr	10%	-	Y (Rev6 8.11.10/	0%	4x2c) Under	F Storey Grass	Regrowth		N -	Ground	i	20%

 $\underline{\textbf{Habitat Value Ranking:}} \ High-Very \ High$

SITE NUMBER	H 61		1	V	J. St.	* *	1			1	
Location			*** Y		N dec	A.			No. of		
Туре	Eucalypt for	est		and the same	Mr.		X		The Late		-
DATE	15/2/11				MIT .	and the same			ALC: U		1
RECORDER	Dan Potter			NV -	12 33	1	10 T				ste b
LOCALITY	Great Keppe	el Island		74		235		1		1	73
			100		1			T		1	4.45
SITE DESCRIPTION	Mixed Eucal	votus open wo	odland with	Banksia, Co	ocky Apple	and Gre	villea spe	ecies.			4.5
SITE DESCRIPTION GENERAL NOTES	Mixed Eucal	yptus open wo	odland with	Banksia, Co	ocky Apple	and Gred	villea spe	ecies.			
	Mixed Eucal Large E. cla	rksoniana and	odland with Corymbia te	essellaris wi	h numerou	is hollow.	villea spe	ecies.			
GENERAL NOTES	Large E. cla	rksoniana and	odland with Corymbia te	essellaris wit Holl	th numerou ow Bearing	s hollow. Trees	villea spe				
GENERAL NOTES Exotics/Weeds	Large E. cla	rksoniana and	odland with Corymbia te	essellaris wit Holl	h numerou	s hollow. Trees	villea spe	3			
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr	Large E. cla 0% N rees 3	rksoniana and	odland with Corymbia te	essellaris wit Holl	th numerou ow Bearing	s hollow. Trees	villea spe	3			
GENERAL NOTES Exotics/Weeds Human Disturbance	Large E. cla 0% N rees 3	rksoniana and	Corymbia te	essellaris wit Holl	th numerou ow Bearing ky Outcrop	s hollow. Trees	villea spe	3			
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition	Large E. cla 0% N rees 3	rksoniana and (Corymbia te	essellaris wit Holl Roc	th numerou ow Bearing ky Outcrop	s hollow. Trees	villea spe	3 N			
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral	Large E. cla 0% N rees 3	rksoniana and (Corymbia te	essellaris wii Holl Roc = 8.2.8a)	th numerou ow Bearing ky Outcrop	s hollow. Trees	villea spe	3 N			
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density	Large E. cla 0% N rees 3 n	rksoniana and (Corymbia te	essellaris wii Holl Roc = 8.2.8a)	th numerou ow Bearing ky Outcrop	s hollow. Trees		3 N			
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy	Large E. cla 0% N rees 3 n	rksoniana and (Corymbia te	essellaris wii Holl Roc = 8.2.8a)	th numerou ow Bearing ky Outcrop	s hollow. g Trees es		3 N	Bare	0	%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover	Large E. cla 0% N eees 3 n Re	rksoniana and (Corymbia te	essellaris with Holl Rock Rock Rock Rock Rock Rock Rock Rock	th numerou ow Bearing ky Outcrop Re	g Trees ss egrowth		3 N	Bare	-	%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen 30%	Large E. cla 0% N ees 3 n Re M Bark/Lea	rksoniana and (Corymbia te	essellaris with Holl Rock Rock Rock Rock Rock Rock Rock Rock	th numerous ow Bearing ky Outcrop Reestorey	g Trees ss egrowth		3 N		-	%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody	Large E. cla 0% N ees 3 n Re M Bark/Lea	rksoniana and (Corymbia te	essellaris with Holl Rock Rock Rock Rock Rock Rock Rock Rock	th numerous ow Bearing ky Outcrop Reestorey	g Trees ss egrowth		3 N		-	%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris	Large E. cla 0% N rees 3 M Re Bark/Lea Litter	rksoniana and (Corymbia te	essellaris with Holl Rock Rock Rock Rock Rock Rock Rock Rock	Reerstorey Grass/ Vegetat	g Trees ss egrowth		3 N	Ground	-	%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources	Large E. cla 0% N rees 3 M Bark/Lea Litter	emnant f 30%	Corymbia te	Holl Roc	Reerstorey Grass/ Vegetat	is hollow.		3 N	Ground		2%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources Ephemeral	Large E. cla 0% N rees 3 M Bark/Lea Litter	emnant f 30%	Corymbia te	Holl Roc	Reerstorey Grass/ Vegetat	is hollow.		3 N	Ground		%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources Ephemeral Opportunistic Obser Scratches (Type)	Large E. cla 0% N rees 3 M Bark/Lea Litter	emnant f 30%	Corymbia te	Holl Roc	Reerstorey Grass/ Vegetat	is hollow.		3 N	Ground		%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources Ephemeral Opportunistic Obser Scratches (Type) Diggings (Type)	Large E. cla 0% N rees 3 M Bark/Lea Litter	rksoniana and of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant	Corymbia te	Holl Roc	Reerstorey Grass/ Vegetat	is hollow.		3 N	Ground		%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources Ephemeral Opportunistic Obser Scratches (Type) Nests (Type)	Large E. cla 0% N eees 3 Re M Bark/Lea Litter Pere	rksoniana and of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant of the seminant	Corymbia te	Holl Roc	Reerstorey Grass/ Vegetat	is hollow.		3 N	Ground		%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources Ephemeral Opportunistic Obser Scratches (Type) Diggings (Type)	Large E. cla 0% N eees 3 Re M Bark/Lea Litter Pere	rksoniana and of semnant f 30% nnial	Corymbia te	Holl Roc	Reerstorey Grass/ Vegetat	is hollow.		3 N	Ground		%

SITE NUMB	ER	H 63										VX.			
Location							-	100 m	10	A MARINE		15	40	A CHANGE	
Туре		Eucalyp	t forest				1	小彩水		alla al			A THE	4	
DATE		15/2/11										X			
RECORDER		Dan Pot					Single La				10	-			
LOCALITY		Great K	eppel Is	sland		*	120	W. 1			Asset				
SITE DESCR	RIPTION	Lemon s	scented	I Gum a	and Iro	nbark For	est			(1995年38·福州)					
GENERAL N	IOTES														
Exotics/Wee	ds		5% - 1	Prickly	Pear			Hollov	v Bearing	g Trees		3			
Human Distu	ırbance		N						Outcrop			N			
Mature Koala		ees	18												
Vegetation															
Integral	Y		Remr	nant		Rev6 = 8	8.2.8a		R	egrowth		-			
Vegetation	Density														
Canopy		М						Under	storey		S				
Ground Cov	/er														
Fallen Woody Debris	20%	Bark/ Litter		40%		Rocks	10%		Grass/ Vegeta		30%		Bare Ground	0%	
Aquatic Res	ources														
Ephemeral	-	F	Perenn	ial	-		М	larine		-		No	one	Υ	
Opportunist	ic Observ	ations													
Scratches (-										
Diggings (T					-										
Nests (Type					-										
Hollow Use	(Species)				-										
Hollow Use Scats (Type					-										

SITE NUMBER	H 35					建建	962							No.	M 23		
Location	Area 7					1 3 1/2			dis						- A.J.		
Туре	Gully					4				**			Rey!				1.3
DATE	17/2/11				7			3		· · · · · · · · · · · · · · · · · · ·	V 2 323		1	max.		200	
RECORDER	Amy Pro					To Car	09								13		N.
LOCALITY	Great K		sland					1	2.4	11 200			*				
LOGALITI	Cicatio	оррог к	olaria					1		6 0		1.1	W.				
SITE DESCRIPTION GENERAL NOTES Exotics/Weeds Human Disturbance	Scrub g	0% N	h Loph	nostem	non c	onfertu	s fore	Hollo	w Be		Trees		0 N				
Mature Koala Feed Tr	ees	19															
Vegetation Condition																	
Integral Y	<u>-</u>	Remi	nant		R	lev6 = 8	3.11.1	0/8.12.	14x2	2c	Rec	rowth	Ι-				
Vegetation Density								.,				, , , , , , , , , , , , , , , , , , , ,					
Canopy	М							Unde	rsto	rev		S					
Ground Cover	1 1 1 1							Onac.	1310	ıcy							
Fallen 20%	Bark	/Leaf	15%	,	R	ocks	35%	<u></u>	Gr	rass/		30%		Baı	'e	0%	
Woody	Litte		1370	ь	'`	OCKS	337	3		ass, egetat	ion	30 /0		-	ound	0 78	
Debris	Litte	•							•	getat	1011			O.C	Juliu		
Aquatic Resources																	
Y (see	<u>, </u>						T			I							
Y (see		Perenn	ial	_				larine			-		No	ne		_	
Ephemeral below) I	Perenn	ial	-			N	larine			-		No	one		-	
Ephemeral below Opportunistic Observ) I	Perenn	ial	-			N	larine			-		No	one		-	
Opportunistic Obser Scratches (Type)) I	Perenn	ial	- -			N	larine			-		No	one		-	
Ephemeral below Opportunistic Obser Scratches (Type) Diggings (Type)) I	Perenn	ial	-			N	larine			-		No	one		-	
Ephemeral below Opportunistic Obser Scratches (Type) Diggings (Type) Nests (Type)) vations	Perenn	ial	-			N	larine			-		No	one		-	
Ephemeral below Opportunistic Obser Scratches (Type) Diggings (Type) Nests (Type) Hollow Use (Species) vations	Perenn	ial	- - -	f		N	larine			-		No	one		-	
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Fauna at site					rd d Triller Friarbird									

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Canopy		S						Under	storey		D			
Ground Cov														
Fallen	10%	Bark	Leaf	5%		Rocks	0%		Grass/		75%		Bare	0%
Woody		Litter							Vegeta	tion			Ground	
Debris														
Aquatic Res														
Ephemeral	-		Perenn	ial	-		I	larine		-		Nor	ne	Υ
Opportunist	ic Observ	ations												
Scratches (7					-			-			-			
Diggings (T					-									
Nests (Type					-									
Hollow Use					-									
Scats (Type					-									
Fauna at sit	e				-								·	

<u>Habitat Value Ranking:</u> High – Very High

Location Type DATE RECORDER	H 51 F Area 10 Melaleud 17/2/11 Amy Pro Great Ke	ca fores	et		No.	7		100 cm	W 190 P. S.			10.00	
Type DATE RECORDER	Melaleu 17/2/11 Amy Pro	ca fores	ct .		CONTRACTOR OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE			SECTION AND ADDRESS.		ALC: UNKNOWN	12.5 all 10.00 miles		A SECTION OF
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Vegetation Density					, ,								
Canopy	S						Under	storey		S			
Ground Cover													
Fallen 5%	Bark/	Leaf	40%		Rocks	0%		Grass/		50%		Bare	5%
Woody	Litter							Vegeta	tion			Ground	
Debris								•					
Aquatic Resources													
Ephemeral -	F	erenn	ial	-		N	larine		-		No	ne	Υ
Opportunistic Observa	tions												
Scratches (Type)				-									
Diggings (Type)				-									
Nests (Type)				-									
Hollow Use (Species)				-									
Scats (Type)				Possu	ım								
Fauna at site					to list for A	rea 1	0						

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SITE DESCRIPTION	Melaleu	ıca swa	mp ov	er brack	ken fern									
SITE DESCRIPTION GENERAL NOTES	Melaleu	ıca swaı	mp ov	er brack	ken fern									
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Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral	ees	<5% N		er brack	ken fern	3.3.13	Rock	y Outcro						
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GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources Ephemeral Y# Opportunistic Obser Scratches (Type) Diggings (Type) Nests (Type)	ees n / M Bark Litte	<5% N 1 Remr	nant 85%		Rev6 = 8	0%	C Unde	y Outcro R rstorey Grass/	egrowth	1	N	Ground		%
GENERAL NOTES Exotics/Weeds Human Disturbance Mature Koala Feed Tr Vegetation Condition Integral Vegetation Density Canopy Ground Cover Fallen Woody Debris Aquatic Resources Ephemeral Y# Opportunistic Obser Scratches (Type) Diggings (Type)	ees n / M Bark Litte	<5% N 1 Remr	nant 85%		Rev6 = 8	0%	C Unde	y Outcro R rstorey Grass/	egrowth	1	N	Ground		%

[#] Stream dry at present but subject to periodic inundation.

SITE NUMB	ER	H 126					7			大型作品		1		
Location								34.4				4	407.0	计算师与
Туре		Eucaly	ot forest				and F	1000			4	A. Tar		A 114
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OUTE DECOM	DIDTION			L		774		1	1					
SITE DESCR							torest	over g	rassy	understorey	/			
GENERAL N		Коску		n side	of low ri	age		11.11.		···· T		_		
Exotics/Wee			<5%							ring Trees		2 Y		
Human Distu			N					Rocky	y Outo	rops		Y		
Mature Koala			4											
Vegetation (Conditio											_		
Integral		Y	Rem	nant		Rev6 = 8.11.10/	8.12.1	4x2c		Regrowth		-		
Vegetation I	Density													
Canopy		S						Under	store	у	S			
Ground Cov	/er													
Fallen Woody	20%	Barl Litte	r/Leaf	20%	, D	Rocks	50%	•	Gras	ss/ etation	10%		Bare Ground	0%
Debris			-						9				J. Juliu	
Aquatic Res	COURCES			_			_							
							- B4							.,
	-		Perenn	ial	-		I IV	larine		-		No	one	Υ
Ephemeral	-	rvations	Perenn	ial	-		IV	larine				No	one	Y
Ephemeral Opportunist	tic Obse	rvations	Perenn	ial	- -		IV	larine		-		No	one	Y
Ephemeral Opportunist Scratches (- tic Obse Type)	rvations	Perenn	ial			IV	larine		-		No	one	Y
Ephemeral Opportunist Scratches (Tolors)	ic Obse Type) ype)	rvations	Perenn	ial	-		IV	arine		-		No	one	Y
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Ephemeral Opportunist Scratches (Tolors)	- tic Obse Type) ype) e) (Specie		Perenn	ial				arine		-		No	one	Y

SITE NUMBI	ER	H 139					1		1	or the second		11.54		All Married II
Location						-7		E S	4	是一种地		1		
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Exotics/Weed			<5%							ing Trees		6		
Human Distu			N					Rocky	y Outcr	rops		Ν		
Mature Koala			5											
Vegetation (Condition													
Integral			Remr	nant		Y (Rev6 8.11.10/		4x2c)		Regrowth		-		
Vegetation I	Density													
Canopy		M						Under	storey		M			
Ground Cov														
Fallen Woody	5%	Bark Litte	/Leaf r	5%		Rocks	0%		Gras Vege	s/ etation	90%		Bare Ground	0%
Debris	<u></u>													
Aquatic Res	ources													
Ephemeral	Y#		Perenn	ial	-		M	larine		-		No	ne	-
Opportunist														
Scratches (1					-									
Diggings (Ty					-									
Nests (Type					Mediu	m sized tv	vig ne	st in eu	calyptu	JS.				
Hollow Use					-									
Scats (Type)					-									
Fauna at site					-									
# small oully		as of the	_1	*41		1 4								

small gully at the base of the slope with a minor tributary.

