PLANIT CONSULTING

Addendum Terrestrial Flora & Fauna Assessment

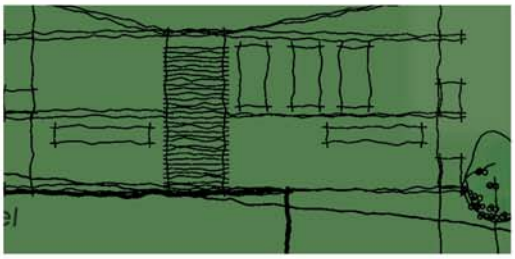
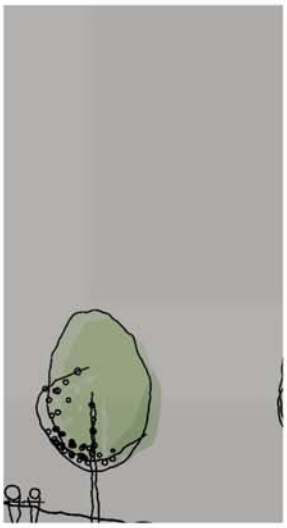
225 Terranora Road, Terranora

Prepared for WRENN P/L








PLANIT CONSULTING JANUARY 2015

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Document Control

Issue	Date	Description	Prepared By	Checked By
A	22/1/2015	Draft Issue to consulting planner. incomplete	GD	GD
B	27/1/2015	Final ISSUE	GD	GD

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FIGURES

TABLES

1.0 INTRODUCTION

Planit Consulting has been commissioned by Wrenn P/L to prepare an addendum terrestrial flora and fauna assessment report associated with a proposed 9-lot subdivision located at 225 Terranora Road, Terranora (refer Figure 1). This report reviews the findings of a detailed Flora and Fauna Assessment previously prepared for the subdivision by Aspect North in 2004, identifies any changes in site conditions and provides a supplementary updated assessment of the potential impacts of the proposal on the previously documented flora and fauna values. The previously prepared 8-part test of significance has also been updated to a 7-part test to reflect the current Section 5a analysis requirements pursuant to the *Environmental Planning and Assessment Act 1979.* The previously prepared Flora and Fauna Assessment is appended for ease of Council reference.

2.0 SITE DESCRIPTION & LOCATION

The site subject to this assessment incorporates the northern portion of the following allotment which is accessed via 225 Terranora Road, Terranora:

- Lot 16 on DP856265

This northern area of the allotment (~9.9ha) shall be hereafter referred to as '*the site*.' The site is irregular in shape and is bordered by existing rural residential allotments to the north and larger rural properties to the west, south and east.

Figure 1: SITE LOCATION 2003 & 2014

The site is currently zoned part R5 Large Lot Residential and RU2 Rural Landscape under the *Tweed Local Environmental Plan (LEP) 2014*. A significant portion of the site has been deferred from the Tweed LEP 2014 due to the 'Environmental Zone Review' which is currently being undertaken for all Far North Coast LEPs. The deferred area of the site remains zoned and subject to the provisions of the *Tweed Local Environmental Plan (LEP) 2000*. The land subject to the Tweed LEP 2000 is zoned part 7(d) Environmental Protection (Scenic/Escarpment), 1(a) Rural and 1(c) Rural Living.

Previous reviews (Planit, 2010; draft TLEP, 2010; TSC, 2010: Planning and Regulation Reports Ordinary Council Meeting 19th October 2010) indicate that an amended extent of Rural Residential and Environmental Protection Zoning is warranted over the land reflective of the areas in the north cleared in association with previous quarrying.

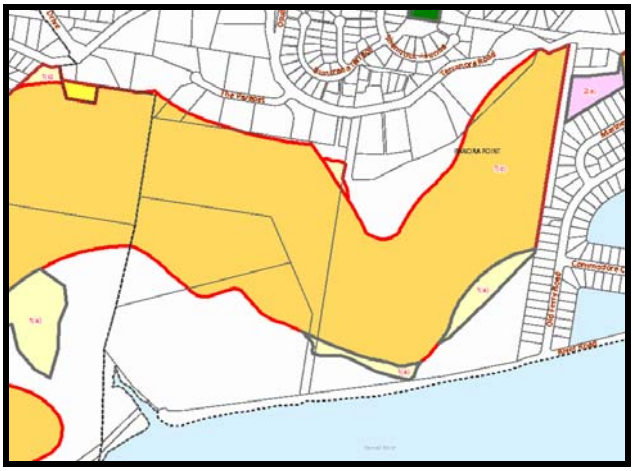


Figure 2: TLEP (2000) DESIGNATIONS

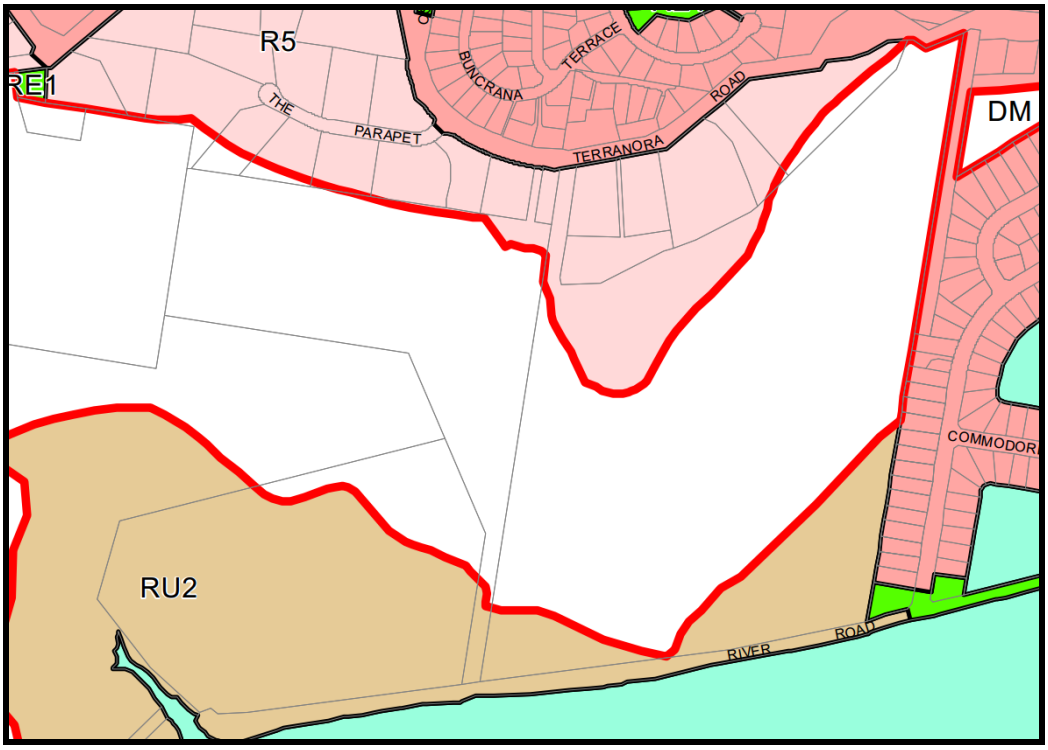


FIGURE 3: TLEP 2014 DESIGNATION

2.1 EXISTING USE AND RESULTANT VEGETATION

Current improvements are limited to fencing, vehicle tracks and a previously utilised shed which has fallen into decrepitude. The northern areas incorporate an open terraced area created through previous quarrying which is largely cleared of native vegetation. The fringing areas to the west, south and southeast are occupied by a variety of Camphor Laurel dominated forest, early regrowth rainforest with camphor laurel co-dominant or dominant, or lowland rainforest (west). Weed species are prevalent across all investigated areas.

The existing regional vegetation mapping (TVMP 2004) indicates that the treed areas of the site contain Camphor Laurel Dominant Forest to Woodland which are noted as highly disturbed within the TVMP. Consequently TVMP map 4 designates that treed areas of the site as low ecological status and low ecological sensitivity.

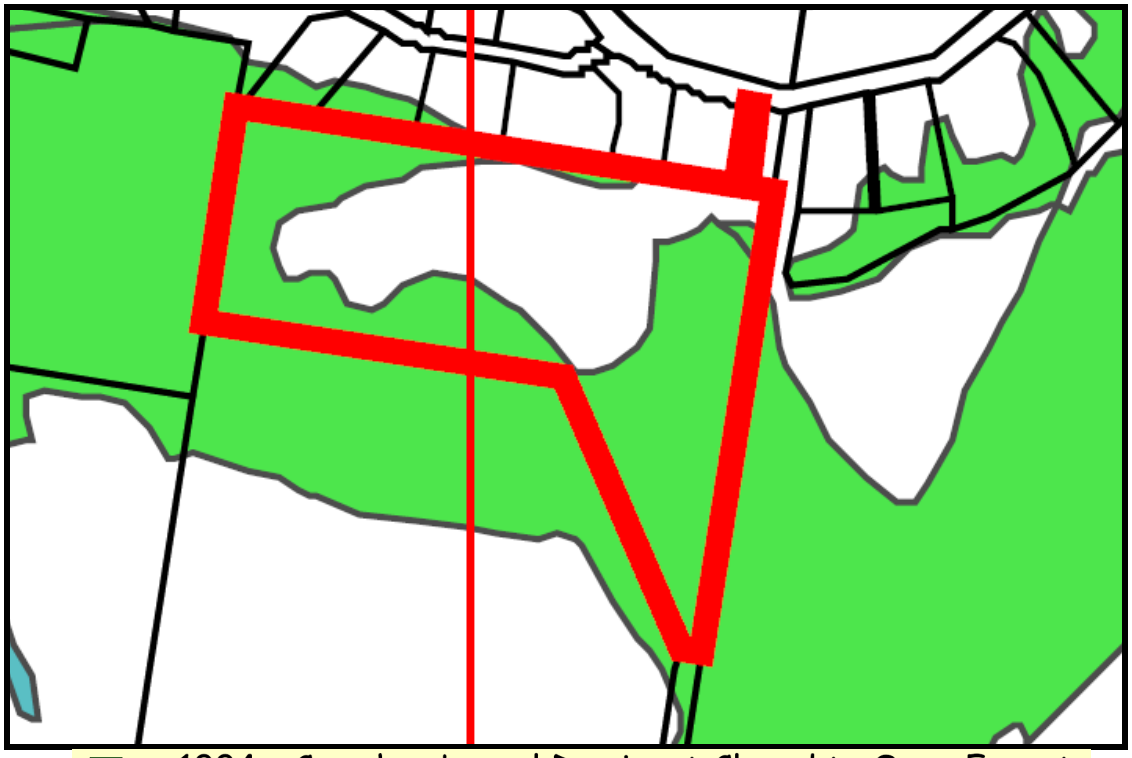


Figure 4: TVMP MAP 2: VEGETATION TYPE (SOURCE: TWEED VMP, 2004)