SITE NUMBER	H 165										PART AND PROPERTY.
Location		use head	dland								
Туре	Rocky of headlan										
DATE	18/2/11										
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SITE DESCRIPTION	Grassla	nd			和 遵 多	展入	Ħ.			2000年	and the
GENERAL NOTES		d headla	nd								
Exotics/Weeds		0%				Hollow	/ Bear	ing Trees		0	
Human Disturbance			ack and h	elipad		Rocky				Y- Cliffs alon headland	g edge of
Mature Koala Feed Tr	ees	N									
Vegetation Condition	1										
Integral -		Remna	ant	Y (Rev6	i = 8.11.	9a)		Regrowth		-	
Vegetation Density								<u> </u>		1	
Canopy	Abse	nt			U	Unders	storey	,	Abs	ent	
Ground Cover											
Fallen 0% Woody Debris	Bark, Litte		0%	Rocks	50%		Gras Vege	s/ etation	50%	Bare Ground	0%
Aquatic Resources	•										
Ephemeral -		Perennia	al -		Ma	rine		T -		None	Υ
Opportunistic Obser	vations										
Scratches (Type)			-								
Diggings (Type)			-								
Nests (Type)			-								
Hollow Use (Species)		-								
Scats (Type)			-								
Fauna at site			-								

APPENDIX H – Consolidated Fauna List

						Sep-10	<u>)</u>							
	Species Name	Common Name	Other significance	NCA	EPBC	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Other
Birds	Accipiter fasciatus	Brown Goshawk											Х	
	Anser anser	Greylag Goose*						х						
	Artamus leucorynchus	White-breasted Woodswallow												х
	Burhinus grallarius	Bush Stone Curlew			М	Х	Х	х	х	х	х	х	Х	
	Butorides striatus	Striated Heron												
	Cacatua galerita	Sulfur crested Cockatoo												х
	Cacatua tenuirostris	Long-billed Corella					х							
	Calyptorhynchus banksii	Red-tailed Black Cockatoo												
	Centropus phasianinus	Pheasant Coucal					х	х		х			х	
	Chroicocephalus novaehollandiae	Silver Gull					Х					х		
	Coracina tenuirostris	Cicadabird								х	х		Х	
	Corvus oru	Torresian Crow				х	х	х	х	х	х	х	х	
	Coturnix ypsilophora	Brown Quail												
	Dacelo leachii	Blue-winged Kookaburra				х				Х	Х		Х	
	Dacelo novaeguineae	Laughing Kookaburra				Х		х	х	Х	Х	х	х	
	Diacaeum irundinaceum	Mistletoe Bird						х	х	х	х	х	х	
	Dicrurus bracteatus	Spangled Drongo				х		х	х	х	х		х	
	Egretta novaehollandiae	White-faced Heron												

					<u>Sep-10</u>								
Species Name	Common Name	Other significance	NCA	EPBC	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Other
Egretta sacra	Eastern Reef Egret (Dark Morph)					х							
Entomyzon cyanotis	Blue-faced Honeyeater						х						
Eolophus roseicapullus	Galah												х
Esacus neglectus	Beach Stone Curlew	High Priority	V	Mar				х					
Eudynamys scolopacea	Common Koel								х	х			
Eurostopodus mystacalis	White Throated Nightjar				Х				Х				
Eurystomus orientalis	Dollarbird												х
Geopelia humeralis	Bar-shouldered Dove						х		Х	Х	Х		
Grallina cyanoleuca	Magpie Lark						х						
Haematopus fuliginosus	Sooty Oystercatcher		NT										х
Haematopus Iongirostris	Pied Oystercatcher												х
Haliaeetus leucogaster	White breasted Sea Eagle			М		х							
Haliastur indus	Brahminy Kite												х
Hirundo neoxena	Welcome Swallow					х	х	х		х	х	х	
Lalae leucomela	Varied Triller						х		х	х		х	
Lalage tricolor	White winged Triller								х	х	х		
Lichmera indistincta	Brown Honeyeater				х	х	х		х		х	х	

					Sep-10								
Species Name	Common Name	Other significance	NCA	EPBC	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Other
Merops ornatus	Rainbow Bee-eater			M, Mar	х		х	х		х		х	
Microcarbo melanoleucos	Little Pied Cormorant												х
Monarcha leucotis	White-eared Monarch						х		х				
Monarcha melanopis	Black-faced Monarch			M, Mar			х		х	х		х	
Monarcha trivirgatus	Spectacled Monarch			M, Mar									
Myiagra inquieta	Restless Flycatcher			М				Х					
Myiagra rubecula	Leaden Flycatcher			М	х	х	х	х	х	х	х	х	
Nectarinia jugularis	Olive Backed Sunbird					х	х	х	х	х	х	х	
Ninox connivens	Barking Owl								х			х	
Ninox novaeseelandiae	Boobook					х			х	Х	Х	Х	
Numenius madagascariensis	Eastern Curlew			M, Mar									
Numenius phaeopus	Whimbrel			M, Mar									
Nymphicus hollandicus	Cockatiel												х
Oriolus sagittatus	Olive-backed Oriole								х	х			
Pachycephala rufiventris	Rufous Whistler						х	Х	х				
Pandion haliatus	Osprey						х		Х	х	Х		
Pavo cristatus*	Peacock*						х		Х	х	Х	Х	

						Sep-10								
	Species Name	Common Name	Other significance	NCA	EPBC	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Other
	Petrochelidon nigricans	Tree Martin												х
	Phalacrocorax varius	Large Pied Cormorant												х
	Philemon citreogularis	Little Friarbird				х	х	х	х	х	х	х	х	
	Philemon corniculatus	Noisy Friarbird							х	х				
	Podargus strigoides	Tawny Frogmouth									х			
	Scythrops novaehollandiae	Channel Billed Cuckoo				х	х	х	х					
	Sphecotheres virdis	Figbird									х			
	Sterna bergii	Crested Tern			M, Mar		х					х		
	Todiramphus chloris	Collared Kingfisher												
	Todiramphus macleayii	Forest Kingfisher										х	х	
	Trichoglossus haematodus	Rainbow Lorikeet				х	х	х	х	х	х	х	х	
	Turnix maculosa	Red-backed Button-quail											х	
	Tyto alba	Barn Owl												
	Vanellus miles	Masked lapwing			М	х	Х	х	х				х	
	Zosterops lateralis	Silvereye					х	х		х	х	х		
Reptiles	Anomalopus verreauxii	Verreaux's Skink									х			
	Carlia pectoralis									х	х			1
	Carlia vivax	Lively Skink								х	х	х	х	<u> </u>
	Cryptobletharus littoralis	Supralittoral Shining Skink					х							

						Sep-10								
	Species Name	Common Name	Other significance	NCA	EPBC	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Other
	Cryptobletharus pulcher	Wall Skink	_			х			х	х	х			
	Ctenotus robustus	Eastern Striped Skink				Х	х			х	х	x	х	
	Ctenotus taeniolatus	Copper-tailed Skink								х	х			
	Demansia psammophis	Yellow-faced Whipsnake				х								
	Dendrelaphis punctulata	Green Tree Snake								Х	х		Х	
	Hemidactylus frenatus	Asian House Gecko												х
	Heteronotia binoei	Binoe's Gecko				х	х				х	х		
	Lampropholis delicata	Delicate Skink												
	Lialis burtonis	Burton's Legless Lizard											Х	
	Lygisaurus foliorum	Burnett's Skink				х	х	х	х	х	х	х	х	
	Morelia spilota	Carpet Python												х
	Tiliqua scincoides	Blue Tongue Lizard					х							
	Varanus gouldii	Sand Goanna							х	Х	Х			
	Varanus semiremex	Rusty Monitor	High Priority											
Amphibians	Limnodynastes peronii	Striped Marsh Frog				х	х	х	х			Х	Х	
	Litoria alboguttata	Striped Burrowing Frog												
	Litoria caerula	Green Tree Frog				х			х				х	
	Litoria fallax	Eastern Sedge Frog				х	х	х	х	Х			Х	
	Litoria nasuta	Rocket Frog												

						Sep-10								
	Species Name	Common Name	Other significance	NCA	EPBC	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Other
	Litoria rothii	Northern Laughing Tree Frog											х	
	Litoria rubella	Ruddy Tree Frog						х	Х			х	х	
	Pseudophryne major	Broodfrog							х	х		х		
Mammals	Canis familiaris*	Dog					х	х						
	Capra hircus*	Goat*									х	х	х	
	Hydromys chrysogaster	Water Rat												
	Melomys cervinipes	Fawn-footed Melomys												
	Miniopterus australis	Little Bent-wing Bat				х	х	x call	x pit	х	х	Х	х	
	Miniopterus orianae oceanensis	Not positively identified.				х								
	Mormopterus ridei	Little north-eastern Freetail Bat											х	
	Nyctophilus sp.	Not positively identified.									х	х		
	Ovis aries	Sheep*												х
	Planigale maculata	Common Planigale							х		х			
	Pteropus alecto	Black Flying Fox						х		х			х	
	Rattus rattus*	Black Rat												
	Tachyglossus aculeatus	Echidna		CS				х						
	Taphozous sp or Mormopterus beccarii	Not positively identified.				х	х							
	Trichosurus vulpecula	Brushtail Possum				х	х	х	х	х	х		х	

						<u>Sep-10</u>								
	Species Name	Common Name	Other significance	NCA	EPBC	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Other
Invertebrates	Araea andromacha	Glasswing									х			
	Catopsilia pomona	Lemon Migrant												
	Cressida cressida	Big Greasy												
	Euploea core corinna	Common Crow Butterfly				х			Х					
	Eurema hecabe	Common Grass Yellow						х	х					
	Figuladra incei incei	Shoalwater Bay Banded Snail								х			х	
	Gasteracantha minax	Jewelled Spider												
	Hypolimnas bolina	Varied Eggfly				Х			Х	х	х		х	
	Laevicaulis alte*	Tropical Leatherleaf Slug								х			х	
	Melanitis leda	Evening Brown												
	Methana marginalis	Bush Cockroach												
	Tirumala hamata	Blue Tiger				х	х	х	Х	х	х	х	х	

						<u>Feb-11</u>										
	Species Name	Common Name	Other Significance	NCA	EPBC	Area 1	area 2	area 3	area 4	area 5	Area 6	area 7	area 8	area 9	area 10	Other
Birds	Accipiter fasciatus	Brown Goshawk														
	Anser anser	Greylag Goose*						Х								
	Artamus leucorynchus	White-breasted Woodswallow													Х	
	Burhinus grallarius	Bush Stone Curlew			М	х	Х	Х	Х	х	Х	Х	х	Х	Х	
	Butorides striatus	Striated Heron														х
	Cacatua galerita	Sulfur crested Cockatoo													х	
	Cacatua tenuirostris	Long-billed Corella					х								Х	
	Calyptorhynchus banksii	Red-tailed Black Cockatoo														Х
	Centropus phasianinus	Pheasant Coucal				х		х		х			х	х	Х	
	Chroicocephalus novaehollandiae	Silver Gull					х									
	Coracina tenuirostris	Cicadabird														
	Corvus oru	Torresian Crow				х	х	х	Х	х	х	Х	х		Х	
	Coturnix ypsilophora	Brown Quail											х			
	Dacelo leachii	Blue-winged Kookaburra				х			Х				х			
	Dacelo novaeguineae	Laughing Kookaburra				х			х	х	х		х	х	х	
	Diacaeum irundinaceum	Mistletoe Bird				х		х						Х	Х	
	Dicrurus bracteatus	Spangled Drongo								х	х					
	Egretta novaehollandiae	White-faced Heron														х

					<u>Feb-11</u>										
Species Name	Common Name	Other Significance	NCA	EPBC	Area 1	area 2	area 3	area 4	area 5	Area 6	area 7	area 8	area 9	area 10	Other
Egretta sacra	Eastern Reef Egret (Dark Morph)														х
Entomyzon cyanotis	Blue-faced Honeyeater														
Eolophus roseicapullus	Galah														
Esacus neglectus	Beach Stone Curlew	High Priority	V	Mar		Х									
Eudynamys scolopacea	Common Koel								х						
Eurostopodus mystacalis	White Throated Nightjar														
Eurystomus orientalis	Dollarbird														
Geopelia humeralis	Bar-shouldered Dove				х			Х		Х		х			
Grallina cyanoleuca	Magpie Lark														
Haematopus fuliginosus	Sooty Oystercatcher		NT												
Haematopus Iongirostris	Pied Oystercatcher													х	
Haliaeetus leucogaster	White breasted Sea Eagle			М				х							
Haliastur indus	Brahminy Kite					х		Х							
Hirundo neoxena	Welcome Swallow				х		х				х			х	
Lalage leucomela	Varied Triller					Х		х	х	х				х	
Lalage tricolor	White winged Triller														
Lichmera indistincta	Brown Honeyeater				х		Х	х		Х		х	х	х	

					<u>Feb-11</u>										
Species Name	Common Name	Other Significance	NCA	EPBC	Area 1	area 2	area 3	area 4	area 5	Area 6	area 7	area 8	area 9	area 10	Other
Merops ornatus	Rainbow Bee- eater			M, Mar			Х		х			Х			
Microcarbo melanoleucos	Little Pied Cormorant														х
Monarcha leucotis	White-eared Monarch														
Monarcha melanopis	Black-faced Monarch			M, Mar											
Monarcha trivirgatus	Spectacled Monarch			M, Mar										Х	
Myiagra inquieta	Restless Flycatcher			М											
Myiagra rubecula	Leaden Flycatcher			М		х				х				Х	
Nectarinia jugularis	Olive Backed Sunbird						х	х	х	Х	Х		х	Х	
Ninox connivens	Barking Owl														†
Ninox novaeseelandiae	Boobook							х						Х	
Numenius madagascariensis	Eastern Curlew			M, Mar											х
Numenius phaeopus	Whimbrel			M, Mar											х
Nymphicus hollandicus	Cockatiel														
Oriolus sagittatus	Olive-backed Oriole														
Pachycephala rufiventris	Rufous Whistler														
Pandion haliatus	Osprey											х			1
Pavo cristatus*	Peacock*								Х	Х		х			1

						Feb-11										
	Species Name	Common Name	Other Significance	NCA	EPBC	Area 1	area 2	area 3	area 4	area 5	Area 6	area 7	area 8	area 9	area 10	Other
	Petrochelidon nigricans	Tree Martin														
	Phalacrocorax varius	Large Pied Cormorant					Х									Х
	Philemon citreogularis	Little Friarbird				х	х	х	х				х	х	х	
	Philemon corniculatus	Noisy Friarbird				Х	Х	х	х		х	Х		х	х	
	Podargus strigoides	Tawny Frogmouth														
	Scythrops novaehollandiae	Channel Billed Cuckoo										х		х	Х	
	Sphecotheres virdis	Figbird														
	Sterna bergii	Crested Tern			M, Mar		х									
	Todiramphus chloris	Collared Kingfisher														Х
	Todiramphus macleayii	Forest Kingfisher							Х							
	Trichoglossus haematodus	Rainbow Lorikeet				Х		Х	Х		Х			х	х	
	Turnix maculosa	Red-backed Button-quail											х			
	Tyto alba	Barn Owl											Х			
	Vanellus miles	Masked lapwing			М		х	х							х	
	Zosterops lateralis	Silvereye										Х			Х	
Reptiles	Anomalopus verreauxii	Verreaux's Skink								х						
	Carlia pectoralis														х	
	Carlia vivax	Lively Skink				х			Х		х		х			

						<u>Feb-11</u>										
	Species Name	Common Name	Other Significance	NCA	EPBC	Area 1	area 2	area 3	area 4	area 5	Area 6	area 7	area 8	area 9	area 10	Other
	Cryptobletharus littoralis	Supralittoral Shining Skink					Х									
	Cryptobletharus pulcher	Wall Skink				х			х			х	х	х		
	Ctenotus robustus	Eastern Striped Skink				х		Х	х			х			Х	
	Ctenotus taeniolatus	Copper-tailed Skink				х	Х	х						Х		
	Demansia psammophis	Yellow-faced Whipsnake											х			
	Dendrelaphis punctulata	Green Tree Snake									х					
	Hemidactylus frenatus*	Asian House Gecko												х	Х	
	Heteronotia binoei	Binoe's Gecko				Х		Х			х			Х		
	Lampropholis delicata	Delicate Skink								Х	х		х			
	Lialis burtonis	Burton's Legless Lizard														
	Lygisaurus foliorum	Burnett's Skink				Х		Х	Х	Х		Х		Х	Х	
	Morelia spilota	Carpet Python														
	Tiliqua scincoides	Blue Tongue Lizard														х
	Varanus gouldii	Sand Goanna						Х	Х						Х	
	Varanus semiremex	Rusty Monitor	High Priority													Х
Amphibians	Limnodynastes peronii	Striped Marsh Frog						х		х		х	х	х		
	Litoria alboguttata	Striped Burrowing Frog														Х
	Litoria caerula	Green Tree Frog							х	х						
	Litoria fallax	Eastern Sedge Frog						Х	Х	х		х	х	Х	Х	

						Feb-11										
	Species Name	Common Name	Other Significance	NCA	EPBC	Area 1	area 2	area 3	area 4	area 5	Area 6	area 7	area 8	area 9	area 10	Other
	Litoria nasuta	Rocket Frog				Х			Х				Х	Х		
	Litoria rothii	Northern Laughing Tree Frog							х				х			
	Litoria rubella	Ruddy Tree Frog						х	х				х	х	Х	
	Pseudophryne major	Broodfrog										Х		Х		
Mammals	Canis familiaris	Dog					Х									
	Capra hircus*	Goat									х	Х				
	Hydromys chrysogaster	Water Rat							Х							
	Melomys cervinipes	Fawn-footed Melomys										х				
	Miniopterus australis	Little Bent-wing Bat				х	х	х	х	х	х	х	х		Х	
	Miniopterus orianae oceanensis	Not positively identified.														
	Mormopterus ridei	Little north- eastern Freetail Bat											х			
	Myotis macropus	Large Footed Myotis										х				
	Nyctophilus sp.	Not positively identified.														
	Ovis aries*	Sheep														
	Planigale maculata	Common Planigale														
	Pteropus alecto	Black Flying Fox						Х	Х	х	Х	х		х	Х	
	Rattus rattus*	Black Rat										х				Х

						Feb-11										
	Species Name	Common Name	Other Significance	NCA	EPBC	Area 1	area 2	area 3	area 4	area 5	Area 6	area 7	area 8	area 9	area 10	Other
	Tachyglossus aculeatus	Echidna		CS												
	Taphozous sp or Mormopterus beccarii	Not positively identified.				Х										
	Trichosurus vulpecula	Brushtail Possum				х		х	х	Х	Х			Х	Х	
Invertebrates	Araea andromacha	Glasswing									х					
	Catopsilia pomona	Lemon Migrant										Х	х			
	Cressida cressida	Big Greasy									Х					
	Euploea core corinna	Common Crow Butterfly				Х				Х			Х			
	Eurema hecabe	Common Grass Yellow										х				
	Figuladra incei incei	Shoalwater Bay Banded Snail														
	Gasteracantha minax	Jewelled Spider				Х										
	Hypolimnas bolina	Varied Eggfly														
	Laevicaulis alte*	Tropical Leatherleaf Slug														
	Melanitis leda	Evening Brown								х	Х				Х	
	Methana marginalis	Bush Cockroach				х									Х	
	Tirumala hamata	Blue Tiger								Х						

Other Significance: High Priority = Listed under the Fitzroy Natural Resource Management Region Back on Track Actions for Biodiversity (DERM, 2010c). NCA: V = Vulnerable, NT = Near Threatened, CS = Cultural Significance

EPBC: M = Migratory, Mar = Marine.

APPENDIX I – Significant Fauna Species Analysis

Appendix I- Significant Fauna Species Analysis

Scheduled Species

	pecies				Literature Review			Results	
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
Accipiter novae-hollandiae Grey Goshawk	NT		Wildlife Online	Forests, woodlands, well timbered landscapes, may hunt over open country (Flegg, 2003). Grey Goshawks form permanent pairs that defend a home territory year round. Both sexes constructs a stick nest lined with leaves high in a tree fork, and often re-use the same nest. Breeding season in the north is between January and May (Birds Australia, 2010).	The Grey Goshawk is found in coastal areas in northern and eastern Australia. The white morph is predominant in the more open forests of north-western Australia and coastal Victoria and is the only form found in Tasmania. The grey morph is more common in the thicker, sub-tropical forests of the east coast (Birds Australia, 2010). The Grey Goshawk is sedentary with juveniles moving in search of new territories (Birds Australia, 2010).	No specific guidelines available. General survey guidelines for birds (SEWPAC, 2011) include: Area searches (typically 1-3ha for 10-20mins); Transect surveys (record birds while travelling between two fixed points of known distance); Transect surveys boat are well suited to detecting birds that occur on rocky shores and cliffs of islands and Point surveys (usually 5-20mins) sampling points are usually predetermined and selected either randomly or systematically through the area.	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm — 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am — 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 — 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main	Not recorded during survey. Possible foraging habitat. It is unclear how far over open ocean juveniles may move in search of new territories.

					Literature Review			Results	_
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
								development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Actitis hypoleucos Common Sandpiper		Marine, Migratory	Wildlife Online Birds Australia	Fresh and salt marshes, beside lakes, dams, streams, sheltered coasts, rocky shores (Flegg, 2003). In Australia, the Common Sandpiper is found in coastal or inland wetlands, both saline or fresh. It is found mainly on muddy edges or rocky shores. During the breeding season in the northern hemisphere, it prefers freshwater lakes and shallow rivers (Birds Australia, 2010)	In Australasia the common sandpiper visits New Guinea and Australia, mainly in the north and west. It is migratory, breeding in Eurasia. Most of the western breeding populations winter in Africa and eastern breeding populations winter in Australia and south Asia to Melanesia. Some birds do not return to Eurasia to breed, but remain in the north of Australia throughout the Australian winter (Birds Australia, 2010). In Queensland it occurs mainly in the north: South-eastern Gulf of Carpentaria, Queensland and Cairns Foreshore, Queensland	Surveys for migratory shorebirds (SEWPAC, 2010) should be conducted at sites where either: No suitable survey records exist or Records are too old to be considered reliable; or The site characteristics have changed. The majority of shorebirds are present during the non-breeding season (October to march) and this is when count surveys to establish the presence, number, habitat characteristics and the context of the site (ie how many other similar sites occur and are these used by shorebirds). Survey recommendations are as follows: At a minimum cover all the habitat thought to be used by the same population of shorebirds and the entire contiguous habitat where shorebirds occur. Surveys should be conducted during the period when the majority of migratory birds are present in the area and the during the northern hemisphere breeding season to obtain non-breeding, non-migratory immature populations. Surveys for roosting birds are to be conducted as close to high tide as possible (max 2 hours either side). Surveys for foraging birds as close to low tide as possible (no more than 2 hours either side). Surveys for foraging winds. Survey effort should be a minimum of 4 surveys for roosting shorebirds during the period when most are present in the area (eg 1 in dec, 2 in Jan and 1 in Feb). A minimum of 4 surveys for foraging shorebirds including 2 at spring low tide and 2 at neap low tide. For large sites or sites where large numbers are expected it is recommended that at least two people undertake the counts. Data requirements are: Roosting sites – total abundance, species richness, species abundance. Shorebird behaviour – activity at site (roosting, foraging, both), foraging location (mapping of foraging habitat). Survey conditions – date, time of day, tide height, weather conditions (temperature, precipitation, wind speed, wind direction). Number of observers and experience level. Habitat characteristics (dominant landform type, site hydrology, dominant vegetation types, inter-tidal substrate, invasive spec	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also	Not recorded during field survey. Unlikely that Great Keppel Island is a significant part of its habitat as it's main distribution is from north and western Australia as far south as Cairns. However it is possible that this species may occasionally be present on GKI.

					Literature Review			Results	3
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
								undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Apus pacificus Fork-tailed Swift		Marine, Migratory	EPBC Protected Matters Wildlife Online Birds Australia	Mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes. Forage aerially, up to hundreds of metres above ground, but also less then 1m above open areas or over water (DEWHA, 2010). The Fork-tailed Swift usually arrives in Australia around October; some arrive early in September, however, this is rare. The Fork-tailed Swift leaves southern Australia from mid-April and departs the Darwin area by the end of April. The birds also depart via north-east Queensland, with sightings common from February–March and most birds having departed by May (SEWPAC, 2010).	The Fork-tailed Swift is a non-breeding visitor to all states and territories of Australia. In Queensland there are scattered records of the Fork-tailed Swift in the Gulf Country, and a few records on Cape York Peninsula. In the north-east region there are many records east of the Great Divide from near Cooktown and south to Townsville. They are also widespread but scattered in coastal areas from 20° S, south to Brisbane and in much of the south south-eastern region. They are more widespread west of the Great Divide, and are commonly found west of the line joining Chinchilla and Hughenden. They are found to the west between Richmond and Winton, Longreach, Gowan Range, Maraila National Park and Dirranbandi. They are rarely found further west to Windorah and Thargomindah (SEWPAC, 2010).	As above	Known	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm — 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am — 09:30am.	Not recorded by CEPLA during field survey. CQE recorded a total of 25 birds during the March 2011 survey within the Clam Bay Precinct and Resort Precinct (Refer to (Black and Houston, 2011) for further detail). Possible that Great Keppel Island is a significant part of its habitat as the coastal environment may provide foraging habitat for this species. Breeding habitat — Absent. Does not breed in Australia.