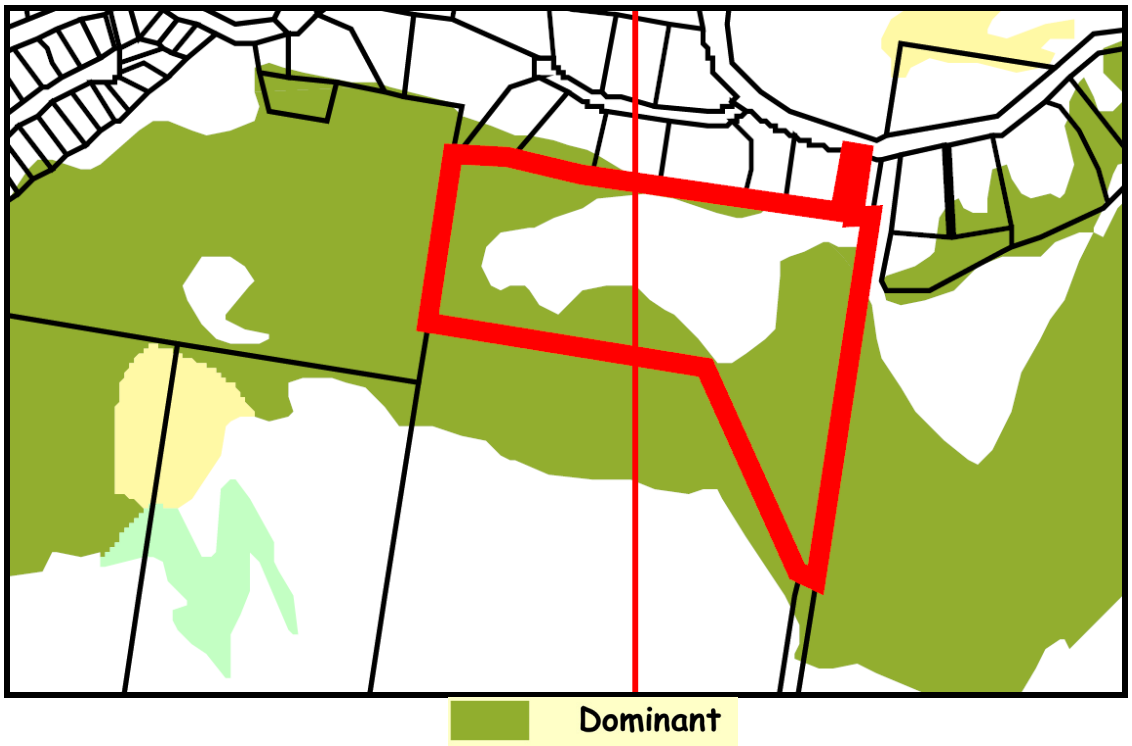


Figure 5: TVMP MAP 2: CAMPHOR LAUREL ABUNDANCE (SOURCE: TWEED VMP, 2004)

tweed_LGA_VISmap_673 by Vegtyp

Acacia / Other Sclerophyll Regrowth Open Forest to Woodland	(461)	Foredune Complex	(3)
Banksia Dry Sclerophyll Open Forest to Shrubland	(41)	Freshwater Wetlands	(6)
Black She-oak Low Open Forest to Woodland	(18)	Grey Ironbark / White Mahogany / Grey Gum Open Forest Complex	(1416)
Blackbutt Open Forest Complex	(868)	Littoral Rainforest	(63)
Broad-leaved Apple Open Forest	(19)	Lowland Rainforest on Floodplain	(139)
Broad-leaved Paperbark + Eucalyptus spp.+/- Swamp Box Closed Forest to Woodland	(78)	Mangrove Open Forest to Woodland	(188)
Broad-leaved Paperbark / Swamp She-oak Closed Forest to Woodland	(105)	Montane Heathland/Scrub	(40)
Broad-leaved Paperbark Closed Forest to Woodland	(245)	Mowed Heathland (Murray & James 1998 Study Area Only)	(1)
Brush Box Open Forest	(2134)	Myrtaceous Riparian Low Closed Forest to Woodland	(142)
Camphor Laurel Dominant Closed to Open Forest	(1500)	Native Grasslands (Murray & James 1998 Study Area Only)	(42)
Coastal Acacia Communities	(12)	Native Plantation	(134)
Coastal Blackbutt Open Forest to Woodland	(9)	New England Blackbutt Open Forest	(21)
Coastal Brush Box Open Forest to Woodland	(32)	Not Assessed	(8061)
Coastal Forest Red Gum Open Forest to Woodland	(25)	Open Water	(498)
Coastal Pink Bloodwood / Brush Box Open Forest to Woodland	(3)	Post-mining Regeneration	(34)
Coastal Pink Bloodwood Open Forest to Woodland	(29)	River She-oak Open Forest	(361)
Coastal Scribbly Gum Open Forest to Woodland	(22)	Rock Faces	(180)
Coastal Swamp Box Open Forest to Woodland	(49)	Saltmarsh Communities	(42)
Coastal Swamp Mahogany Open Forest to Woodland	(65)	Scribbly Gum / Pink Bloodwood Open Forest	(50)
Coastal Tallowwood Open Forest to Woodland	(5)	Sedgeland / Rushland (Murray & James 1998 Study Area Only)	(78)
Cool Temperate Rainforest	(1)	Sub-tropical / Warm Temperate Rainforest on Bedrock Substrates	(755)
Cypress Pine Open Forest to Woodland	(5)	Substantially Cleared of Native Vegetation	(4232)
Dry Heathland to Shrubland	(18)	Swamp She-oak Closed Forest to Woodland	(232)
Dry Rainforest	(77)	Sydney Blue Gum Open Forest	(123)
Early Regrowth Rainforest	(948)	Tallowwood Open Forest	(786)
Exotic Plantation	(118)	Turpentine +/- Pink Bloodwood Open Forest	(163)
Fernland / Forbland (Murray & James 1998 Study Area Only)	(19)	Urban Bushland	(20)
Flooded Gum Open Forest	(700)	Wet Heathland to Shrubland	(33)

Figure 6: TVMP MAP 2: VEGETATION TYPE ON 2014 NEARMAP AERIAL

Figure 7: TVMP MAP 4: ECOLOGICAL VALUES (SOURCE: TWEED VMP, 2004)

2.2 PROJECT DESCRIPTION

The project is establishment of 9 rural residential allotments within the northern cleared terrace which has been previously quarried.

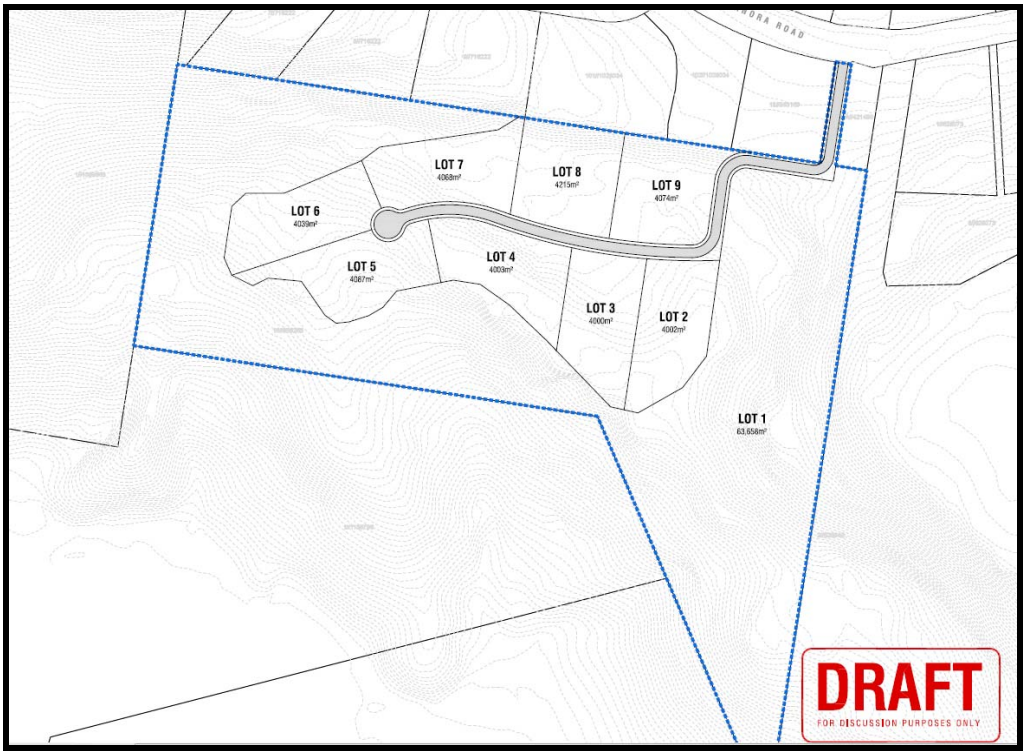


Figure 8: PRELIMINARY LAYOUT

2.3 SOIL LANDSCAPES

A review of Tweed VMP Map 5: Soils notes two soil landscapes over the site:

Disturbed Soil Landscapes

Disturbed soil landscapes are dominated by ground surfaces arising from human activity. Soil parent materials have been moved, accumulated, removed or replaced (with soil or other items). Landform elements include fill-tops, embankments, cut faces, cut-over surfaces, dams, mounds and pits. Denoted as Disturbed Terrain (xx).

Erosional Soil Landscapes

Erosional landscapes have been primarily sculpted by erosive action of running water. Streams are well defined and competent to transport their sediment load. Soil depth is usually shallow (with occasional deep patches) and mode of origin is variable and complex. Soils may be either absent, derived from water washed parent materials or derived from in situ weathered bedrock. Erosional soil landscapes usually include tors, benches, and areas of rock outcrop. Evidence of mass movement is rare. This group consists of the following soil landscape units; Billinudgel (bi), Burringbar (bu), Byrrill (by), Frogs Hollow (fh), Green Pigeon (gp), Kunghur (ku), Limpinwood (li), Mount Terragon (mt) and wollumbin (wl). The Mebbin (me) unit is considered as an Erosional/Colluvial landscape (TSC, 2004:4.3-4.4).