					Literature Review		_	Results	;
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Ardea ibis Cattle Egret		Marine, Migratory	EPBC Protected Matters Wildlife Online Birds Australia	The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. It has occasionally been seen in arid and semi-arid regions however this is extremely rare. High numbers have been observed in moist, low-lying poorly drained pastures with an abundance of high grass; it avoids low grass pastures. It has been recorded on earthen dam walls and ploughed fields. It is commonly associated with the habitats of farm animals, particularly cattle, but also pigs, sheep, horses and deer. The Cattle Egret is known to follow earthmoving machinery and has been located at rubbish tips. It uses predominately shallow, open and fresh wetlands including meadows and swamps with low emergent vegetation and abundant aquatic flora. They have sometimes been observed in swamps with tall emergent vegetation (SEWPAC, 2010). The Cattle Egret breeds in colonies, either mono-specific or with other Egrets/Herons. In Australia the principal breeding sites are the central east coast from about Newcastle to Bundaberg. East coast colonies operate in a well defined period from October to January, occasionally extending by a month either side. In the Northern Territory, Top End colonies operate mainly November to February with smaller numbers breeding at other times	The Cattle Egret is widespread and common according to migration movements and breeding localities surveys. Two major distributions have been located; from northeast Western Australia to the Top End of the Northern Territory and around south-east Australia. In Western Australia and the Northern Territory, the Cattle Egret is located from Wyndham to Arnhem Land. In southeast Australia it is found from Bundaberg, inland to Roma, Thargominda, and then down through Inverell, Walgett, Nyngan, Cobar, Ivanhoe, Balranald to Swan Hill, and then west to Pinnaroo and Port Augusta (SEWPAC, 2010) In Australia the Cattle Egret is a partial migrant; some of the population migrates to New Zealand, while the remainder migrates locally. The birds migrate from breeding colonies in south-east Queensland and north-east NSW to spend winter in either south-east Australia or New Zealand. In north and west Australia the movement is not as well known as that of the east and south. The birds are recorded during all months in the Northern Territory; however, they are less abundant from February to May, immediately after breeding. Some are believed to migrate to south-west Western Australia, arriving from April. Surveys indicate the Cattle Egret is a migrant to New Guinea during the dry season. It is believed to depart from both the Northern Territory and north-east Queensland. The bird is also known to move east from the Northern Territory to Queensland (SEWPAC, 2010).	As above	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September	Survey. Unlikely to breed on Great Keppel Island as the breeding distribution reaches its northern extent at Bundaberg. Possible foraging habitat in restricted parts of

					Literature Review			Results	
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								2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI.	
								Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Ardea modesta Eastern Great Egret		Marine, Migratory	Wildnet Online	The Eastern Great Egret has been reported in a wide range of wetland habitats (for example inland and coastal, freshwater and saline, permanent and ephemeral, open and vegetated, large and small, natural and artificial). These include swamps and marshes; margins of rivers and lakes; damp or flooded grasslands, pastures or agricultural lands; reservoirs; sewage treatment ponds; drainage channels; salt pans and salt lakes; salt marshes; estuarine mudflats, tidal streams; mangrove swamps; coastal lagoons; and offshore reefs. The species usually frequents shallow waters. The Eastern Great Egret may retreat to permanent wetlands or coastal areas when other wetlands are dry (for example, during drought). This may occur annually in some regions with regular wet and dry seasons or erratically where the availability of wetland habitat is also erratic. In Australia, the largest breeding colonies, and greatest concentrations of breeding colonies, are located in near-coastal regions of the Top End of the Northern Territory (SEWPAC, 2011).	Australia. They occur in all states/territories of mainland Australia and in Tasmania. They	Eastern Great Egret numbers may be counted or estimated by area search or by transect-point survey. Surveys can be conducted on foot or from light aircraft (SEWPAC, 2011).	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were	survey.

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								undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Arenaria interpres Ruddy Turnstone		Marine, Migratory	EPBC Protected Matters Birds Australia	Found singly or in small groups along the coastline and only occasionally inland. Mainly found on exposed rocks or reefs, often with shallow pools, and on beaches. In the north, they are found in a wider range of habitats, including mudflats (Birds in Backyards, 2010). The Ruddy Turnstone mainly forages between lower supralittoral and lower littoral zones of foreshores, from strand-line to wave-zone. They often forage among banks of stranded seaweed or other tide-wrack. They are also known to forage on exposed rocky platforms, coral reefs and mudflats. The Ruddy Turnstone roosts on beaches, above the tideline, among rocks, shells, beachcast seaweed or other debris. They have also been observed roosting on rocky islets among grassy tussocks, and on mudflats and sandflats (SEWPAC, 2010).	The Ruddy Turnstone is widespread within Australia during its non-breeding period of the year, including from Tasmania in the south to Darwin in the north and many coastal areas in between. It is found in most coastal regions, with occasional records of inland populations (SEWPAC, 2010). In Australia, the birds leave sites in the south from mid-March. At some sites the population remains high into April with most departing during the first three weeks of April The Ruddy Turnstone breeds on the coasts of Europe, Asia and North America, generally north of 60° latitude and lays eggs from mid-May to early July. Common breeding coasts include Norway, Denmark, the Baltic coasts of Sweden, Finland, Spitsbergen and Estonia (SEWPAC, 2010). The birds mostly leave from mid-August to early September.	■ Records are too old to be considered reliable; or ■ The site characteristics have changed. The majority of shorebirds are present during the non-breeding season (October to march) and this is when count surveys to establish the presence, number , habitat characteristics and the context of the site (ie how many other similar sites occur and are these used by shorebirds). Survey recommendations are as follows:	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were	Breeding habitat abser as breeding does no occur in Australia. Possible foraging an roosting habitat occur on Great Keppel Island.

Species	NCA	EPBC	Database	Habitat (foraging and resting)	Literature Review Species Distribution	SEWPAC Survey Requirements	Likelihood of	Assessment to Date	Results and Likely
Species	Status	Status	Database	Preferences Breeding/nesting and Seasonal influences	Species distribution	SEWPAC Survey Requirements	Occurrence (as per literature review)	Assessment to Date	Presence Based on Field Survey
						 Survey effort should be a minimum of 4 surveys for roosting shorebirds during the period when most are present in the area (eg 1 in dec, 2 in Jan and 1 in Feb). A minimum of 4 surveys for foraging shorebirds including 2 at spring low tide and 2 at neap low tide. For large sites or sites where large numbers are expected it is recommended that at least two people undertake the counts. Data requirements are: Roosting sites – total abundance, species richness, species abundance. Shorebird behaviour – activity at site (roosting, foraging, both), foraging location (mapping of foraging habitat). Survey conditions – date, time of day, tide height, weather conditions (temperature, precipitation, wind speed, wind direction). Number of observers and experience level. Habitat characteristics (dominant landform type, site hydrology, dominant vegetation types, inter-tidal substrate, invasive species, disturbance regime, presence of suitable nocturnal roost sites). Methodology used to conduct survey. Where it is not possible to conduct surveys within the manner recommended a thorough habitat assessment must be done. The characteristics of the site (landform, hydrology, flood levels) should be assessed. 		searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
urhinus grallarius Ish Stone Irlew		Migratory	Birds Australia	Nest a scrape or small clearing on bard ground, usually near bush or tree, or beside a fallen dead limb (Readers Digest Complete Book of Australian Birds, 1986).	offshore islands.	As above	Known	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present	Recorded in a range habitats across GKI Chenoweth during dry and wet seas surveys (Sept 2010 a Feb 2011). Counts this species were undertaken.

Chasias	NCA	EDDC	Detebooe	Habitat (faraging and recting)	Literature Review	SEWDAC Curvey Dequirements	I italihaad af	Result	
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
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radrius nctus ble-banded rer		Marine, Migratory	EPBC Protected Matters Birds Australia	saline terrestrial wetlands and also saltmarsh, grasslands and pasture. Occurs on muddy, sandy, shingled or sometimes rocky beaches, bays and inlets, harbours and margins of fresh or saline terrestria wetlands such as lakes, lagoons and swamps, shallow estuaries and rivers Sometimes associated with coastal lagoons	mainly between the Tropic of Capricorn and western Eyre Peninsula, with occasional records in northern Queensland and Western Australia. The Double-banded Plover breeds only in New Zealand, where it is widespread	As above	Likely	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was	Not recorded during survey. Breeding habitat ab as breeding does occur in Australia. Foraging and roos habitat occurs on G Keppel Island.

					Literature Review			Result	
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
				exposed reefs and rock platforms with shallow rock pools and also on coastal sand dunes. In coastal regions, the species breeds on sandy, shelly or shingly beaches, spits and backing dunes, especially around estuaries (SEWPAC, 2010).	peaking in December, and join local flocks. Local flocking peaks during December and January. In inland areas of the southern South Island, these flocks persist until March and April with most departures occurring in February and March. Birds in both New Zealand and Australia return direct to breeding grounds from July, but mostly in August and early September.			undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls.	
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ruficapillus Red-capped Plover		Migratory	Matters Wildlife Online Birds Australia	coast. (Flegg, 2003). Widespread on salt lakes and in coastal areas of southern Australia with foraging habitat largely the littoral fringe (Abensperg-Traun and Dickman, 1989).	Australia, Indonesia, Timor-leste and vagrant to New Zealand (Birdlife International, 2009).			8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011.	survey. Possible foraging and roosting habitat occurs on Great Keppel Island.
								The Chenoweth Surveys were undertaken as follows:	
								Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each	
								day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through	
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								Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20	
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								beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm.	
								Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am.	
								A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders.	
								Detailed habitat assessments were also undertaken throughout GKI.	
								Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the	
								traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for	
								the presence of birds (point searches). Opportunistic	

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							,	sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Esacus magnirostris Beach-stone Curlew		Marine	Essential Habitat Mapping Wildlife Online Birds Australia	Open sand beaches, mudflats, reefs, mangroves (Flegg, 2003). Prefers beaches with estuaries or mangroves nearby, however also frequents river mouths, offshore sandbars associated with coral atolls, reefs and rock platforms and coastal lagoons (NSW NPWS,1999). They are mainly active at dawn, dusk and at night, but birds are often seen when they shift or move about sedately during the day. Call at night, breeding birds give a harsh, wailing weer-loo call, which is slightly higher pitched and more shrill than that of the related Bush Stone-curlew Burhinus grallarius (NSW DECC, 2005) The breeding season in temperate Australia lasts from September to November. Nests may be located on sandbanks, sandspits or islands in estuaries, coral ridges, among mangroves or in the sand surrounded by short grass and scattered casuarinas (NSW DECC, 2005).	In Australia, the Beach Stone-curlew occupies coastlines from about Point Cloates in Western Australia, across northern and north-eastern Australia south to north-eastern NSW, with occasional vagrants to south-eastern NSW and Victoria. In NSW, the species occurs regularly to about the Manning River, and the small population of north-eastern NSW is at the limit of the normal range of the species in Australia. (NSW DECC, 2005). An Island wide Wildnet search returned 99 records of this species.	No specific guidelines available. General survey guidelines for birds (SEWPAC, 2011) include: Area searches (typically 1-3ha for 10-20mins); Transect surveys (record birds while travelling between tow fixed points of known distance); Transect surveys by boat are well suited to detecting birds that occur on rocky shores and cliffs of islands and Point surveys (usually 5-20mins) sampling points are usually predetermined and selected either randomly or systematically through the area.	Known	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI.	Recorded at Leeks Creek (tidal inlet) by Chenoweth during the dry season survey (Sept 2010). Recorded at Leeks creek, beach and Putney Creek in Feb 2011. CEPLA recorded a total of 5 observations of this species over both the Dry and Wet season surveys. CQE recorded 1 specimen in the Resort Precinct in March 2011.
								(CQE) undertook bird surveys on GKI between 6 – 8 October	

					Literature Review			Results	
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
								2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Falco cenchroides Nankeen Kestrel		Marine, Migratory	Birds Australia	Mostly avoids forests or dense woodlands, often breeding in cities (Flegg, 2003). Requires open grassy area for hunting, therefore commonly observed in open woodland. Also common on cultivated land where house mice and insects are abundant (Readers Digest Complete Book of Australian Birds, 1986).	Nankeen Kestrels are found in most areas of Australia and are also found on islands along Australia's coastline, as well as New Guinea and Indonesia (Birds Australia, 2010). An Island wide Wildnet search returned 8 records of this species.	General survey guidelines for birds (SEWPAC, 2011) include: • Area searches (typically 1-3ha for 10-20mins); • Transect surveys (record birds while travelling between tow fixed points of known distance); • Transect surveys by boat are well suited to detecting birds that occur on rocky shores and cliffs of islands and • Point surveys (usually 5-20mins) sampling points are usually predetermined and selected either randomly or systematically through the area;	Known	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting	Not recorded during CEPLA field survey. Recorded by Black and Houston (2011) at Leeks Beach, Putney Beach and Resort Precinct. Black and Houston recorded this species a total of 2 times in 2010 survey and 3 during the 2011 survey. Limited foraging habitat on Great Keppel Island as there are few open grassland areas.

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Species		EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
							,	waders. Detailed habitat assessments were also undertaken throughout GKI.	
								Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Peregrine Falcon	Mi	ligratory	Birds Australia	The Peregrine Falcon is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water, and may even be found nesting on high city buildings (Birds in Backyards, 2010). Does not build nests, instead laying eggs in recesses in cliffs, hollows in large trees, or abandoned large nests of other birds such as hawks, eagles and ravens (Readers Digest Complete Book of Australian Birds, 1986).	The Peregrine Falcon is found across Australia, but is not common anywhere. It is also found in Europe, Asia, Africa and the Americas (Birds in Backyards, 2010). It is largely resident within large home ranges of 20-30 square kilometres. Young birds roam until ready to breed (Birds in Backyards, 2010).	NO specific guidelines. General survey guidelines for birds (SEWPAC, 2011) include: • Area searches (typically 1-3ha for 10-20mins); • Transect surveys (record birds while travelling between tow fixed points of known distance); • Transect surveys by boat are well suited to detecting birds that occur on rocky shores and cliffs of islands and • Point surveys (usually 5-20mins) sampling points are usually predetermined and selected either randomly or systematically through the area.	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm — 04:30pm.	Not recorded during field survey. Possible foraging and breeding habitat occur on Great Keppel Island.

			-		Literature Review			Result	3
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
								February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Fregata minor Great Frigatebird		Marine, Migratory	Birds Australia	Wholly adapted to living in the air, Frigatebirds drink while skimming low over fresh or salt water and feed on flying fish and other prey which they pick up from the sea without landing. Frigatebirds nest on offshore islands in tall trees and bushes, constructing a nest with sticks and vines (Readers Digest Complete Book of Australian Birds, 1986). Oceanic habitat, breeding on tropical islands including outer Great Barrier Reef (Flegg, 2003).	This species is considered native in a wide range of countries including Australia. Specifically these countries are American Samoa; Australia; Brazil; British Indian Ocean Territory; Brunei Darussalam; Chile; China; Christmas Island; Cocos (Keeling) Islands; Colombia; Comoros; Costa Rica; Ecuador; Fiji; French Polynesia; Guam; India; Indonesia; Japan; Kenya; Madagascar; Malaysia; Maldives; Marshall Islands; Mayotte; Mexico; Micronesia, Federated States of; Mozambique; Nauru; New Caledonia; Northern Mariana Islands; Palau; Philippines; Réunion; Russian Federation; Seychelles; Solomon Islands; Somalia; South Africa; Sri Lanka; Taiwan, Province of China; Tanzania, United Republic of; Thailand; Timor-Leste; United States; United States Minor Outlying Islands; Vanuatu; Wallis and Futuna. This species is considered a vagrant in the following countries Mauritius; New Zealand; Oman; Singapore; Zimbabwe (Birdlife International, 2009).	Surveys for migratory shorebirds (SEWPAC, 2010) should be conducted at sites where either: No suitable survey records exis;t or Records are too old to be considered reliable; or The site characteristics have changed. The majority of shorebirds are present during the non-breeding season (October to march) and this is when count surveys to establish the presence, number, habitat characteristics and the context of the site (ie how many other similar sites occur and are these used by shorebirds). Survey recommendations are as follows: At a minimum cover all the habitat thought to be used by the same population of shorebirds and the entire contiguous habitat where shorebirds occur. Surveys should be conducted during the period when the majority of migratory birds are present in the area and the during the northern hemisphere breeding season to obtain non-breeding, non-migratory immature populations. Surveys for roosting birds are to be conducted as close to high tide as possible (max 2 hours either side). Surveys for foraging birds as close to low tide as possible (no more than 2 hours either side). Surveys should not be undertaken during high rainfall or strong winds. Survey effort should be a minimum of 4 surveys for roosting shorebirds during the period when most are present in the area (eg 1 in dec, 2 in Jan and 1 in Feb). A minimum of 4 surveys for foraging shorebirds including 2 at spring low tide and 2 at neap low tide. For large sites or sites where large numbers are expected it is recommended that at least two people undertake the counts. Data requirements are: Roosting sites – total abundance, species richness, species abundance. Shorebird behaviour – activity at site (roosting, foraging, both), foraging location (mapping of foraging habitat). Survey conditions – date, time of day, tide height, weather conditions (temperature, precipitation, wind speed, wind direction).	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was	Not recorded during field survey. Possible breeding habitat on Great Keppel Island as some parts of the island does support taller trees.

0	Non	ED5.0	D-()	Halifed (famout)	Literature Review	OFIMIDAO O	1.11111. 1.6	Result	-
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
						 Number of observers and experience level. Habitat characteristics (dominant landform type, site hydrology, dominant vegetation types, inter-tidal substrate, invasive species, disturbance regime, presence of suitable nocturnal roost sites). Methodology used to conduct survey. Where it is not possible to conduct surveys within the manner recommended a thorough habitat assessment must be done. The characteristics of the site (landform, hydrology, flood levels) should be assessed. 		undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
allinago ardwickii panese Snipe		Marine, Migratory	EPBC Protected Matters		south-eastern Australia, and is a passage migrant through northern Australia. Latham's Snipe breed in Japan and far eastern Russia during the northern hemisphere summer. They arrive in northern Australia from July to November. They then move slowly southward, passing along the coastline and through regions near the coast. They arrive in south-eastern Australia between August and January, and it is here that most snipe spend the non-breeding period (SEWPAC, 2010).	arrange themselves into a line and then advance in unison, preferably whilst accompanied by bird dogs. Another potential technique is to drag a length of rope over an area of suitable habitat (SEWPAC, 2010). In Australia, surveys should be conducted between October and February, which is the period between the species' arrival and departure in Australia. Surveys are best conducted during the day, as the snipe appears to disperse from roosting areas at dusk	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and	

						Literature Review			Results	
Species	NCA Status	EPBC Status	Database	е	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
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Gallinago megala Swinhoe's Snipe		Marine, Migratory	EPBC Promotes Matters		During the non-breeding season Swinhoe's Snipe occurs at the edges of wetlands, such as wet paddy fields, swamps and freshwater streams. The species is also known to occur in grasslands, drier cultivated areas (including crops of rapeseed and wheat) and market gardens (SEWPAC, 2010). Habitat specific to Australia includes the dense clumps of grass and rushes round the edges of fresh and brackish wetlands. This includes swamps, billabongs, river pools, small streams and sewage ponds. They are also found in drying claypans and inundated plains pitted with crab holes (SEWPAC, 2010).	The species has been recorded in the north between the Kimberley Divide and Cape York Peninsula. In Western Australia the species has been recorded in Pilbara, the Kimberley region, Mount Goldsworthy, Mount Blaize and in the north-west regions around the Mitchell Plateau. In the Northern Territory the species is believed to be common and widespread in the Top End. Definite records exist from Darwin, Melville Island, Cannon Hill, Red Lily Lagoon and Mount Brockman. In Queensland specimens have been taken at Normanton. The species has also been sighted at Mount Isa (SEWPAC, 2010). Swinhoe's Snipe breeds in central and southern Siberia. Swinhoe's Snipe is recorded in north Australia, particularly the Kimberley region, from October–April. The species may occur in Pilbara from October–March. It is believed to be a common visitor to subcoastal Northern Territory during the wet season. It has been recorded in northern Queensland in November, March and April. The species leaves Australia in April (SEWPAC, 2010).	As above	Unlikely	Thursday 7th October. Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities.	survey.

Species	NCA	EPBC	Database	Habitat (foraging and resting)	Literature Review Species Distribution	SEWPAC Survey Requirements	Likelihood of	Result Assessment to Date	Results and Likely
Species	Status	Status	Database	Preferences Breeding/nesting and Seasonal influences	Species distribution	SEWFAC Survey Requirements	Occurrence (as per literature review)	Assessment to Date	Presence Based on Field Survey
allinago stenura		Marine.	EPBC Protecte	d During non-breeding period the Pin-tailed	Breeds in Arctic Tundra. Mainly seen in	As above	Unlikely	■ Nocturnal birds were searched for as part of spotlighting and call playback activities on site ■ Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. ■ A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm − 04:30pm. ■ Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am − 09:30am. ■ A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. ■ Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 − 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
in-tailed Snipe		Migratory	Matters	Snipe occurs most often in or at the edges of shallow freshwater swamps, ponds and lakes with emergent, sparse to dense cover of grass/sedge or other vegetation. The species is also found in drier, more open wetlands such as claypans in more arid parts of species' range. It is also commonly seen at sewage ponds; not normally in saline or inter-tidal wetlands. The Pin-tailed Snipe arrives in Australia, at Pilburra, mainly from late September to the end of March. It has been recorded in southwest Western Australia in late March. There are no winter records in Australia (SEWPAC, 2010).	North West Western Australia. The species distribution within Australia is not well understood. There are confirmed records from NSW, south-west Western Australia, Pilbara and the Top End. In NSW a single banded bird was reported near West Wyalong. In Western Australia the species was reported at Pilbara, Port Headland, Myaree Pool, Maitland River and near Karratha. In Pilbarra the distribution is believed to be bound by Pardoo (Banningarra Spring) and the lower Maitland River and Shay Gap. The Pin-tailed Snipe			8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present	survey. Unlikely that Gre Keppel Island is significant part of habitat due distribution mainly Western Australia.

C	Not	EDDC	Detahasa	Habitat (famoula and a d	Literature Review	OFINDA O Communication of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the contro	1.0-10-1	Results	
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
								both through direct observation and through calls.	
								Birds were also recorded when opportunistically observed during other	
								 survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site 	
								 Migratory shorebird searches were undertaken along the beach-front and 	
								tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across	
								 a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 	
								hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm.	
								Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide	
								(incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was	
								surveyed over a period of 3 hours to actively search for feeding and roosting waders.	
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								Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011.	
								CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular	
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								were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
matopus inosus ty tercatcher	NT		Wildlife Online	Prefers rocky coasts but may be recorded on coral reefs or sandy beaches near mudflats. Breeds on offshore islands and isolated rocky headlands between October to	coastal eastern, southern and western		Known	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8	during the dry se survey (Sept 2010
orcatori c í				January (Birds in Backyards, 2010). The Sooty Oystercatcher feeds on molluscs, crabs and other crustaceans, marine worms,	An Island wide Wildnet search returned 47 records of this species.	fixed points of known distance); Transect surveys by boat are well suited to detecting birds that occur on rocky shores and cliffs of islands and		days survey in February 2011. The Chenoweth Surveys were	Oystercatchers recorded on V Beach during the
				starfish and sea urchins, and small fish. Breeds in spring and summer, almost exclusively on offshore islands, and		 Point surveys (usually 5-20mins) sampling points are usually predetermined and selected either randomly or systematically through the area. 		undertaken as follows: Dedicated bird watching was undertaken for 20 minutes	survey in Septembe

	1		_		iterature Review			Results	
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
				occasionally on isolated promontories. The nest is a shallow scrape on the ground, or small mounds of pebbles, shells or seaweed when nesting among rocks (NSW DECC, 2005).			Torriew)	per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20	
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								surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
aeetus ogaster		Migratory	EPBC Protected Matters	d The White-bellied Sea-Eagle is found in coastal habitats (especially those close to	The White-bellied Sea-Eagle is distributed along the coastline (including offshore	Populations of the White-bellied Sea-Eagle can be surveyed performing systematic searches (area searches, line transections)	by Known cts)	Chenoweth EPLA undertook an 8 day fauna survey of the	Recorded by Cheno during the dry se

Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest (including rainforest) and even urban areas. Breeding has been recorded on the coast, at inland sites, and on offshore islands. Breeding territories are located close to water and mainly in tall coan frost or a located close to water and mainly in tall coan frost or a located close to water and mainly in tall coan frost or a located close to water and mainly in tall coan frost or a located close to mainly in tall coan frost or a located close to mainly in tall coan frost or a located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to located close to locate	area in further 8 y 2011. eys were ching was minutes 12) every morning observers selected (s) of the spresent direct through	Results and Likely Presence Based on Field Survey survey (Sept 2010). nests were identified the based on Field Survey. Survey (Sept 2010). nests were identified the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based of the based o
Birds Australia water in tropical and temperate regions of mainland Australia and its offshore islands. The habitats occupied by the sea-eagle are characterised by the presence of large areas of open water (larger rivers, swamps, lakes, the sea). Birds have been recorded in constall lowlands, but can occupy habitats up to 1400 m above sea level on the Northern Tablelands of NSW and up to 800 m above sea level on the Northern Tablelands of NSW and up to 800 m above sea level on the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips of the Samips	ching was minutes 12) every morning on each publisher selected (s) of the spresent direct through	nests were identif The bird was identif during point searc and during the b survey. CQE recorded a tota 3 Eagles in 2010 an at Leeke's Beach
woodland, although nests are sometimes located in other habitats such as dense forest (including rainforest), closed scrub or an including rainforest) closed scrub or an including rainforest) closed scrub or an including rainforest, closed scrub or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including rainforest or an including ra	were part of d call on site shorebird indertaken front and surveys of were of for 20 ed across hts. Date of the tide was stal of 2.5 by season eptember coopin — Figure 1) of the wet on 21 low tide between in. University a cooping habitat re also out GKI. University surveys a October 2011. Olived the emain by foot th regular I listen for	

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								were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Heteroscelus brevipes Grey-tailed tattler		Migratory Marine	EPBC Protected Matters Wildlife Online Birds Australia	Found on sheltered coasts with reefs and rock platforms or with intertidal mudflats. Also at intertidal rocky, coral or stony reefs as well as platforms and islets that are exposed at low tide. It has been found around shores of rock, shingle, gravel or shells and also on intertidal mudflats in embayments, estuaries and coastal lagoons, especially fringed with mangroves. Less often on open flat sandy beaches or sandbanks, especially around accumulated seaweed or isolated clumps of dead coral. It is occasionally found around near-coastal wetlands, such as lagoons and lakes. Forages in shallow water, on hard intertidal substrates, such as reefs and rock platforms, in rock pools and among rocks and coral rubble, over which water may surge. It has also been recorded foraging on exposed intertidal mudflats, especially with mangroves and possibly seagrass nearby. Occasionally it forages on intertidal sandflats, around banks of seaweed or protruding rocks or lumps of coral. Roosts in the branches of mangroves or, rarely, in dense stands of other shrubs, or on snags or driftwood. Where mangroves are not present, it roosts on rocks that are sometimes partly submerged. It is also known to roost on beaches and reefs; however, it is rarely reported roosting on bare sandy beaches or sandbanks (SEWPAC, 2010).	The Grey-tailed Tattler is found along the entire Queensland coast, with small numbers located in the Gulf of Carpentaria. It is widespread along the east coast and the Torres Strait. There is a continuous population along the entire east coast of Cape York Peninsula. Inland records include Burdekin Weir, Charters Towers and Mount Isa; however these are rare, with the species preferring coastal locations. The species breeds in north Siberia within the period from late May—August. The Grey-tailed Tattler arrives in Australia mostly in August, however, they sometimes appear south of the breeding range as early as July. Some are known to remain on breeding grounds as late as September or October. Adults arrive at the north Australian coast from late August and early September, with first-year birds apparently arriving four weeks later.	Surveys for migratory shorebirds (SEWPC, 2010) should be conducted at sites where either: No suitable survey records exist or Records are too old to be considered reliable; or The site characteristics have changed. The majority of shorebirds are present during the non-breeding season (October to march) and this is when count surveys to establish the presence, number , habitat characteristics and the context of the site (ie how many other similar sites occur and are these used by shorebirds). Survey recommendations are as follows: At a minimum cover all the habitat thought to be used by the same population of shorebirds and the entire contiguous habitat where shorebirds occur. Surveys should be conducted during the period when the majority of migratory birds are present in the area and the during the northern hemisphere breeding season to obtain non-breeding, non-migratory immature populations. Surveys for roosting birds are to be conducted as close to high tide as possible (max 2 hours either side). Surveys for foraging birds as close to low tide as possible (no more than 2 hours either side). Surveys should not be undertaken during shorebirds during the period when most are present in the area (eg 1 in dec, 2 in Jan and 1 in Feb). A minimum of 4 surveys for foraging shorebirds including 2 at spring low tide and 2 at neap low tide. For large sites or sites where large numbers are expected it is recommended that at least two people undertake the counts. Data requirements are: Roosting sites – total abundance, species richness, species abundance. Shorebird behaviour – activity at site (roosting, foraging, both), foraging location (mapping of foraging habitat). Survey conditions – date, time of day, tide height, weather conditions (temperature, precipitation, wind speed, wind direction). Number of observers and experience level. Habitat characteristics (dominant landform type, site hydrology, dominant vegetation types, inter-tidal substrate, invasive species, disturbance regime, presence of suitable noc	Known	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011.	CEPLA field survey. Two Grey Tattlers were recorded by CQE (Black and Houston, 2011) from Leeke's Estuary. Breeding habitat absent as the species does not breed in Australia. Foraging and roosting habitat occur on Great Keppel Island.