Such areas are described in more detail within 'Soil Landscapes of the Murwillumbah Tweed Heads' (Morland, 1996) and mapped as two landscape units:

- Disturbed (xx): mapped in central northern ex-quarrying areas

Location: Numerous areas throughout the Murrwillumbah-Tweed Heads region associated with areas undergoing rapid urban development, old sand mining sites, quarries, golf courses and canal estates.
Geology: Quaternary beach and dune sands. Artificial fill. Bedrock exposed in quarries, commonly basalt, metamorphics, and rhyolite.
Topography: Quarries. There are many quarries of varying sizes throughout the Murwillumbah Tweed Heads area, generally providing road base. Made land varying from level plains to undulating terrain which has been disturbed by human activity to a depth of at least 100cm. The original soil has been removed, greatly disturbed or buried. The original vegetation has been completely cleared (Morland, 1996; 162 + map).

- Burringbar (bu): mapped in the central upland portions of the site

Location: Rolling hills on the metasediments of the Nerangleigh-Fernvale Group. Occurs throughout the major portion of the eastern side of the mapped area, within the Burringbar Hills.
Geology: Jurrasic Neranleigh-Fernvale Group. Predominately phyllitic siltstones and shales, slaty in part, of what was previously known as the Brisbane Metamorphics.
Topography: Level, High rolling to steep hills. Slopes are steep and slope angles range from 15->33%, lesser slope angles occurring in lower slopes and very limited footslope areas. This soil landscape is occasionally overlain by basalt.
Soils: Soil types within the Burringbar soil landscape are primarily governed by lithology with topographic position having an influence on soil depths (Morand 1996; 58-59 + map).

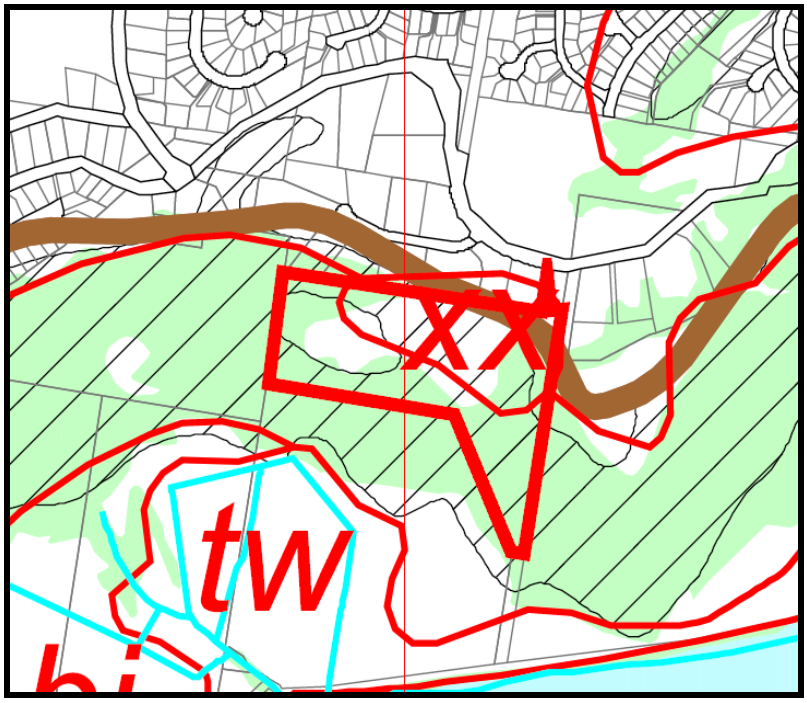


Figure 9: TWEED VMP MAP 5: SOIL LANDSCAPE, STEEP LAND & DRAINAGE LINES MAPPING

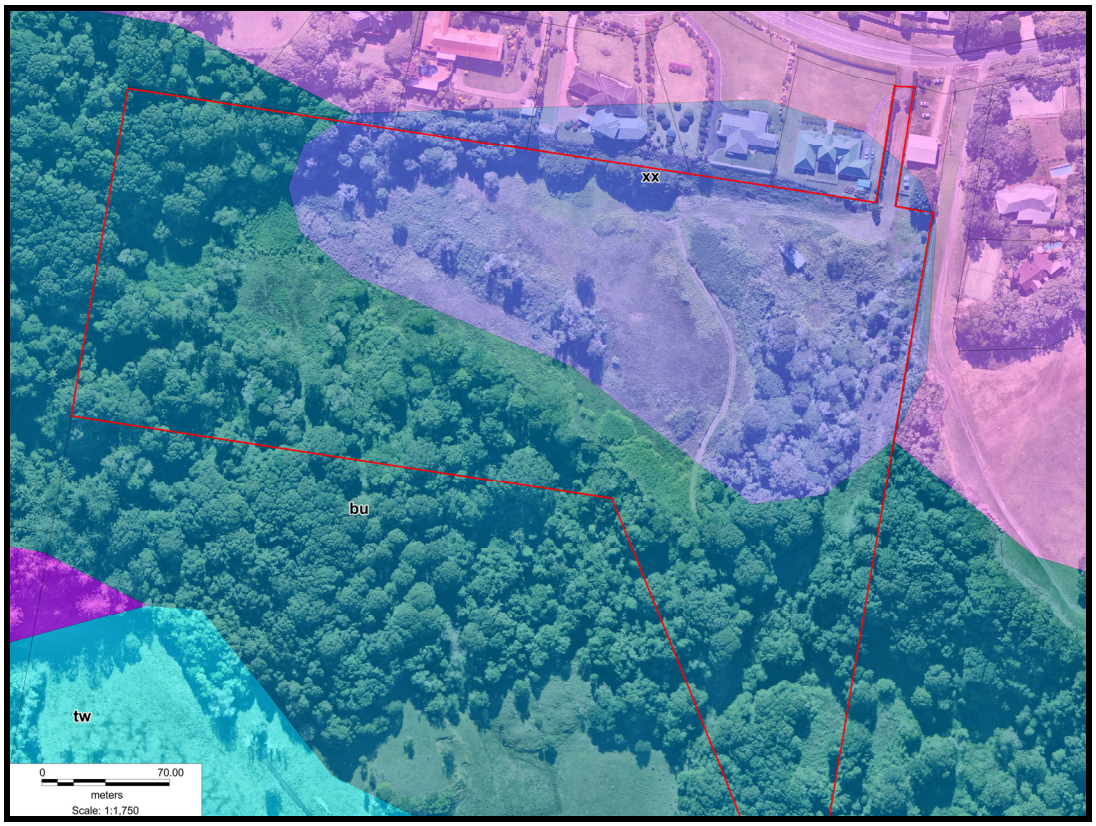


Figure 10: EXTRACT FROM SOIL LANDSCAPES OF THE MURWILLUMBAH-TWEED HEADS (MORLAND 1996)

Inspection of the site and provided contour plans notes that flat areas are generally restricted to the central north areas terraced through previous quarrying works. The balance areas are generally sloping north to south (80m to 30m AHD).

2.4 EXISTING DRAINAGE

Currently the majority of site drainage is uncontrolled and comprised of sheet flow. The dilapidated roof of the existing shed retains minor PVC downpipe drainage.

2.5 AIMS OF STUDY

The aim of this report is to describe the terrestrial flora and fauna habitat of the study area and to examine the potential for the occurrence of threatened species, populations, their habitats or endangered ecological communities. In order to provide this information the following specific objectives are to:

- Review and briefly ground-truth the existing flora, vegetation communities, fauna assemblage and associated habitats documentation prepared over the site,
- Determine the occurrence, or likely occurrence, threatened species, populations, their habitats or endangered ecological communities as a result of literature review and site inspection,
- Undertake the 7-part test of significance pursuant to Section 5A of the Environmental Planning and Assessment Act 1979,
- Undertake SEPP 44 (Koala Habitat Protection), SEPP 14 (Coastal Wetland) and SEPP 26 (Littoral Rainforest) assessments,
- Describe the potential direct and indirect impacts of the proposal on existing terrestrial ecological values,
- Propose amelioration measures to mitigate potential impacts upon the ecological values of the study area.

2.6 DEFINITIONS, TERMINOLOGY AND NOMENCLATURE

For the purposes of this flora and fauna assessment the following definitions apply:

Site: refers to the northern portions of Lot 16 as depicted on Figure 1 and covers ~9.8ha.

Development Envelope: refers to those areas of the site which will be occupied by the development footprint (i.e. the new allotments, cul-de-sac entry road and residual communal area).

EEC: denotes an Endangered Ecological Community as defined within the Threatened Species Conservation Act 1995

Additional terminology associated with significance assessments (i.e. threatened species, populations, communities, threatening process, direct impacts, indirect impacts etc) and the factors of such assessments (i.e. 7-part test) are taken to be those existing within the Threatened Species Conservation Act 1995, Environmental Planning and Assessment Act 1979, and the DEC (2008) document entitled 'Threatened Species Assessment Guidelines: The Assessment of Significance.' Additional terms within the report which warrant the source of the definition have been specifically referenced in the text.

Nomenclature for all plant species contained within this document follow Harden (1992, 1993, 2000 & 2003) The Flora of NSW Volumes 1-4. Scientific names for plants are used primarily in the document to avoid any confusion associated with use of common or descriptive plant names.

Nomenclature for all animal species contained within this document follows those utilised by the Department of the Environment and Climate Change/National Parks and Wildlife Service (2013) in association with the Atlas of NSW Wildlife. Scientific names for plants are used primarily in the document to avoid any confusion associated with use of common or descriptive animal names.

2.7 CONTRIBUTORS

Contributors to this report and their roles are tabulated below:

TABLE 1: REPORT CONTRIBUTORS

NAME	ORGANISATION	ROLE
Graham Dart	Planit Consulting	Report preparation, flora/fauna survey and assessment, technical and quality assurance review

All work was performed under the appropriate licences which are summarized within Section 4.3.2.

2.8 REPORT STRUCTURE

The structure and content of this flora and fauna assessment is as follows:

- Section 1: introductory statement
- Section 2: details the site description, location and outlines general background information relating to the project and this report including the aims and objectives
- Section 3: details the methodology for previous flora survey and resultant species, community descriptions and mapping
- Section 4: details the methodology for previous fauna survey and resultant species records and descriptions of the recorded assemblage
- Section 5: describes and discusses the recorded and potentially occurring scheduled communities, populations and species of conservation significance
- Section 6: contains the statutory assessments of significance (7-part test) pursuant to the Environmental Planning and Assessment Act 1979 and the SEPP 14, 26 and 44 assessments
- Section 7: describes the potential impacts of the proposed development on the recorded flora and fauna values
- Section 8: describes the design, management and enhancement measures incorporated into the proposed development to avoid, mitigate and compensate for the impacts of the proposed development on flora and fauna habitat

3.0 VEGETATION ASSESSMENT

To identify and classify vegetation species and communities which occur on site, the following methodology was applied between the 15th and 22nd January 2015:

- Desktop analysis including:

i. Review of the previous detailed assessment performed over the site being Aspect North (2004) *Flora and Fauna Assessment Terranora Road (Proposed Rezoning at 225 Terranora Road, Banora Point) on behalf of Darryl Anderson Consulting*. Aspect North, Lismore.

ii. Review of Council's Planning Scheme Mapping & Associated Reporting (i.e. Tweed LEP 2000 Maps, Draft LEP Amendment No 21 Mapping, Tweed VMP Maps 1-7)

iii. Review of existing vegetation community documentation to review dominant elements, forest descriptions and conservation status of mapped forested remnants/ecosystems including:
   - Forestry Commission NSW (1989) *Research Note 17: Forest Types in NSW*.
   - National Parks and Wildlife Service (1999) *Forest ecosystem classification and mapping for the upper and lower north east cra regions*. CRA Unit-Northern Zone.
   - DECC (2008) *BioMetric: Terrestrial Biodiversity Tool for the NSW Property Vegetation Planning System: Definitions of Vegetation Types for CMA Areas* (online @ http://www.environment.nsw.gov.au/projects/Biometric Tool.htm)
   - Keith, D. (2004) *Ocean Shores to Desert Dunes*. The native vegetation of NSW. DECC, Hurstville.
   - Ecograph (2004) *Tweed Vegetation Management Strategy*. Ecograph, Limpinwood.
   - Sheringham, P.R., Dr. Benwell, A., Gilmour, P., Graham, M.S., Westaway, J., Weber, L., Bailey, D., & Price, R. (2008). *Targeted Vegetation Survey of Floodplains and Lower Slopes on the Far North Coast*. A report prepared by the Department of Environment and Climate Change for the Comprehensive Coastal Assessment. Department of Environment and Climate Change (NSW), Coffs Harbour, NSW.

iv. Review of threatened flora species and endangered ecological communities listed as occurring within the Murwillumbah (Qld - Southeast Hills and Ranges) CMA sub-region of the Northern Rivers CMA (http://threatenedspecies.environment.nsw.gov.au/tsprofile/cma_subregion_list.aspx?id=15

v. Review of threatened flora species and endangered ecological communities listed as occurring within the Murwillumbah (Qld - Southeast Hills and Ranges) CMA sub-region of the Northern Rivers CMA (http://threatenedspecies.environment.nsw.gov.au/tsprofile/cma_subregion_list.aspx?id=15

vi. Review of search of the Atlas of NSW Wildlife database within a search area 10km surrounding the site to review threatened plant records

vii. Review of Environment Australia Protected Matters data within a search area 10km surrounding the site to review threatened plant records

viii. Review of SEPP Mapping (Coastal Wetlands, Littoral Rainforest) mapping to determine the indicative presence/absence of regional forest ecosystems reflective of wetland (marine, estuarine, riverine, lacustrine and/or palustrine) communities and/or Littoral Rainforests.

ix. Review of additional selected ecological surveys previously undertaken in the locality including:
   - Biolink (2008) Ecological & Bushfire Planning Assessment of Lot 1 DP 167380, Lot 2 DP 961928 & Lot 4 DP 1054848 Walmsley's Road, Bilambil Heights. Biolink, Uki.
   - Boyds Bay Environmental Services (2011) Preliminary Ecological Site Assessment Lot 517 DP729286 Tweed Coast Road, Cabarita. BBES, Tweed Heads.
   - Glen Holmes & Associates (1993) Biological Investigation for Proposed Residential Subdivision and Artificial Lake Adjacent to Tweed River, Tweed Heads (Lot 4 DP228424, Soorley Street). GH&A, Canungra.
   - Idyll Spaces (2008) Cudgen Lakes Sand Extraction Project: Flora Assessment (Gales-Kingscliff Pty Ltd)
   - James Warren & Associates (2003) Analysis of Environmental Constraints Lot 156 Creek Street Hastings Point. JWA, Ballina
   - James Warren & Associates (2010) Ecological Assessment Lot 2 DP873399 & Lot 22 DP105759 Clothiers Road-Bogangar. JWA, Ballina.
   - James Warren & Associates Pty Ltd (2005) Flora and Fauna Assessment Lots 165 & 167 DP755701 Ozone Street, Chinderah. JWA, Alstonville
   - James Warren and Associates (2009) Amended Flora and Fauna Assessment for Lots 2 & 3 DP244652 Urliup Road Bilambil A Report Prepared to Plateau Nominees Pty Limited. JWA, Ballina
   - James Warren and Associates (2009) Ecological Assessment Rise Estate Bilambil Heights West Tweed MP-080234 Report Prepared for Terranora Group Management Pty Ltd. JWA, Ballina.
   - Parsons Brinckerhoff (2004) Tugun Bypass Environmental Impact Statement. Technical Paper Number 12: Flora and Fauna Assessment. PB, Brisbane
   - Parsons Brinckerhoff (2008) Upgrading the Pacific Highway. Banora Point Pacific Highway Upgrade Technical Paper 2-Ecological Assessment. Report for NSW Roads and Traffic Authority.
   - Peter Parker (2002) Clothiers Creek Road Realignment Species Impact Statement prepared for Jim Glazebrook and Associates and Tweed Shire Council. PPEC, Broken Head.
   - Planit (2002) Detailed Ecological Assessment for Gales Holdings Kingscliff, NSW. Planit Consulting, Southport.
   - Planit (2007) Flora and Fauna Assessment for Clothiers Creek Road, Tanglewood [Lot 200 DP100310] for Peachey Constructions. Planit, Nobby Beach.
   - Planit (2008) Flora and Fauna Assessment for Ozone Street Road Upgrade prepared for CMF Properties, May 2009. Planit, Kingscliff.

- Planit (2008) Flora and Fauna Assessment for Ozone Street, Chinderah prepared for CMF Properties, October 2008. Planit, Kingscliff.
- Planit (2008) Terrestrial Flora and Fauna Assessment. Reyson's Land, Banora Point for Nutek Laboratories P/L. Planit, Kingscliff.
- Planit (2009 February) Flora and Fauna Assessment Curtawilla Street, Banora Point Lot 12 DP1003644 prepared for Halcore (QLD) P/L. Planit, Nobby Beach.
- Planit (2009) Preliminary Terrestrial Flora and Fauna Assessment 67 Scenic Drive Lot 7 on DP853859 Prepared for NH Dickinson Pty Ltd. Planit, Kingscliff
- Planit (2010) Flora and Fauna Assessment for Ozone Street Road Upgrade prepared for CMF Properties, June 2010. Planit, Kingscliff.
- Planit (2010) Preliminary Review of Terrestrial Flora and Fauna Values Sandalwood Drive, Bogangar Lot 2 DP821987 Prepared for Land and Property Management Authority. Planit, Nobby Beach.
- Planit (2010) Terrestrial Flora and Fauna Assessment Lot 706 DP1056641 prepared for Land and Property Management Authority. Planit, Nobby Beach.
- Planit (2011 June) Terrestrial Flora and Fauna Assessment Marana Avenue, Bilambil Heights Lot 30 DP850230 prepared for PS Developments. Planit, Nobby Beach
- Planit (2011) Ecological Assessment Tanglewood Drive, Tanglewood Lot 1 DP1084992 & Lot 1 DP601049 Prepared for Peter Tagget. Planit, Nobby Beach.
- Planit (2012 June) Terrestrial Flora and Fauna Assessment Temporary Construction Access @ Parkes Drive, Tweed Heads for Feitelson Holdings P/L. Planit, Nobby Beach.
- Planit (2012) Preliminary Review of Terrestrial Flora & Fauna Values 742-744 Cudgen Road, Cudgen prepared for Usher Powell Cudgen. Planit, Kingscliff.
- Planit (2013 July) Preliminary Terrestrial Flora and Fauna Assessment Sierra Vista Boulevard, Bilambil for Two Dams P/L. Planit, Nobby Beach.
- Planit (2013 March) Preliminary Flora and Fauna Assessment 136-150 Dry Dock Road, Tweed Heads South for Asset Revolutions P/L. Planit, Nobby Beach.
- Planit Consulting (2013) Updated Terrestrial Flora and Fauna Assessment. Residential Development @ 156 Creek Street, Hastings Point prepared for Walter Elliott Holdings P/L. Planit, Nobby Beach.

x. Review of the following legislation to ensure the latest lists of threatened species and communities were noted as well as investigating the existence of any relevant recovery plans, threat abatement plans, key threatening processes or any preliminary determinations which may be applicable to the site and/or the proposed use/action:
   - *Threatened Species Conservation Act (1995)*
   - *Environment Protection and Biodiversity Conservation Act (1999)*

- Additional brief site survey including:

i. Random Meander/Diversity Searches: Random searches within each vegetation community were undertaken recording all species observed was undertaken in accordance with Cropper (1993) and DEC (2004). Knowledge of known habitat of protected and uncommon floral species was utilized to target such species. Observation also included review of crown cover, tree heights estimation, dominant species present and identification of ecologically dominant layer. The focus was upon the proposed development envelope and adjacent areas as a ground truthing exercise

in relation to the existing detailed site vegetation assessment previously performed by Aspect North (2004)

The above survey techniques were applied to determine the following:

- Validate or modify existing vegetation mapping;
- Meet minimum Council and State Government vegetation/survey requirements;
- Review species dominance within ecologically dominant layer in association with Aspect North (2004) reporting;
- Determine incidence of weed invasion and disturbance over the site and within vegetation strata in association with Aspect North (2004) reporting;
- Determine incidence of species or ecological communities listed as endangered, vulnerable or rare under the *Threatened Species Conservation Act;*
- Determine incidence of species or ecological communities listed as endangered or vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*

The above methodology is considered to be reasonably consistent with the intent of the following documents:

- NSW Department of Infrastructure, Planning and Natural Resources (1997) *Interim Guidelines for Targeted and General Flora and Fauna Surveys under the Native Vegetation Conservation Act 1997*.
- NSWNPWS (2001) *The Community Biodiversity Survey Manual*. New South Wales National Parks & Wildlife Service.
- QLD Department of Environment and Heritage (1999) *Suggested Conservation Criteria for Development Assessment*.
- Gold Coast City Council (2004) *Guidelines for preparing Ecological Site Assessments during the Development Process (v1.1)*. G.C.C.C., Nerang.
- Shire of Maroochy (1997) *Flora and Fauna Assessment Requirements for Developments in Maroochy Shire*. M.S.C
- Brisbane City Council (1999) *Ecological Assessment Guidelines*. B.C.C.
- Walker, J. & Hopkins, M.S. (1998) Chapter 5: Vegetation in McDonald, R. C., Isbell, R.F., Speight, J.G., Walker, J. & Hopkins, M.S. *Australian Soil and Land Survey: Field Handbook Second Edition*. CSIRO Australia, Canberra.
- Nelder, V. J., Wilson, B.A., Thompson, E. J. & Dillewaard, H.A. (2004) *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland*. EPA, Brisbane.
- DEC (2004) *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities Working Draft*. DEC, NSW.