					Literature Review			Results	1
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
								CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Himantopus himantopus Black-winged Stilt		Marine, Migratory	EPBC Protected Matters Birds Australia	Black-winged Stilts prefer freshwater and saltwater marshes, mudflats, and the shallow edges of lakes and rivers (Birds Australia, 2010). Also Lakes, saltpans, coastal lagoons and marshes (Flegg, 2003). The breeding season is highly variable but usually between August and December. The nest may be anything from a simple shallow scrape on the ground to a mound of vegetation placed in or near the water (Birds Australia, 2010).	The Black-winged Stilt has a wide range, including Australia, Central and South America, Africa, southern and south-eastern Asia and parts of North America and Eurasia. More locally it also occurs through Indonesia, New Guinea, the Solomon Islands, the Philippines and New Zealand. Although widespread on the Australian mainland, it is an uncommon visitor to Tasmania (Birds Australia, 2010).	As above	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm — 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am — 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders.	survey.

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Hirundapus caudacutus White-throated Needletail		Migratory	EPBC Protected Matters	In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. This species does not breed in Australia. In Australia, White-throated Needletails almost always forage aerially, at heights up to 'cloud level', above a wide variety of habitats ranging from heavily treed forests to open habitats, such as farmland, heathland or mudflats. The species has been recorded roosting in trees in forests and woodlands, both among dense foliage in the canopy or in hollows (SEWPAC, 2010).	The White-throated Needletail is widespread in eastern and south-eastern Australia. In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains. Further south on the mainland, it is widespread in Victoria, though more so on and south of the Great Divide, and there are few records in western Victoria outside the Grampians and the South West. When wintering in eastern and south-eastern Australia, the species is widespread and numerous at many sites. The nominate subspecies caudacutus of the White-throated Needletail is a transequatorial migrant, breeding in the Northern Hemisphere and flying south for the boreal winter (SEWPAC, 2010).	Any surveys must be conducted between October and April in northern and eastern Australia and between December and March in south-eastern Australia, when numbers of White-throated Needletails are highest (SEWPAC, 2010).	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm — 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between	Not recorded during field survey. Breeding habitat absent as the species does not breed in Australia. Possible foraging and roosting habitat occur on Great Keppel Island.

Onneis No.	FDDG	D-r-t-		Literature Review	CEMIDAC O	1.11-111	Results	
Species NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
							■ A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. ■ Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 − 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
irundo rustica arn Swallow	Marine, Migratory	EPBC Protected Matters	Coastal, wetland and urban areas, feeds over most habitats (Flegg, 2003). The Barn Swallow uses a range of habitat types including canals, drainage ditches, arable land, urban areas, grassland, davanna, shrubland, marshes, swamps, freshwater lakes at an altitude of 0-3000m (Birdlife International, 2011). The Barn Swallow does not breed in Australia.	Within Australia this species occurs across northern coastal Australia south to around Gladstone in Queensland and Carnarvon in Western Australia (SEWPAC, 2011).		Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5	Not recorded during fiesurvey. Breeding habitat abseas the species does not breed in Australia. Possible foraging arroosting habitat occur of Great Keppel Island.

					Literature Review			Results	3
	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
								2010 between 2:00pm — 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am — 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 — 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Macronectes giganteus Southern Giant Petrel	N	E Marine, Migratory	EPBC Protected Matters	The Southern Giant-Petrel is marine bird that occurs in Antarctic to subtropical waters. In summer, it mainly occurs over Antarctic waters, and it is widespread south as far as the pack-ice and onto the Antarctic continent. In the Ross Sea, the Southern Giant-Petrel ranges from the Antarctic continent to the 3° C sea surface temperature isotherm. In early summer, it is most abundant over the continental slope, and in late summer, it has a uniform distribution from the continental slope north to the Antarctic Polar Front. It also occurs south to the Ross Ice Shelf at low densities. It has no preference for packice of a particular density, but it may avoid crossing extensive ice sheets, which dampen sea swell and inhibit soaring. The Southern Giant-Petrel is abundant over the pack-ice near penguin colonies. In summer, it also occurs over subantarctic waters near its breeding islands in the Atlantic and Indian Oceans, in subantarctic to southern subtropical waters on the Argentinean continental shelf and off New Zealand and the cold eastern boundary current off South America. It possibly concentrates north of 50° S in winter, as it is rare in waters of the southern Indian Ocean, but common off South America, South Africa, Australia and New Zealand. It occurs in both pelagic and inshore waters. It is attracted to land at sewage outfalls. It	throughout the Southern Ocean. The Southern Giant-Petrel breeds on six subantarctic and Antarctic islands in Australian territory; Macquarie Island, Heard	On land area searches or transect surveys (in areas up to 10ha)	Unlikely	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were	Not recorded during field survey. Breeding habitat Absent. Unlikely that Great Keppel Island is a significant part of its habitat as the Tropic of Capricorn is the northern extent of migration.

					Literature Review			Results	3
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
				scavenges ashore, so at lles Crozet, its distribution shifts towards land in summer, when birds frequent penguin and seal colonies (SEWPAC, 2010)			review)	undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on	
Merops ornatus Rainbow Bee- eater		Migratory	Wildlife Online Birds Australia	Widespread in open country. Excavates burrows in sandy banks or cuttings (Flegg, 2003). The Rainbow Bee-eater occurs mainly in open forests and woodlands, shrublands, and in various cleared or semi-cleared habitats, including farmland and areas of human habitation. It usually occurs in open, cleared or lightly-timbered areas that are often, but not always, located in close proximity to permanent water. It also occurs in inland and coastal sand dune systems, and in mangroves in northern Australia, and has been recorded in various other habitat types including heathland, sedgeland, vine forest and vine thicket, and on beaches. The Rainbow Bee-eater occurs in open woodlands and shrublands, including mallee, and in open forests that are usually dominated by eucalypts. It also occurs in grasslands and, especially in arid or semi-arid areas, in riparian, floodplain or wetland vegetation assemblages	much of mainland Australia, and occurs on several near-shore islands. It is not found in Tasmania, and is thinly distributed in the most arid regions of central and Western Australia. majority of the global population breeds in Australia (including on Rottnest	The southern populations of the Rainbow Bee-eater migrate northward from February to April, and return to their breeding grounds in September and October (SEWPAC, 2010).	Likely	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities.	during the dry season

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								searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Monarcha melanopsis Black-faced Monarch		Migratory	Wildlife Online	When breeding inhabits forest and woodlands, often damp. At other times inhabits open forest and woodland. The nest is located in an enlarged chamber at the end of long burrow or tunnel that is excavated, by both sexes, in flat or sloping ground, in the banks of rivers, creeks or dams, in roadside cuttings, in the walls of gravel pits or quarries, in mounds of gravel, or in cliff-faces. Nesting areas are often reused, and banding studies indicate that at least some migrant birds return to the same nesting area each year (SEWPAC, 2010).	The Black-faced Monarch is found along the coast of eastern Australia, becoming less common further south (Birds Australia, 2010).	In Australia, the breeding season extends from August to Jar (SEWPAC, 2010).	nuary Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct	during the dry season survey (Sept 2010). No breeding or nesting records were made.

Species	NCA	EPBC	Database	Habitat (foraging and resting)	Species Distribution	Likelihood of	Assessment to Date	Results and Likely	
Оросио	Status	Status	Databass	Preferences Breeding/nesting and Seasonal influences	Species Significants.	SEWPAC Survey Requirements	Occurrence (as per literature review)	7,00000110111 10 2410	Presence Based o Field Survey
							, , ,	observation and through calls.	
								■ Birds were also recorded	
								when opportunistically observed during other	
								survey activities.	
								Nocturnal birds were searched for as part of	
								spotlighting and call playback activities on site	
								Migratory shorebird	
								searches were undertaken along the beach-front and	
								tidal creeks. Point surveys of	
								these areas were undertaken on foot for 20	
								minutes and sampled across a range of tide heights.	
								A survey from a boat of the	
								beaches at low tide was undertaken for a total of 2.5	
								hours during the dry season	
								survey on 26 September 2010 between 2:00pm -	
								04:30pm.	
								Leeke's Estuary (Figure 1) was walked during the wet	
								season survey on 21 February 2011 at low tide	
								(incoming) between 06:20am – 09:30am.	
								A portion of the Estuary from	
								the mouth to the shed was surveyed over a period of 3	
								hours to actively search for	
								feeding and roosting waders.	
								■ Detailed habitat	
								assessments were also undertaken throughout GKI.	
								Central Queensland University	
								(CQE) undertook bird surveys on GKI between 6 – 8 October	
								2010 and 21-25 March 2011. CQU bird surveys involved the	
								traversing of the main	
								development footprint by foot and electric vehicle with regular	
								stops made to look and listen for the presence of birds (point	
								searches). Opportunistic sightings between stop points	
								were also recorded. All beaches	
								and rocky headlands were surveyed for birds during a full	
								circuit of the island by boat on Thursday 7th October.	
cha		Migratory,	Wildlife ONline	The Spectacled Monarch prefers thick	The Spectacled Monarch is found in coastal		Possible	Chenoweth EPLA undertook an	Recorded by C
a <i>tus</i> acled		Marine		understorey in rainforests, wet gullies and waterside vegetation, as well as mangroves.	north-eastern and eastern Australia, including coastal islands, from Cape York,			8 day fauna survey of the proposed disturbance area in	during the wet s survey (Feb, 2011
rch				Resident in Queensland to Rockhampton, summer breeding migrant further south	Queensland to Port Stephens, New South Wales. It is much less common in the south.			September 2010 and a further 8 days survey in February 2011.	records of breedinesting were made
				(Birds Australia, 2010).	It is also found in Papua New Guinea, the				
				The Spectacled Monarch builds a small cup	Moluccas and Timor (Birds Australia, 2010).			The Chenoweth Surveys were undertaken as follows:	
				nest of fine bark, plant fibres, moss and spider web in a tree fork or in hanging vines,				■ Dedicated bird watching was	
				1 m - 6 m above the ground, often near				undertaken for 20 minutes per area (Figure 12) every	

Species	NCA	EPBC	Database	Habitat (foraging and resting)	Species Distribution	SEWPAC Survey Requirements	Likelihood of	Assessment to Date	Results and Likely
	Status	Status		Preferences Breeding/nesting and Seasonal influences			Occurrence (as per literature review)		Presence Based or Field Survey
							,	morning in the early morning	
								and late afternoon on each day of the survey. During	
								this time, two observers	
								walked quietly over selected areas (point surveys) of the	
								site to detect birds present	
								both through direct observation and through	
								calls.	
								■ Birds were also recorded	
								when opportunistically	
								observed during other survey activities.	
								■ Nocturnal birds were	
								searched for as part of	
								spotlighting and call playback activities on site	
								Migratory shorebird	
								searches were undertaken	
								along the beach-front and tidal creeks. Point surveys of	
								these areas were	
								undertaken on foot for 20	
								minutes and sampled across a range of tide heights.	
								A survey from a boat of the	
								beaches at low tide was	
								undertaken for a total of 2.5 hours during the dry season	
								survey on 26 September	
								2010 between 2:00pm -	
								04:30pm.	
								Leeke's Estuary (Figure 1) was walked during the wet	
								season survey on 21	
								February 2011 at low tide (incoming) between	
								06:20am – 09:30am.	
								A portion of the Estuary from	
								the mouth to the shed was surveyed over a period of 3	
								hours to actively search for	
								feeding and roosting	
								waders.	
								 Detailed habitat assessments were also 	
								undertaken throughout GKI.	
								Central Queensland University	
								(CQE) undertook bird surveys	
								on GKI between 6 – 8 October 2010 and 21-25 March 2011.	
								CQU bird surveys involved the	
								traversing of the main	
								development footprint by foot and electric vehicle with regular	
								stops made to look and listen for	
								the presence of birds (point searches). Opportunistic	
								sightings between stop points	
								were also recorded. All beaches	
								and rocky headlands were surveyed for birds during a full	
								circuit of the island by boat on Thursday 7th October.	
ra		Migrotor	EDDC Protect	Satin Elycotohora mainly inhabit assetime	The Catin Elysptohan is widesproad in	They may through Ousessland from lets Assess to News-to-	Possible		Not recorded during
ra Ieuca		Migratory	EPBC Protected Matters	forests, often near wetlands or watercourses.	eastern Australia and vagrant to New	They move through Queensland from late August to November, mainly along the coast, arriving in south-eastern Queensland	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the	
Flycatcher	•		Wildlife Online	They generally occur in moister, taller forests	1 7 1 1 1 0 1 1 2 7 7 1 1 1 1 1		i .	proposed disturbance area in	i e

					Literature Review			Result	s
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
Species			Birds Australia	Habitat (foraging and resting) Preferences	passage on a few islands in the western Torres Strait. It is patchily recorded on Cape York Peninsula, from the Cape south to a line between Aurukun and Coen. The species is more widespread farther south, though still scattered, from Musgrave Station south to c. 24° S, mostly in coastal areas, but also on the Great Divide, and occasionally further west. Satin Flycatchers are widespread in south-eastern Queensland, in the area from Fraser Island, west to Goombi and south to the NSW border (SEWPAC, 2010). Satin Flycatchers are migratory, moving north in autumn to spend winter in northern Australia and New Guinea. They return south in spring to spend summer in south-eastern	SEWPAC Survey Requirements	Occurrence (as	days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was	Results and Likely Presence Based on Field Survey roosting habitat in som parts of Great Keppe Island.
								surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI.	
								Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches	

					Literature Review			Results		
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey	
							·	surveyed for birds during a full circuit of the island by boat on Thursday 7th October.		
Myiagra inquieta Restless Flycatcher		Migratory	Birds Australia	Inhabits open forests and woodlands, often near water, and quite dry scrub out of breeding season (Flegg, 2003). Breeds July to January in south and August to march in north.	Restless Flycatcher is found throughout northern and eastern mainland Australia, as well as in south-western Australia. It is also found in Papua New Guinea. The southern subspecies, inquieta, is found in south-western Australia and from eastern South Australia to Julia Creek and Mount Isa, Queensland. The northern subspecies, nana, is found from the Kimberley region, Western Australia, to Cooktown and Townsville, Queensland. The two subspecies do not seem to mix where their ranges meet in central eastern Queensland (Birds in Backyards, 2010).		Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main	during the dry seasor survey only (Sept 2010) No records of nesting breeding were made.	