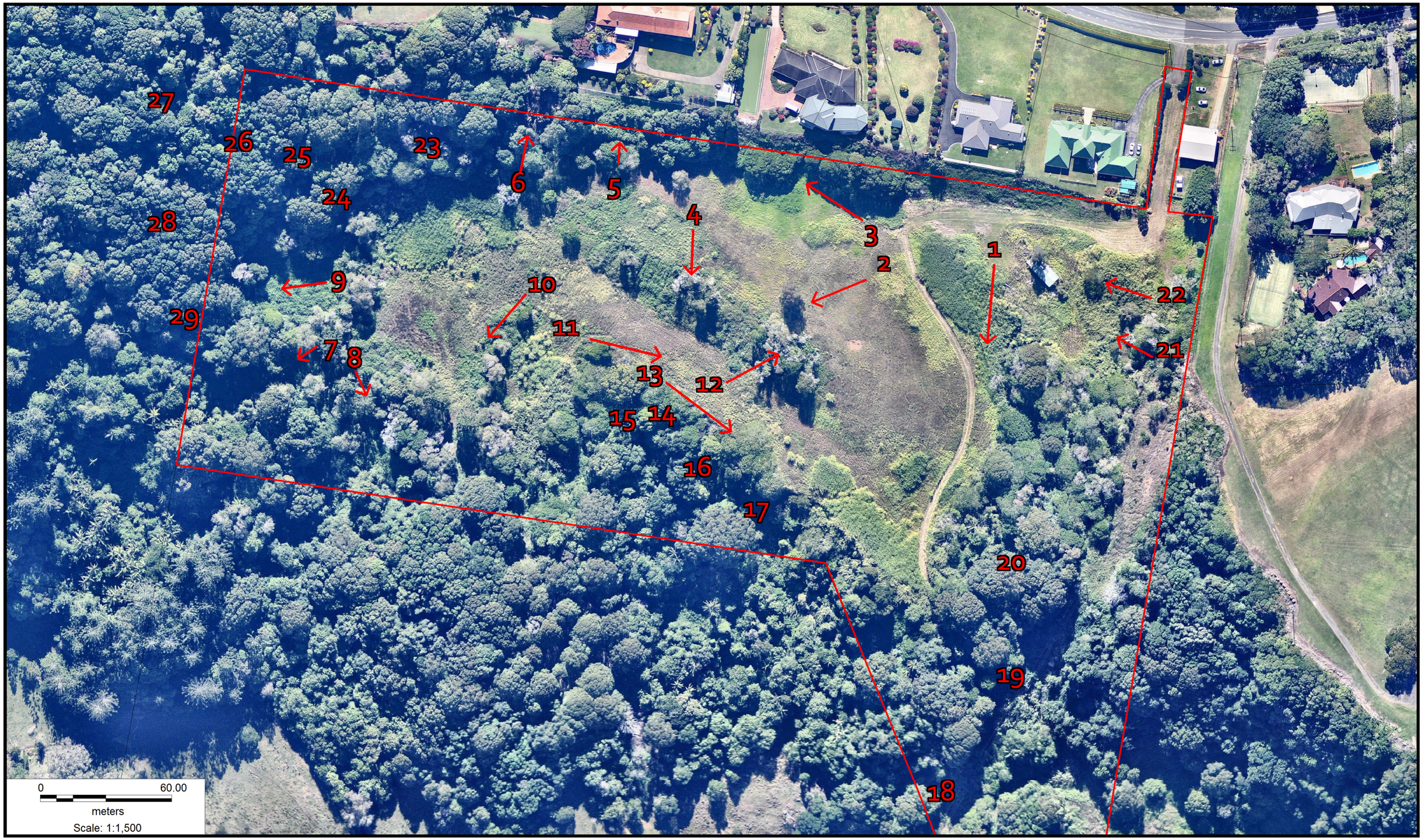


PHOTO POINTS REFER BELOW VEGETATION COMMUNITY DISCUSSION

VEGETATION COMMUNITY MAPPING

COMMUNITY 1: TALL TO VERY TALL CLOSED PASTURE GRASSLAND +/- WEED SHRUBLAND. SCATTERED NATIVE TREES AND CAMPHOR LAUREL PATCHES {NORTHWEST}. HIGHLY DISTURBED

COMMUNITY 2: CAMPHOR LAUREL +/- EARLY REGROWTH RAINFOREST +/- WEED SHRUBLAND. HIGHLY DISTURBED

COMMUNITY 3: EARLY REGROWTH RAINFOREST/CAMPHOR LAUREL FOREST +/- WEED SHRUBLAND. HIGHLY DISTURBED.

COMMUNITY 4: SUBTROPICAL RAINFOREST/CAMPHOR LAUREL FOREST. HIGHLY DISTURBED SOUTHERN AND EASTERN FRINGES ONLY

FIGURE 11: UPDATED VEGETATION COMMUNITY MAP [2014 aerial]

NOTES:
Vegetation maps have been compiled using Mapinfo geographic information system (GIS) software (Ver. 11.5). Information utilized has included:
Data including contours, site boundaries and 2009, 2012 & 2014 aerial photographs.
Tweed VMP (2004) vegetation community mapping metadata
Upper North East CRA Forest Ecosystem Layer metadata
NSW DEH Vegetation Information System Spatial Information Exchange (SIX)
Northern Comprehensive Regional Assessment Aerial Photograph Interpretation
VISmap 1108 Layer metadata
Rainforest Mapping for NENSW VIS ID3887
2004 Apsect North Vegetation Community Mapping & Descriptions

Ground truthing was performed as outlined (Section 3 of Report) with geo-referenced colour aerial photographs overlaid with contour plans, existing mapped vegetation boundaries and cadastre boundaries for the initial recognition of community boundaries in the field and adjustments noted as necessary. Communities (refer Section 3 of the report) were then transcribed directly into the GIS program utilizing the aerials, contours, geological information and existing mapped vegetation boundaries as a reference background.

Map Created: 19-1-2015
Scale = 1:1750 @ A3

VEGETATION COMMUNITY MAPPING

- COMMUNITY 1: TALL TO VERY TALL CLOSED PASTURE GRASSLAND +/- WEED SHRUBLAND. SCATTERED NATIVE TREES AND CAMPHOR LAUREL PATCHES {NORTHWEST}. HIGHLY DISTURBED
- COMMUNITY 2: CAMPHOR LAUREL +/- EARLY REGROWTH RAINFOREST +/- WEED SHRUBLAND. HIGHLY DISTURBED
- COMMUNITY 3: EARLY REGROWTH RAINFOREST/CAMPHOR LAUREL FOREST +/- WEED SHRUBLAND. HIGHLY DISTURBED.
- COMMUNITY 4: SUBTROPICAL RAINFOREST/CAMPHOR LAUREL FOREST. HIGHLY DISTURBED SOUTHERN AND EASTERN FRINGES ONLY

FIGURE 12: UPDATED VEGETATION COMMUNITY MAP [2009 aerial]

NOTES:
Vegetation maps have been compiled using Mapinfo geographic information system (GIS) software (Ver. 11.5). Information utilized has included:
Data including contours, site boundaries and 2009, 2012 & 2014 aerial photographs.
Tweed VMP (2004) vegetation community mapping metadata
Upper North East CRA Forest Ecosystem Layer metadata
NSW DEH Vegetation Information System Spatial Information Exchange (SIX)
Northern Comprehensive Regional Assessment Aerial Photograph Interpretation
VISmap 1108 Layer metadata
Rainforest Mapping for NENSW VIS ID3887
2004 Apsect North Vegetation Community Mapping & Descriptions

Ground truthing was performed as outlined (Section 3 of Report) with geo-referenced colour aerial photographs overlaid with contour plans, existing mapped vegetation boundaries and cadastre boundaries for the initial recognition of community boundaries in the field and adjustments noted as necessary. Communities (refer Section 3 of the report) were then transcribed directly into the GIS program utilizing the aerials, contours, geological information and existing mapped vegetation boundaries as a reference background.

Map Created: 19-1-2015
Scale = 1:1750 @ A3

3.1 VEGETATION SURVEY RESULTS

Detailed flora analysis has been previously performed by Aspect North (2004) which was reviewed and ground-truthed to be generally accurate and suitable for the purposes of this impact assessment. Minor alterations have occurred within the central northern terrace of the site with relation to the composition of cleared and weeded areas which have been subjected to varying slashing regimes over the past decade and the eastern edge of Community 4 separating out the eastern edge dominated camphor laurel or macaranga patches. Weed invasion remains widespread and dominant across the majority of the site.

Ground truthing inspection was performed as outlined above with geo-referenced colour aerial photographs (July 2014) overlaid with contour plans, existing mapped vegetation boundaries and cadastre boundaries utilized for the initial recognition of community boundaries in the field and adjustments noted as necessary. Communities (refer below) were then transcribed directly into the GIS program utilizing the aerials, geological information and existing mapped vegetation boundaries as a reference background.

Information utilized in map preparation has included:

- Provided site boundaries, survey plans and aerial photographs.
- Aspect North (2004) Vegetation mapping and descriptions
- Tweed VMP (2004) vegetation community mapping metadata
- Upper North East CRA Forest Ecosystem Layer metadata
- NSW DEH Vegetation Information System Spatial Information Exchange (SIX)
- Northern Comprehensive Regional Assessment Aerial Photograph Interpretation VISmap 1108 Layer metadata
- Rainforest Mapping for NE NSW. VIS ID 3887

As a result of previous flora surveying four (4) vegetation associations/assemblages were identified on site and are described briefly below with full descriptions contained within Attachment 2. An updated vegetation community maps is presented in Figure 12 which adopts Aspect North (2004) community descriptions with refined boundaries based upon 2015 inspections and higher resolution georeferenced 2014 aerial photographs to enable minor boundary amendments.

Vegetation community descriptions summarized from Aspect North (2014) are reproduced below. Current (2015) images of typical condition have also been added.

VEGETATION COMMUNITY 1 - Open grassland dominated by Paspalum *(Paspalum dilatum),* and Rhodes Grass *(Chloris sp.)* and isolated clumps dominated by Lantana *(Lantana camara)* and Black Wattle *(Acacia melanoxylon).* Very poor native species diversity is present (Refer to Attachment 2 Appendix B). A range of environmental weeds dominate the Area (Refer to Attachment 2 Appendix B). The vegetation in this area is considered highly degraded - i.e. ecosystem is in very poor condition (Wilson, 2003) [Aspect North, 2004: 12-13]

2015 survey noted this community to be heavily infested with weeds in all areas with few scattered native trees or native tree groupings remaining. The community has not been slashed since 2009.

DOMINANT TREES SPECIES WITHIN UPPER STOREY	HEIGHT (M)	FPC (%)	SLOPE	ASPECT	DESCRIPTION
Acacia melanoxylon, Macaranga tanarius, Guioa semiglauca	10	<5	0-15	S	Highly disturbed open grassland with clumps of weed regrowth.

1-overgrown pasture

2-overgrown pasture

3-macarangas

4-overgrown pasture

5-camphor regrowth

6-camphor regrowth

	
7-weed shrubland + blackwood regrowth	8-weed shrubland + blackwood regrowth. Isolated hoop pine in paddock
	
9-weed shrubland	10-overgrown pasture
	
11-overgrown pasture	12-overgrown pasture

	
21- overgrown pasture/weed shrubland	22- overgrown pasture/weed shrubland

Equivalent vegetation communities

Forest Types in NSW 1989: Code 216_Improved Pasture and Cropland
Code 220_Cleared/Partially Cleared

CRA Forest Ecosystems 1999: Code 173_Cleared/Partially Cleared)

Tweed VMP 2004: Code 1099_Substantially Cleared of Native Vegetation

Biometric Vegetation Database NRCMA: No equivalent
Keith (2004) Ocean Shores-Desert Dunes: No equivalent

VEGETATION COMMUNITY 2 -Regrowth closed forest dominated by Guioa *(Guioa semiglauca,)* and Camphor Laurel *(Cinnamomum camphora)* and patches of grassland. Medium native species diversity is present (Refer to Attachment 2 Appendix B). A range of environmental weeds dominate the Area (Refer to Attachment 2 Appendix B). The vegetation in this Area is considered degraded (i.e. ecosystem is in poor condition (Wilson, 2003) [Aspect North, 2004: 13]

DOMINANT TREES SPECIES WITHIN UPPER STOREY	HEIGHT (M)	FPC (%)	SLOPE	ASPECT	DESCRIPTION
Guioa semiglauca, Cinnamomum camphora	15-20	70	40-45	S-SW	Secondary regrowth with areas of closed forest, powerline clearing, highly disturbed grassland. Cupaniopsis newmanii noted in this area

2015 inspection noted this community also to be heavily infested with weeds.

	
18- highly disturbed camphor laurel/early regrowth rainforest/weed shrubland	18- highly disturbed camphor laurel/early regrowth rainforest/weed shrubland
	
19- highly disturbed camphor laurel/early regrowth rainforest/weed shrubland	19- highly disturbed camphor laurel/early regrowth rainforest/weed shrubland
	
20- highly disturbed camphor laurel/early regrowth rainforest/weed shrubland	20- highly disturbed camphor laurel/early regrowth rainforest/weed shrubland

	
20- highly disturbed camphor laurel/early regrowth rainforest/weed shrubland	20- highly disturbed camphor laurel/early regrowth rainforest/weed shrubland

Equivalent vegetation communities

Forest Types in NSW 1989: Code 221_Introduced Scrub
CRA Forest Ecosystems 1999: Code 201_Camphor Laurel
Code 168_Rainforest (in part)

Tweed VMP 2004: Code 1004_Camphor Laurel Dominant Closed to Open Forest
Code 1002_Early Regrowth Rainforest

Biometric Vegetation Database NRCMA: No equivalent
Keith (2004) Ocean Shores-Desert Dunes: No equivalent

VEGETATION COMMUNITY 3 - Open to closed forest regrowth with large areas of Lantana *(Lantana camara)* thicket and grasses in disturbed areas. Medium native species diversity is present (Refer to Attachment 2 Appendix B). Fewer environmental weeds are present (Refer to Attachment 2 Appendix B). The vegetation in this Area is considered degraded to modified - i.e. ecosystem is in poor or moderate condition (Wilson, 2003) [Aspect North, 2004: 13]

DOMINANT TREES SPECIES WITHIN UPPER STOREY	HEIGHT (M)	FPC (%)	SLOPE	ASPECT	DESCRIPTION
Macaranga tanarius, Acacia melanoxylon, Guioa semiglauca	15	40-70	30-60	S	Highly disturbed secondary regrowth with large areas of Lantana (Lantana camara) thicket and grasses in disturbed areas

2015 inspection noted this community also to be heavily infested with weeds.

	
13-outer edge. Steep slopes beyond	14-highly disturbed camphor laurel/early regrowth rainforest
	
15- highly disturbed camphor laurel/early regrowth rainforest	15-highly disturbed camphor laurel/early regrowth rainforest
	
15- highly disturbed camphor laurel/early regrowth rainforest	15-highly disturbed camphor laurel/early regrowth rainforest

	
16- highly disturbed camphor laurel/early regrowth rainforest	16- highly disturbed camphor laurel/early regrowth rainforest
	
16- highly disturbed camphor laurel/early regrowth rainforest	16- highly disturbed camphor laurel/early regrowth rainforest

Equivalent vegetation communities

Forest Types in NSW 1989:	Code 221_Introduced Scrub
CRA Forest Ecosystems 1999:	Code 201_Camphor Laurel Code 168_Rainforest (in part)
Tweed VMP 2004:	Code 1004_Camphor Laurel Dominant Closed to Open Forest Code 1002_Early Regrowth Rainforest

Biometric Vegetation Database NRCMA: No equivalent
Keith (2004) Ocean Shores-Desert Dunes: No equivalent

VEGETATION COMMUNITY 4 - Closed forest dominated by Peperberry *(Cryptocarya obovata)*, Scrub Bloodwood *(Baloghia lucida*)*, Guioa, Foambark *Jagera pseudorhus)*, and Camphor Laurel. Good native species diversity for all strata. High diversity of lowland subtropical species is present (Attachment 2 Appendix B). Fewer environmental weeds are

present (Attachment 2 Appendix B). The vegetation in this Area is considered modified to little disturbed - i.e. ecosystem is in moderate to good condition (Wilson, 2003) [Aspect North, 2004: 12-13]

DOMINANT TREES SPECIES WITHIN UPPER STOREY	HEIGHT (M)	FPC (%)	SLOPE	ASPECT	DESCRIPTION
Cryptocarya obovata, Baloghia lucida, Guioa semiglauca, Jagera pseudorhus, Cinnamomum camphora	25	70+	20-35	S	Closed forest, high diversity of lowland subtropical rainforest species. Significant species include: Macadamia tetraphylla, Archidendron muellerianum, Cupaniopsis newmanii, Syzygium moorei, Syzygium hodgkinsoniae.

* now *B. inophylla*

2015 inspection noted this community also to be heavily infested with weeds on the eastern and southern fringes. A distinct area of edge forest dominated by Camphor Laurel has been excluded from this community and incorporated into the mapped area for Community 1. Camphor laurel dominance and co-dominance remains for the majority of this community mapped as occurring on the site with true native rainforest predominately occurring offsite and along the very western boundary. As no boundary fencing occurs within this area without the aid of GPS devices locating where the site ends would have been difficult. A series of typical community images are included below demonstrating the east-west gradation from camphor laurel dominated forest (including rainforest species in suppression) to native species dominant rainforest (camphor laurel suppressed) and associated GPS recordings are presented below:

23-camphor laurel dominant component @ 551972; 6876689

23-camphor laurel dominant component @ 551972; 6876689

	
23-camphor laurel dominant component @ 551972; 6876689	23-camphor laurel dominant component @ 551972; 6876689
	
24-camphor laurel dominant component @ 551931, 6876666	24-camphor laurel dominant component @ 551931, 6876666
	
24-camphor laurel dominant component @ 551931, 6876666	24-camphor laurel dominant component @ 551931, 6876666

	
24-camphor laurel dominant component @ 551931, 6876666	24-camphor laurel dominant component @ 551931, 6876666
	
25-native species dominant component @ 551931, 6876666	25-native species dominant component @ 551931, 6876666
	
25-native species dominant component @ 551931, 6876666	25-native species dominant component @ 551931, 6876666

	
26-native species dominant component @ 551886, 6876690	26-native species dominant component @ 551886, 6876690
	
26-native species dominant component @ 551886, 6876690	26-native species dominant component @ 551886, 6876690
	
27-native species dominant component @ 551851, 6876710	27-native species dominant component @ 551851, 6876710

	
28-native species dominant component @ 551852, 6876654	28-native species dominant component @ 551852, 6876654
	
28-native species dominant component @ 551852, 6876654	28-native species dominant component @ 551852, 6876654
	
29-native species dominant component @ 551863, 6876612	29-native species dominant component @ 551863, 6876612

	
29-native species dominant component @ 551863, 6876612	29-native species dominant component @ 551863, 6876612

All threatened plant species previously listed were encountered with the exception of Floydia praelta. Additional common rainforest species such as red cedar, native tamarind, maidens blush, scentless rosewood and orange boxwood were encountered as were several large mango trees on the very western boundary. The northwestern portions contained several thickets of woody vine dominance.

	
Syzygium hodgkinsoniae	Lepiderema pulchella

	
Syzygium moorei	Macadamia tetraphylla

Equivalent vegetation communities

Forest Types in NSW 1989: Code 221_Introduced Scrub
Code A_Subtropical Rainforest League

CRA Forest Ecosystems 1999: Code 201_Camphor Laurel
Code 168_Rainforest

Tweed VMP 2004: Code 1004_Camphor Laurel Dominant Closed to Open Forest
Code 102_Subtropical Rainforest on Bedrock Substrates

Biometric Vegetation Database NRCMA: White Booyung-Fig Subtropical Rainforest of the North Coast

Keith (2004) Ocean Shores-Desert Dunes: Subtropical Rainforests

WEEDS

Weed infestation is common across the site particularly in Communities 1-3. An extensive list of encountered species is contained in Attachment 2. The following recorded species are subject to the '*Noxious Weed Declaration – Far North County Council Control Area (2005)*' as follows:

a. Groundsel Bush (*Baccharis halimifolia*) – W2
b. Lantana (*Lantana camara*) – W4
c. Camphor Laurel (Cinnamomum camphora)-W4
d. Annual Ragweed (Ambrosia artemisiifolia)-W5
e. Asparagus Fern (Protoasparagus africanus)-W2

CONTROL CLASS	WEED TYPE	EXAMPLE CONTROL REQUIREMENTS
Class 1	Plants that pose a potentially serious threat to primary production or the environment and are not present in the State or are present only to a limited extent.	The plant must be eradicated from the land and the land must be kept free of the plant. The weeds are also "notifiable" and a range of restrictions on their sale and movement exist.
Class 2	Plants that pose a potentially serious threat to primary production or the environment and are not present in the State or are present only to a limited extent.	The plant must be eradicated from the land and the land must be kept free of the plant. The weeds are also "notifiable" and a range of restrictions on their sale and movement exist
Class 3	Plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies, are not widely distributed in the area and are likely to spread in the area or to another area	The plant must be fully and continuously suppressed and destroyed
Class 4	Plants that pose a potentially serious threat to primary production, the environment or human health, are widely distributed in an area to which the order applies and are likely to spread in the area or to another area	The growth of the plant must be managed in a manner that reduces its numbers spread and incidence and continuously inhibits its reproduction
Class 5	Plants that are likely, by their sale or the sale of their seeds or movement within the State or an area of the State, to spread in the State or outside the State	There are no requirements to control existing plants of Class 5 weeds. However, the weeds are "notifiable" and a range of restrictions on their sale and movement exists

3.2 REGIONAL SIGNIFICANCE & CONSERVATION STATUS

3.2.1 ENDANGERED ECOLOGICAL COMMUNITIES

A discussion of potentially applicable endangered ecological communities (EECs) is provided below in the context of vegetation surveys undertaken within the site and the relevant scientific determinations for EECs.