Species NCA EPBC Database Habitat (foraging and resting) Species Distribution SEWPAC Survey Require Preferences Breeding/nesting and Seasonal influences	ments Likelihood of Assessmen Occurrence (as per literature review)	Presence Based on
influences		Field Survey
	development for and electric vehic stops made to loo the presence of searches). Sightings between were also recorded and rocky head surveyed for bird circuit of the isla Thursday 7th Octo	cle with regular obtained in the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second seco
Migratory Birds Australia The Leader Pycatcher is found in tall and modifium ropen forests, making in coastal areas, preferring officer habitists than the Safe areas, preferring officer habitists than the Safe areas, preferring officer habitists than the Safe areas, preferring found in the Safe areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas areas area	8 day fauna s proposed disturb September 2010 days survey in Fe The Chenoweth undertaken as foll Dedicated bird undertaken for per area (Figmorning in the and late after day of the sthis time, the walked quietly areas (point site to detect both thromation observation calls. Birds were when on observed of survey activitie. Nocturnal searched for spotlighting playback activ. Migratory searches we along the betidal creeks. Pethese are undertaken on minutes and sa range of tide. A survey from beaches at undertaken for hours during a survey on 2 2010 between 04:30pm. Leeke's Estur was walked of season sur February 201 (incoming) 06:20am – 09 A portion of the the mouth to surveyed over	wet season surveys (Sept 2010; Feb 2011). Surveys were lows: d watching was or 20 minutes pure 12) every e early morning moon on each survey. During wo observers y over selected surveys) of the birds present ugh direct and through also recorded pportunistically during other es. birds were as part of and call vities on site shorebird re undertaken each-front and coint surveys of eas were in foot for 20 sampled across e heights. a boat of the low tide was or a total of 2.5 the dry season 26 September en 2:00pm — ary (Figure 1) during the wet vey on 21 l1 at low tide between 30am. The Estuary from the shed was or a period of 3 vely search for and a low to the low tide was or a period of 3 vely search for large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and large and

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Numenius madagascariensis Eastern curlew	NT	Migratory Marine	Wildlife Online Birds Australia	Most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. Often recorded among saltmarsh and on mudflats fringed by mangroves, and sometimes use the mangroves. Mainly forages on soft sheltered intertidal sandflats or mudflats, open and without vegetation or covered with seagrass, often near mangroves, on saltflats and in saltmarsh, rockpools and among rubble on coral reefs, and on ocean beaches near the tideline. Roosts on sandy spits and islets, especially on dry beach sand near the high-water mark, and among coastal vegetation including low saltmarsh or mangroves. It occasionally roosts on reef-flats, in the shallow water of lagoons and other near-coastal wetlands (SEWPAC, 2010).	The Eastern Curlew breeds in Russia and north-eastern China but its distribution is poorly known. During the non-breeding season a few birds occur in southern Korea and China, but most spend the non-breeding season in north, east and south-east Australia. Eastern Curlews are regular non-breeding visitors to New Zealand in small numbers, and are also known from Kermadec Island and Chatham Island. In Australia, most Eastern Curlews leave between late February and March-April. A large proportion of the population winters in Australia, mostly in the northern regions. After breeding, they move south for the Northern Hemisphere winter. The birds migrate by day and night at varying altitudes, usually along coasts approximately 100 m from shore. Within Australia, immature birds, which do not migrate, move northward in winter.	The Eastern Curlew is most often counted using ground-based surveys within Australia. Population monitoring counts were able to illustrate the northward movement of many immature birds in winter within Australia. At Moreton Bay, Queensland, the constancy of numbers within-season across sites suggests that short surveys can give reliable results (SEWPAC, 2010).	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from	Recorded by Creighton (1984) on Great Keppel Island. Recorded by Chenoweth during the wet season survey (Feb, 2011). CEPLA recorded 1 bird feeding in Leeke's Estuary in 2011.

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Numenius minutus Little Curlew		Marine,	EPBC Protected	Open, short grassland (may not be close to water), tidal mudflats (Flegg, 2003), Gathers	The Little Curlew is widespread in the north of Australia and scattered elsewhere. It is an		Unlikely	surveyed for birds during a full circuit of the island by boat on Thursday 7th October. Chenoweth EPLA undertook an 8 day fauna survey of the	Not recorded during fie
Little Curlew Little Whimbrel		Migratory	Matters	water), tidal mudflats (Flegg, 2003). Gathers in large flocks on coastal and inland grasslands and black soil plains in northern Australia, near swamps and flooded areas. They also feed on playing fields, paddocks and urban lawns (Birds in Backyards, 2010).	of Australia and scattered elsewhere. It is an irregular visitor to New Zealand and Tasmania. It breeds in Siberia and is seen on passage through Mongolia, China, Japan, Indonesia and New Guinea. Breeds May to Augus (Birds in Backyards, 2010). Little Curlews breed in Siberia, moving south to the non-breeding areas in northern Australia and southern New Guinea. They are dispersive in Australia, probably in response to rainfall. They arrive in the north from mid to late September, then disperse, leaving again mainly in early April (Birds in Backyards, 2010).			proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights.	survey. Breeding habitat abset as this species does no breed in Australia. Unlikely that Greek Keppel Island is significant part of it habitat due to lack of large areas of grassland
								A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm.	

0	NCA	0 0-1-1	Habitat (formula and the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of	Literature Review	OFWEAD O	1.0-10-1	Result	
	NCA EPB Status Statu		Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
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Jumenius haeopus Vhimbrel	Migrato Marine	EPBC Protected Matters Wildlife Online Birds Australia	also in harbours, lagoons, estuaries and river deltas, often those with mangroves, but also open, unvegetated mudflats. Occasionally found on sandy or rocky beaches, on coral or rocky islets, or on intertidal reefs and platforms. Infrequently recorded using saline or brackish lakes near coastal areas. Also uses saltflats with saltmarsh, or saline grasslands with standing water left after high spring-tides. Forages on intertidal mudflats, along the muddy banks of estuaries and in coastal lagoons, either in open unvegetated areas or among mangroves, sometimes forage on sandy beaches or among rocks. It has occasionally been sighted feeding on exposed coral or rocky reefs and rock platforms and known to probe holes and crevices among rubble and on reef flats, but not on reef crests. Regularly roost in mangroves and other structures flooded at high tide. They often roost in the branches of mangroves around mudflats and in estuaries and occasionally in tall coastal trees. They have also been observed to roost on the ground (sometimes under mangroves or in	coastal distribution. seen on the south coast of Western Australia and has occasionally been recorded in south-west Western Australia and further north to Shark Bay. It has been found around the coasts of the Top End, where it sometimes follows rivers inland. It is found along almost the entire coast of Queensland and NSW and regularly at some places in Victoria, Tasmania, and South Australia. The Whimbrel breeds in north and west Alaska. Breeding occurs in the Northern Hemisphere summer, with laying occurring from May to mid-June. Within Australia, Whimbrels move south through Roebuck Bay, Western Australia, from August and September. They arrive on the north and north-east coasts from August-October. Within Australia, Whimbrels begin migrating from February onwards. Influxes occur at most sites in Queensland from early March to early April. The birds leave the north and north-east coasts by late April	As above	Known	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across	during wet seaso survey (Feb, 2011). Two birds were recorded feeding in Leeke Estuary in 2011. CQE recorded 3 during 2010 survey and 2 Leeke's Estuary during the 2011 survey. Feeding and roosting habitat is present on the Island. Breeding are nesting habitat is not confirmed.

					Literature Review			Results	
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
								■ A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm − 04:30pm. ■ Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am − 09:30am. ■ A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. ■ Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 − 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Phaethon rubricauda Red-tailed tropicbird	V	Migratory Marine	Wildlife Online Birds Australia	Oceanic, breeds on tropical islands in inaccessible locations such as cliffs, visitor to Australian north-east coast (Flegg, 2003). Inhabits tropical marine waters preferably between 24 and 30C. Breeding occurs between October and April (NSW NPWS, 1999)	with scattered records along the east and south coasts to SA (NSW NPWS, 1999). The red tailed tropicbird nests on islands	As Above	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site	Possible breeding, foraging and roosting habitat occur on Great

Species	NCA	EPBC	Database	Database Habitat (foraging and resting)	Literature Review Species Distribution	SEWPAC Survey Requirements	Likelihood of	Result Assessment to Date	Results and Likely
Species	Status	Status	Database	Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWFAC Survey Requirements	Occurrence (as per literature review)	Assessment to Date	Presence Based on Field Survey
								 Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October. 	
Pluvialis fulva acific Golden lover		Marine, Migratory	EPBC Protected Matters Wildlife Online Birds Australia	Inhabits coastal habitats, though it occasionally occurs around inland wetlands. Usually occur on beaches, mudflats and sandflats (sometimes in vegetation such as mangroves, low saltmarsh or beds of seagrass) in sheltered areas including harbours, estuaries and lagoons, Sometimes recorded on islands, sand and coral cays and exposed reefs and rocks. They are less often recorded in terrestrial habitats, usually wetlands such as fresh, brackish or saline lakes, billabongs, pools, swamps and wet claypans, especially those with muddy margins and often with submerged vegetation or short emergent grass. Forages on sandy or muddy shores (including mudflats and sandflats) or margins of sheltered areas such as estuaries and lagoons, though it also feeds on rocky shores, islands or reefs. Occasionally forage among vegetation, such as saltmarsh, mangroves or in pasture or crops. Roost	are also a number of inland records (in all states), sometimes far inland and usually along major river systems, especially the Murray and Darling Rivers and their tributaries. Most Pacific Golden Plovers occur along the east coast, and are especially widespread along the Queensland and NSW coastlines. The Pacific Golden Plover breeds mostly in northern Siberia, between the Yamal Peninsula and the Chukotski Peninsula and the Gulf of Anadyr. The Pacific Golden Plover is a migratory species, breeding in the Northern Hemisphere and flying south for the boreal winter. The species is present at non-breeding grounds in Australia mostly	The majority of shorebirds are present during the non-breeding season (October to march) and this is when count surveys to establish the presence, number , habitat characteristics and the context of the site (ie how many other similar sites occur and are these used by shorebirds). Survey recommendations are as	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls.	

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				including mangroves or low saltmarsh, or among beachcast seaweed (SEWPAC, 2010).		 Zhours either side). Surveys should not be undertaken during high rainfall or strong winds. Survey effort should be a minimum of 4 surveys for roosting shorebirds during the period when most are present in the area (eg 1 in dec, 2 in Jan and 1 in Feb). A minimum of 4 surveys for foraging shorebirds including 2 at spring low tide and 2 at neap low tide. For large sites or sites where large numbers are expected it is recommended that at least two people undertake the counts. Data requirements are: Roosting sites – total abundance, species richness, species abundance. Shorebird behaviour – activity at site (roosting, foraging, both), foraging location (mapping of foraging habitat). Survey conditions – date, time of day, tide height, weather conditions (temperature, precipitation, wind speed, wind direction). Number of observers and experience level. Habitat characteristics (dominant landform type, site hydrology, dominant vegetation types, inter-tidal substrate, invasive species, disturbance regime, presence of suitable nocturnal roost sites). Methodology used to conduct surveys. Where it is not possible to conduct surveys within the manner recommended a thorough habitat assessment must be done. The characteristics of the site (landform, hydrology, flood levels) should be assessed. 		when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Pluvialis quatarola trey Plover		Marine, Migratory	EPBC Protected Matters Wildlife Online Birds Australia	Usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons. Also occur around terrestrial wetlands such as near-coastal lakes and swamps, or salt-lakes. Usually forage on large areas of exposed mudflats and beaches of sheltered coastal shores such as inlets, estuaries and lagoons. Occasionally feed in pasture and at the muddy margins of inland wetlands. Roost in sandy areas, such as on unvegetated sandbanks or sand-spits on sheltered beaches or other sheltered environments	Grey Plovers breed north of 65° N in the Northern Hemisphere, in northern Siberia, from the White Sea east to the Gulf of Anadyr, and in Alaska and northern Canada from the shores of the Bering Sea east to Baffin Island. During the non-breeding season, the species is widespread on the coasts of North and South America, western and southern Europe, Africa, western, southern, south-eastern and eastern Asia, and Australia. The species usually leaves its breeding grounds in northern Siberia between mid-September and mid-October, but some leave	AS above	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers	Not recorded during field survey. Breeding habitat absen as this species does no breed in Australia. Possible foraging and roosting habitat occur or Great Keppel Island.