LOWLAND RAINFOREST IN NSW NORTH COAST AND SYDNEY BASIN BIOREGION

This EEC is described by the scientific committee (online @ http://www.environment.nsw.gov.au/determinations/LowlandRainforestEndCom.htm) as follows:

> *Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions is the name given to the ecological community of subtropical rainforest and some related, structurally complex forms of dry rainforest, excluding Littoral Rainforest (as described in the Final Determination gazetted on 4/6/04) and Lowland Rainforest on Floodplain in the NSW North Coast Bioregion (as described in the Final Determination gazetted on 13/8/99). Lowland Rainforest may be associated with a range of high-nutrient geological substrates, notably basalts and fine-grained sedimentary rocks, on coastal plains and plateaux, footslopes and foothills. In the north of its range, Lowland Rainforest is found up to 600m above sea level, but in the Sydney Basin bioregion it is limited to elevations below 350 m.*
>
> *Lowland Rainforest, in a relatively undisturbed state, has a closed canopy, characterised by a high diversity of trees whose leaves may be mesophyllous and encompass a wide variety of shapes and sizes. Typically, the trees form three major strata: emergents, canopy and sub-canopy which, combined with variations in crown shapes and sizes, give the canopy an irregular appearance (Floyd 1990). The trees are taxonomically diverse at the genus and family levels, and some may have buttressed roots. A range of plant growth forms are present in Lowland Rainforest, including palms, vines and vascular epiphytes. Scattered eucalypt emergents (e.g.* Eucalyptus grandis, E. saligna*) may occasionally be present. In disturbed stands of this community the canopy continuity*

may be broken, or the canopy may be smothered by exotic vines. Although every stand of rainforest is unique in terms of its biota, Lowland Rainforest can be characterised by the following species (found @ http://www.environment.nsw.gov.au/determinations/LowlandRainforestEndCom.htm).

It is considered that Vegetation Community 4 may be reflective of the above listed EEC as determined by the Scientific Committee (it is to be acknowledged that the eastern portions of this community although containing rainforest species have the dominant layer [canopy] dominated by camphor laurel. It is considered likely that such excludes this area from EEC determination although the eastern area remains impractical for development and will be retained). It is recommended that this community be retained in association with the proposal and a weed management plan be implemented to progressively decrease the existing risk of native flora species diversity reduction through exotic species dominance.

NB. The non-identification of this potential EEC within Aspect North (2004) is not a failing of that report. This particular EEC was not declared in 2004.

POTENTIAL ENDANGERED ECOLOGICAL COMMUNITIES

Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion

Nominal 20m setback

Nominal 50m setback

NB. this map is subject to the limitations and discussions within Section 3.2.1 of the attached report

FIGURE 13: POTENTIAL ENDANGERED ECOLOGICAL COMMUNITY MAP

NOTES:
Vegetation maps have been compiled using Mapinfo geographic information system (GIS) software (Ver. 11.5). Information utilized has included:
Data including contours, site boundaries and 2009, 2012 & 2014 aerial photographs.
Tweed VMP (2004) vegetation community mapping metadata
Upper North East CRA Forest Ecosystem Layer metadata
NSW DEH Vegetation Information System Spatial Information Exchange (SIX)
Northern Comprehensive Regional Assessment Aerial Photograph Interpretation
VISmap 1108 Layer metadata
Rainforest Mapping for NENSW VIS ID3887
2004 Apsect North Vegetation Community Mapping & Descriptions

Ground truthing was performed as outlined (Section 3 of Report) with geo-referenced colour aerial photographs overlaid with contour plans, existing mapped vegetation boundaries and cadastre boundaries for the initial recognition of community boundaries in the field and adjustments noted as necessary. Communities (refer Section 3 of the report) were then transcribed directly into the GIS program utilizing the aerials, contours, geological information and existing mapped vegetation boundaries as a reference background.

Map Created: 19-1-2015
Scale = 1:1750 @ A3

4.0 FAUNA ASSESSMENT

This section describes the site's fauna and associated habitat as identified through surveying. The methodology applied to arrive at the species list is outlined and significant species have been identified where relevant. The development proposal has also been evaluated against these findings.

4.1 METHODOLOGY

- Desktop analysis including:

i. Review of the previous detailed assessment performed over the site being Aspect North (2004) *Flora and Fauna Assessment Terranora Road (Proposed Rezoning at 225 Terranora Road, Banora Point on behalf of Darryl Anderson Consulting*. Aspect North, Lismore.

ii. Review of Council's Planning Scheme Mapping & Associated Reporting (i.e. Tweed LEP 2000 Maps, Draft LEP Amendment No 21 Mapping, Tweed VMP Maps 1-7)

iii. Review of threatened fauna species and endangered populations listed as occurring within the Murwillumbah (Qld - Southeast Hills and Ranges) CMA sub-region of the Northern Rivers CMA (http://threatenedspecies.environment.nsw.gov.au/tsprofile/cma_subregion_list.aspx?id=15

iv. Review of search of the Atlas of NSW Wildlife database within a search area 10km surrounding the site to review threatened plant records

v. Review of selected ecological surveys/reports previously undertaken in the locality including:
   - Bali et al (2003) The Status and Distribution of the Cobaki Long-nosed Potoroo Population
   - Biolink (2008) Ecological & Bushfire Planning Assessment of Lot 1 DP 167380, Lot 2 DP 961928 & Lot 4 DP 1054848 Walmsley's Road, Bilambil Heights. Biolink, Uki.
   - Boyds Bay Environmental Services (2011) Preliminary Ecological Site Assessment Lot 517 DP729286 Tweed Coast Road, Cabarita. BBES, Tweed Heads.
   - Fitzgerald, M. (2007) Glossy Black-cockatoo *Calyptorhynchus lathami* Koala Beach Monitoring Report November 2007 Prepared for Tweed Shire Council. Mark Fitzgerald, Mullumbimby.
   - Glen Holmes & Associates (1993) Biological Investigation for Proposed Residential Subdivision and Artificial Lake Adjacent to Tweed River, Tweed Heads (Lot 4 DP228424, Soorley Street). GH&A, Canungra.
   - Hannah, D. and Lewis, B.D. (2007). Blossom Bat Monitoring Report, Koala Beach Estate, Winter 2007. Report to the Koala Beach Wildlife and Habitat Management Committee on behalf of Tweed Shire Council.
   - Hannah, D.S. (2008). *Planigale maculata* monitoring report, Koala Beach Estate, Spring 2007. Report prepared for the Koala Beach Wildlife and Habitat Management Committee
   - Hero et al (2000) Survey of Reptiles, Amphibians and Mammals Inhabiting Coastal Lowland Areas Associated with the Proposed Tugun Bypass
   - Hero et al. (2001a)Survey for Reptiles, Amphibians and Mammals Inhabiting the Northern Section of the Proposed Tugun Bypass

- Hero et al. (2001b) Supplementary Surveys of Common Planigales, Eastern Long-eared Bat and Wallum Sedge Frogs within the Proposed Tugun Bypass
- James Warren & Associates (2003) Analysis of Environmental Constraints Lot 156 Creek Street Hastings Point. JWA, Ballina
- James Warren & Associates (2010) Ecological Assessment Lot 2 DP873399 & Lot 22 DP105759 Clothiers Road-Bogangar. JWA, Ballina.
- James Warren & Associates Pty Ltd (2005) Flora and Fauna Assessment Lots 165 & 167 DP755701 Ozone Street, Chinderah. JWA, Alstonville
- James Warren and Associates (2009) Amended Flora and Fauna Assessment for Lots 2 & 3 DP244652 Urliup Road Bilambil A Report Prepared to Plateau Nominees Pty Limited. JWA, Ballina
- James Warren and Associates (2009) Ecological Assessment Rise Estate Bilambil Heights West Tweed MP-080234 Report Prepared for Terranora Group Management Pty Ltd. JWA, Ballina.
- Kendall & Kendall (2008) Cudgen Lakes Sand Extraction Project: Fauna Assessment. Report for Gales-Kingscliff Pty Ltd.
- Lewis (2004) Systematic Surveys for the Coastal Planigale (Planigale maculata) on Crown Lands and a Detailed Habitat Appraisal of the Tugun/Cobaki Locality
- Parsons Brinckerhoff (2004) Tugun Bypass Environmental Impact Statement. Technical Paper Number 12: Flora and Fauna Assessment. PB, Brisbane
- Parsons Brinckerhoff (2008) Upgrading the Pacific Highway. Banora Point Pacific Highway Upgrade Technical Paper 2-Ecological Assessment. Report for NSW Roads and Traffic Authority.
- Peter Parker (2002) Clothiers Creek Road Realignment Species Impact Statement prepared for Jim Glazebrook and Associates and Tweed Shire Council. PPEC, Broken Head.
- Planit (2002) Detailed Ecological Assessment for Gales Holdings Kingscliff, NSW. Planit Consulting, Southport.
- Planit Consulting (2002). *Survey for Land Snail* Thersites mitchellae. Section 95(2) report to NSW NPWS.
- Planit (2007) Flora and Fauna Assessment for Clothiers Creek Road, Tanglewood [Lot 200 DP100310] for Peachey Constructions. Planit, Nobby Beach.
- Planit (2008) Flora and Fauna Assessment for Ozone Street Road Upgrade prepared for CMF Properties, May 2009. Planit, Kingscliff.
- Planit (2008) Flora and Fauna Assessment for Ozone Street, Chinderah prepared for CMF Properties, October 2008. Planit, Kingscliff.
- Planit (2008) Terrestrial Flora and Fauna Assessment. Reyson's Land, Banora Point for Nutek Laboratories P/L. Planit, Kingscliff.
- Planit (2009 February) Flora and Fauna Assessment Curtawilla Street, Banora Point Lot 12 DP1003644 prepared for Halcore (QLD) P/L. Planit, Nobby Beach.
- Planit (2009) Koala Plan of Management for Clothiers Creek Road, Tanglewood [Lot 200 DP100310] for Northhill P/L. Planit, Nobby Beach.
- Planit (2009) Preliminary Terrestrial Flora and Fauna Assessment 67 Scenic Drive Lot 7 on DP853859 Prepared for NH Dickinson Pty Ltd. Planit, Kingscliff
- Planit (2010) Flora and Fauna Assessment for Ozone Street Road Upgrade prepared for CMF Properties, June 2010. Planit, Kingscliff.
- Planit (2010) Preliminary Review of Terrestrial Flora and Fauna Values Sandalwood Drive, Bogangar Lot 2 DP821987 Prepared for Land and Property Management Authority. Planit, Nobby Beach.