	1		D-(-b		Literature Review		Likelihood of	Results	
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
					as early as mid-August. Morphometric data suggests that Grey Plovers wintering in Australia originate from Siberian breeding grounds located east of the Lena River, with south-eastern Australia mainly supporting birds which bred on Wrangel Island. They arrive in northern Australia in August and early September, and sometimes October. Many then move south, mainly in October. Some of these southerly movements are overland, as all inland records are from the period September to January, though others certainly follow the coast. The species usually arrives at sites on the southern coast between October and November. They remain at southern non-breeding grounds until March-May. Birds move northwards along the east coast in March; they leave south-western Australia in April, and other birds pass through the area between March and May, possibly originating from the South Australian coast, travelling westward in the initial stages of their northward migration. Plovers which have remained along the northern coastline for the non-breeding season leave between February and April (SEWPAC, 2010).			walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic	
								sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
rodroma lecta neglecta madec Petrel		Vulnerable	EPBC Protected Matters Database	Oceanic, breeds on south pacific islands (Flegg, 2003). The species has been observed over waters with surface-temperatures of 15-25°C. Breeding occurs on atolls and rocky islets across subtropical South Pacific Ocean on vegetated coastal	seas between 20 and 35°S. Breeding colonies are located in the South Pacific	for nest sites during the breeding season. Birds are nocturnal spotlight searches at night for landed birds and vocal detection flying birds around colony. Land-based area searches transects recommended survey effort is 20 hours/4 da	so of or	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011.	Not recorded during survey. Unlikely to breed Great Keppel Island GKI is further north to

					Literature Review			Result	
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
					been recorded as far north as 28°N in the central Pacific Ocean and 21°N in the eastern Pacific Ocean. The species is usually present around Kermadec Island throughout the year and is a vagrant to the east coast of Australia (NSW NPWS, 1999). Ranges over subtropical and tropical waters of the South Pacific. Balls Pyramid, near Lord Howe Island, is the only known breeding site in Australian waters.		per literature	undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches) Opportunistic	colony range at 23°S. Unlikely that Great Keppel Island is a significant part of its habitat.
								the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	

					Literature Review			Result	s
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
Sterna dougallii Roseate Tern		Marine, Migratory	Wildnet Online	The species breeds in large, dense single- or mixed-species colonies that may contain several thousands of pairs. It remains gregarious throughout the year, roosting in large groups and feeding singly, in small loose groups or in flocks of many hundreds of individuals. The species nests on sand-dunes, sand-spits, shingle beaches, saltmarshes and rocky, sandy or coral, showing a preference for densely vegetated sites in temperate regions but sparsely vegetated sites in the tropics. It also shows a preference for nest sites close to clear, shallow, sandy fishing grounds in tidal bays and sheltered inshore waters. The nest is a bare scrape in sand, shingle or coral rubble, preferably in sites surrounded by walls and rocks, or, in temperate regions, in the shelter of vegetation, also in crevices between and under rocks, or in the entrances to rabbit or Puffin burrows. Throughout the year the species often rests and forages in sheltered estuaries, creeks, inshore waters and up to several kilometres offshore, moving to warm tropical coasts after breeding (Birdlife International, 2009).	This species breeds in widely but sparsely distributed colonies along the east coast and offshore islands of Canada, USA, from Honduras to Venezuela, possibly to Brazil, the Caribbean (including the Bahamas, Greater and Lesser Antilles and the West Indies), UK, France, Ireland, Portugal (Azores, Salvages and perhaps Madeira), Spain (Canary Islands), South Africa, Kenya, Somalia, Madagascar, Oman, Seychelles, St Brandon and the Mascarene Islands (Mauritius), Maldives, Chagos (British Indian Ocean Territory), Andaman and Nicobar Islands (India), Sri Lanka, Ryukyu Islands (Japan), Indonesia, Fiji, Solomon Islands, New Guinea (Papua New Guinea), New Caledonia (to France) and Australia (Birdlife International, 2009).		Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm — 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am — 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 — 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprin by foot and electric vehicle with regular stops made to look and listen for	survey. Possible foraging and breeding habitat exists on Great Keppel Island.

					Literature Review			Results	s
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								the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Sterna hirundo Common Tern		Marine, Migratory	Birds Australia	The habitat of the Common Tern is mainly coastal when not breeding and typically in offshore waters, ocean beaches, estuaries and large lakes. Common Terns are occasionally seen in freshwater swamps, floodwaters, sewage farms and brackish and saline lakes (Birds in Backyards, 2010). Common Terns forage in marine environments, often close to the shore, including sheltered embayments and in the surf-zone, but also well out to sea. They also forage in near-coastal terrestrial wetlands, including estuaries, rivers and swamps (SEWPAC, 2010)	This species is strongly migratory, breeding in the northern hemisphere in the boreal spring-summer and migrating south to wintering areas in the Northern and Southern Hemispheres (SEWPAC, 2010) In Australia the Common Tern is a regular non-breeding visitor. It breeds across much of northern North America, Europe and Asia as far east as the Pacific coast of Siberia, and as far south as the Mediterranean, North Africa and Central Asia. Breeds May to August (Birds in Backyards, 2010). In Australia, Common Terns are mainly found along the eastern coast, where they are widespread and common from south-eastern Queensland to eastern Victoria (SEWPAC, 2010). Common Terns do not breed in Australia but this country appears to be an important wintering destination. In eastern Australia, they appear to move southalong the coast. Common Terns are recorded in Queensland from September (SEWPAC, 2010).	spring-summer, with only small numbers present in the austral. Most surveys of the species are ground counts conducted from	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm — 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am — 09:30am. A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. Detailed habitat assessments were also undertaken throughout GKI.	

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Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
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Sternula albifrons ittle Tern	E	Marine, Migratory	Wildlife Online Birds Australia	recorded from April to early January, with the	Territory coast and less often on offshore continental islands or coral cays off Queensland. (SEWPAC, 2010). The Australian breeding population can be divided into two major subpopulations: (1) a northern subpopulation that breeds across northern Australia, from about Broome in north-western Western Australia (where first recorded only in December 1995), through coastal Northern Territory (mainly from just west of Darwin to the Queensland border) to the Gulf of Carpentaria and eastern Cape York Peninsula (with an extended breeding season covering most of the year); and (2) an eastern subpopulation that breeds on the eastern and south-eastern coast of the mainland and northern and eastern Tasmania, occasionally extending as far west as western Victoria and south-eastern South Australia (and breeding in the austral spring-summer). In addition, a third population of Asian migrants that spend the northern non-breeding season (austral spring-autumn) in	Surveys for migratory shorebirds (SEWPAC, 2010) should be conducted at sites where either: No suitable survey records exist or Records are too old to be considered reliable; or The site characteristics have changed. The majority of shorebirds are present during the non-breeding season (October to march) and this is when count surveys to establish the presence, number , habitat characteristics and the context of the site (ie how many other similar sites occur and are these used by shorebirds). Survey recommendations are as follows: At a minimum cover all the habitat thought to be used by the same population of shorebirds and the entire contiguous habitat where shorebirds occur. Surveys should be conducted during the period when the majority of migratory birds are present in the area and the during the northern hemisphere breeding season to obtain non-breeding, non-migratory immature populations. Surveys for roosting birds are to be conducted as close to high tide as possible (max 2 hours either side). Surveys for foraging birds as close to low tide as possible (no more than 2 hours either side). Surveys should not be undertaken during high rainfall or strong winds. Survey effort should be a minimum of 4 surveys for roosting shorebirds during the period when most are present in the area (eg 1 in dec, 2 in Jan and 1 in Feb). A minimum of 4 surveys for foraging shorebirds including 2 at spring low tide and 2 at neap low tide. For large sites or sites where large numbers are expected it is recommended that at least two people undertake the counts. Data requirements are: Roosting sites – total abundance, species richness, species abundance. Shorebird behaviour – activity at site (roosting, foraging, both), foraging location (mapping of foraging habitat). Survey conditions – date, time of day, tide height, weather conditions (temperature, precipitation, wind speed, wind direction). Number of observers and experience level. Habitat characteristics (dominant landform type, site hydrology, dominant vegetati	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm — 04:30pm. Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am — 09:30am. A portion of the Estuary from the mouth to the shed was	Not recorded during field survey. Possible breeding habitat exists on Great Keppel Island ampossible foraging habita occurs on Great Keppel Island.

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Sula leucogaster Brown Booby		Marine, Migratory	Birds Australia	Harbours and rivermouths to search for fish and squid, it also forages hundreds of kilometres out to sea. Nest is a platform of sticks, leaves and debris, most commonly on the ground on cliff edge, in small clear spot among bushes, or on coral pinnacle (Readers Digest Complete Book of Australian Birds, 1986). Oceanic habitat, breeding on islands including those off the north Australian coast, nesting on the ground often in clearings in scrubby vegetation (Flegg, 2003).	The species is considered native in a number of countries including Australia (American Samoa; Anguilla; Antigua and Barbuda; Argentina; Aruba; Australia; Bahamas; Barbados; Belize; Brazil; British Indian Ocean Territory; Brunei Darussalam; Canada; Cape Verde; Cayman Islands; China; Christmas Island; Cocos (Keeling) Islands; Colombia; Comoros; Cook Islands; Costa Rica; Cuba; Djibouti; Dominica; Dominican Republic; Ecuador; Egypt; El Salvador; Equatorial Guinea; Eritrea; Fiji; French Guiana; French Polynesia; Gabon; Grenada; Guadeloupe; Guam; Guatemala; Guinea; Guinea-Bissau; Guyana; Haiti; Honduras; India; Indonesia; Israel; Jamaica; Japan; Jordan; Kenya; Kiribati; Liberia; Madagascar; Malaysia; Maldives; Marshall Islands; Martinique; Mauritania; Mayotte; Mexico; Micronesia, Federated States of; Montserrat; Myanmar; Nauru; Netherlands Antilles; New Caledonia; Nicaragua; Nigeria; Northern Mariana Islands; Palau; Panama; Philippines; Puerto Rico; Saint Helena; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Samoa; Sao Tomé and Principe; Saudi Arabia; Seychelles; Singapore; Solomon Islands; Somalia; Sri Lanka; Sudan; Suriname; Taiwan, Province of China; Thailand; Timor-Leste; Tonga; Trinidad and Tobago; Turks and Caicos Islands; United States; United States Minor Outlying Islands; Vanuatu; Venezuela; Viet Nam; Virgin Islands, British; Virgin Islands, U.S.; Wallis and Futuna; Yemen). The species is considered a vagrant in the following countries: Benin; Bermuda; Gambia; Ghana; Hong Kong; Morocco; Mozambique; New Zealand; Oman; Portugal; Senegal; Sierra Leone; South Africa; Spain; United Arab Emirates; Uruguay (Birdlife International, 2009).	Surveys for migratory shorebirds (SEWPAC, 2010) should be conducted at sites where either: No suitable survey records exis;t or Records are too old to be considered reliable; or The site characteristics have changed. The majority of shorebirds are present during the non-breeding season (October to march) and this is when count surveys to establish the presence, number, habitat characteristics and the context of the site (ie how many other similar sites occur and are these used by shorebirds). Survey recommendations are as follows: At a minimum cover all the habitat thought to be used by the same population of shorebirds and the entire contiguous habitat where shorebirds occur. Surveys should be conducted during the period when the majority of migratory birds are present in the area and the during the northern hemisphere breeding season to obtain non-breeding, non-migratory immature populations. Surveys for roosting birds are to be conducted as close to high tide as possible (max 2 hours either side). Surveys for foraging birds as close to low tide as possible (no more than 2 hours either side). Surveys for sosting shorebirds during the period when most are present in the area (eg 1 in dec, 2 in Jan and 1 in Feb). A minimum of 4 surveys for foraging shorebirds during the period when most are present in the area (eg 1 in dec, 2 in Jan and 1 in Feb). A minimum of 4 surveys for foraging shorebirds including 2 at spring low tide and 2 at neap low tide. For large sites or sites where large numbers are expected it is recommended that at least two people undertake the counts. Data requirements are: Roosting sites – total abundance, species richness, species abundance. Shorebird behaviour – activity at site (roosting, foraging, both), foraging location (mapping of foraging habitat). Survey conditions – date, time of day, tide height, weather conditions (temperature, precipitation, wind speed, wind direction). Number of observers and experience level. Habitat characteristics (dominant landform type, site hyd	Possible	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights. A survey from a boat of the beaches at low tide was undertaken for a total of 2.5 hours during the dry season survey on 26 September 2010 between 2:00pm – 04:30pm.	Not recorded during field survey. Possible foraging, breeding and roosting habitat occur on Great Keppel Island.

Cmarie	24 5556	D-1-2	Habitat (famoulament of a	Literature Review	CEMPAC Communication	Liller III. a. a. b. C.	Results	
Species NO Sta		Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
					Where it is not possible to conduct surveys within the manner recommended a thorough habitat assessment must be done. The characteristics of the site (landform, hydrology, flood levels) should be assessed.		■ Leeke's Estuary (Figure 1) was walked during the wet season survey on 21 February 2011 at low tide (incoming) between 06:20am – 09:30am. ■ A portion of the Estuary from the mouth to the shed was surveyed over a period of 3 hours to actively search for feeding and roosting waders. ■ Detailed habitat assessments were also undertaken throughout GKI. Central Queensland University (CQE) undertook bird surveys on GKI between 6 – 8 October 2010 and 21-25 March 2011. CQU bird surveys involved the traversing of the main development footprint by foot and electric vehicle with regular stops made to look and listen for the presence of birds (point searches). Opportunistic sightings between stop points were also recorded. All beaches and rocky headlands were surveyed for birds during a full circuit of the island by boat on Thursday 7th October.	
Thalasseus bengalensis Lesser Crested Tern	Marine, Migratory	Birds Australia	Breeds in small colonies on tropical beaches and islands, dispersing into coastal areas (Flegg, 2003). No nest is made (Readers Digest Complete Book of Australian Birds, 1986).	Breeds from Point Cloates, WA, round northern coasts and offshore islands to about Gladstone, Qld (Readers Digest Complete Book of Australian Birds, 1986).	As above	Known	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site Migratory shorebird searches were undertaken along the beach-front and tidal creeks. Point surveys of these areas were undertaken on foot for 20 minutes and sampled across a range of tide heights.	CEPLA field survey. One was recorded by

					Literature Review			Result	
Species	NCA Status	EPBC Status	Database	Habitat (foraging and resting) Preferences Breeding/nesting and Seasonal influences	Species Distribution	SEWPAC Survey Requirements	Likelihood of Occurrence (as per literature review)	Assessment to Date	Results and Likely Presence Based on Field Survey
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Vanellus miles Masked Lapwing		Migratory	Birds Australia	The Masked Lapwing inhabits marshes, mudflats, beaches and grasslands, and is often seen in urban areas (Birds in Backyards, 2010). It can also be found on the margins of ponds and dams (Flegg, 2003). Nest is a scrape in the ground lined with grass and debris, sometimes on a flat roof. When not breeding they form flocks of up to 100 and may travel extensively. At night the flocks roost, standing in large expanses of shallow water or on small islands (Readers Digest Complete Book of Australian Birds, 1986).	The Masked Lapwing is common throughout northern, central and eastern Australia. Masked Lapwings are also found in Indonesia, New Guinea, New Caledonia and New Zealand. The New Zealand and New Caledonian populations have been formed from birds that have flown there from Australia (Birds Australia, 2010). Masked Lapwings may breed when conditions are suitable.	As above	Known	Chenoweth EPLA undertook an 8 day fauna survey of the proposed disturbance area in September 2010 and a further 8 days survey in February 2011. The Chenoweth Surveys were undertaken as follows: Dedicated bird watching was undertaken for 20 minutes per area (Figure 12) every morning in the early morning and late afternoon on each day of the survey. During this time, two observers walked quietly over selected areas (point surveys) of the site to detect birds present both through direct observation and through calls. Birds were also recorded when opportunistically observed during other survey activities. Nocturnal birds were searched for as part of spotlighting and call playback activities on site	during the dry season survey (Sept 2010) and

Literature Review							_	Results	
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