- Planit (2010) Terrestrial Flora and Fauna Assessment Lot 706 DP1056641 prepared for Land and Property Management Authority. Planit, Nobby Beach.
- Planit (2011 June) Terrestrial Flora and Fauna Assessment Marana Avenue, Bilambil Heights Lot 30 DP850230 prepared for PS Developments. Planit, Nobby Beach
- Planit (2011) Ecological Assessment Tanglewood Drive, Tanglewood Lot 1 DP1084992 & Lot 1 DP601049 Prepared for Peter Tagget. Planit, Nobby Beach.
- Planit (2012 June) Terrestrial Flora and Fauna Assessment Temporary Construction Access @ Parkes Drive, Tweed Heads for Feitelson Holdings P/L. Planit, Nobby Beach.
- Planit (2012) Preliminary Review of Terrestrial Flora & Fauna Values 742-744 Cudgen Road, Cudgen prepared for Usher Powell Cudgen. Planit, Kingscliff.
- Planit (2012) Threatened Species Management Plan for Tanglewood Lot 1 DP1084992 & Lot 1 DP601049 Prepared for Peter Tagget. Planit, Nobby Beach.
- Planit (2013 July) Preliminary Terrestrial Flora and Fauna Assessment Sierra Vista Boulevard, Bilambil for Two Dams P/L. Planit, Nobby Beach.
- Planit (2013 March) Preliminary Flora and Fauna Assessment 136-150 Dry Dock Road, Tweed Heads South for Asset Revolutions P/L. Planit, Nobby Beach.
- Planit Consulting (2013) Updated Terrestrial Flora and Fauna Assessment. Residential Development @ 156 Creek Street, Hastings Point prepared for Walter Elliott Holdings P/L. Planit, Nobby Beach.
- Sandpiper Ecological Surveys (2001a) Assessment of the Impact of the Proposed Tugun Bypass: Terrestrial and Estuarine Birds
- Sandpiper Ecological Surveys (2001b) Tugun Bypass Assessment of Impacts on Birds: Boyd Street Interchange to Stewart Road
- SMEC (2009) Tugun Bypass Compensatory Habitat Package-Outstanding Offsets: Final Report.
- Stanisic (2001) Survey for the Land Snail Thersites mitchellae: Proposed Tugun Bypass Route

vi. Review of the following legislation to ensure the latest lists of threatened species were noted as well as investigating the existence of any relevant recovery plans, threat abatement plans, key threatening processes or any preliminary determinations which may be applicable to the site and/or the proposed use/action:
   - *Threatened Species Conservation Act (1995)*
   - *Environment Protection and Biodiversity Conservation Act (1999)*

- Field survey of the flora communities located within and immediately adjacent to the study area (in accordance with Section 3 above) to review habitat values;

- The following detailed fauna survey has been previously performed over the site:
  - Aspect North (2004) *Flora and Fauna Assessment Terranora Road (Proposed Rezoning at 225 Terranora Road, Banora Point on behalf of Darryl Anderson Consulting*. Aspect North, Lismore.

This previous survey and additional inspections performed during January 2015 incorporated the following:

4.2.1 DIURNAL SURVEY

- Binocular search and identification of all fauna heard or sighted;
  Duration: Opportunistic during other survey works (January 2015)

- Bird identification surveys were conducted in association with dawn and dusk activity and comprised walked transects and area searches through the site;
  Duration: 6 person hours (January 2004)
  1 x dawn/mid-morning (60 minutes) and 1 x dusk (30 minutes) [January 2015]

- Ground track/trace survey was performed including:
  - Scat/pellet examination
  - Scratch/trace examination of trees
  - Diggings, burrow, trace and track examination
  - Humus/crevice examination
  - Examination and assessment of tree hollows, hanging bark, termite mounds, flowering and nesting trees etc

  Duration: 1 hour x 3 days (January 2004)
  Opportunistic during other survey works (January 2015)

- Ground strata searches and rock/timber/leaf litter rolls and examination for reptiles and frogs
  Duration: 45 minutes x 3 days (January 2004)
  2 x 30 minutes during the middle of the day & opportunistic during all other survey works [January 2015]

- Elliott & Trapping: Seventy five A-sized Elliott traps were placed in the field in three lines each containing 25 traps. Trap lines were situated in areas that were considered to best represent potential habitat for ground-dwelling mammal species. Traps were spaced at approximately 10 metre intervals and were baited with a mixture of oats, peanut butter, vanilla essence, oil and honey. Traps were left in the field for three nights and were checked each morning within 2 hours of sunrise. Three cage traps, targeting larger ground-dwelling mammals and baited with raw meat, were also placed in the field for a period of 3 nights.
  Duration: 234 trap nights (January 2004)

4.2.2 NOCTURNAL SURVEY

Nocturnal survey included the following survey techniques:

- Audible survey for calls, scratching and landings;
- Spotlighting utilising:
  - Short duration-long distance white light, and
  - Long duration-short distance red light

Duration: 6 person hours January 2004
4 person hours January 2015

- Anabat detection system was utilized to record echolocation of microchiropteran bats along spotlighting transects and from fixed points.
  Duration: Two nights' recording along spotlighting transect and one night of stationary recording (January 2004)

- Amplified call playback of the following threatened species:
  - Woompoo Fruit Dove (*Ptilinopus magnificus*)
  - Rose-crowned Fruit Dove (*Ptilinopus regina*)
  - Bush-stone Curlew (*Burhinus grallarius*)
  - Barking Owl (N*inox connivens*)
  - Powerful Owl (*Ninox strenua*)
  - Masked Owl (*Tyto novaehollandiae*)
  - Grass Owl (*Tyto capensis/longimembris*)
  - Barred Cuckoo-shrike (*Coracina lineata*)
  - White-eared Monarch (*Carterornis leucotis*)
  - Varied Sitella (*Daphoenositta chrysoptera*)

Each call playback session comprised of the following:
- A 5min listening period for unelicited fauna calls
- A 5min call playback for relevant species on a 25W Toa Megaphone
- A 5min search/spotlight for fauna at the playback site

Depending on the targeted species playback was undertaken at dawn, dusk and/or after dark. All call files were obtained from BOCA or NATURESOUND.

Duration: One session each for species listed above (Janaury 2015)
One session each for Powerful Owl, Masked Owl, Barking Owl, Sooty Owl and Grass Owl (January 2004)

January weather conditions were warm to hot during the day and remaining warm at night (maximum of 32°C and minimum of 21°C as measured at the Coolangatta station ([40717]). Rain fell three times during the survey period which occurred within a period of hot weather which occasionally resulted in evening showers or storms. There was a thunderstorm on the evening of 12th January with another on the 20th January (62mm and 76mm as measured at the Tweed Heads Golf Club ([58056])).

4.2.3 SURVEY LIMITATIONS

Whilst the duration of flora surveys and inspections of the site are considered appropriate, it was not practical to intensively search all areas of vegetation present (~9.9ha), much of which is overgrowth with pasture grasses and woody weed shrubland. Additional undetected threatened or other native flora species may be present on the property (particularly weed species within the pasture/grassland). Seasonal surveys would also be necessary to detect flora species that are dormant or inconspicuous for part of the year (i.e. from the Asteraceae, Orchidaceae, Cyperaceae, Poaceae etc). Some of these species (dormant or non flowering) may have been undetected or under-represented within the survey period. Further ungerminated seed of various species may have been present within the soil seed bank.

Whilst the duration and sampling methodology of the fauna survey is considered appropriate, it is acknowledged that the entire seasonal fauna assemblage is unlikely to be recorded. It is also accepted that although assessments of habitat and species ecology does provide an additional measure to anticipate the presence of species (as a surrogate for its actual observation), there is no absolute certainty to the absence of a species from marginal or potential habitat.

Additionally, there may be some species that may utilise the habitats within the site but have remained undetected due to their rarity, elusive nature or the sporadic utilisation of the habitats (i.e. the Long-nosed Potoroo, Common Planigale and Dunnart are elusive species that are difficult to trap or observe directly; the Black-necked Stork, Powerful Owl, Spotted-tail Quoll and Red Goshawk may only visit an area occasionally within a much larger home-range; the Swift Parrot and Regent Honeyeater may only visit an area during peak flowering periods etc).

The conclusions of this report are therefore based upon data available at the time and the results of field works undertaken and are therefore indicative of the environmental condition of the site at the time of sampling, including the presence or otherwise of species. At should be acknowledged that site conditions, including the presence of threatened species, can change over time.

The above limitations have been taken into account and the likelihood of threatened such species occurring within the site assessed through habitat assessment, records of the species within the locality and aspects of species ecology (refer Section 6).

4.2.4 LICENCING

The following issued licences are held by the 2015 surveyor:

Table 2: RELEVANT LICENCES

Authority	Licence/Permit	Title	Expiration	Permit No.
NSW DPI Animal Care & Ethics Committee	Animal Research Approval	Fauna Surveying, Trapping & Release	30 June 2017	14/1971
NSW DPI Animal Care & Ethics Committee	Animal Research Authority	Fauna Surveying, Trapping & Release	30 June 2015	14/1971
NSW National Parks & Wildlife Service	Scientific Licence	Ecological Survey	31 May 2015	S100142
QLD EPA/DEHP	Scientific Purposes Permit	Wildlife Research	7 August 2019	WISP14894214
QLD DEEDI Animal Ethics	Scientific Use Registration	Scientific Use Registration	14 February 2015	Reg No. 241
QLD DAAF Animal Ethics	Community Access AEC	Fauna Surveying	31 May 2017	CA 2014/05/762
QLD DEHP	Rehabilitation Permit NC(Administration)R 2006	Observe or relocate protected animals. Spotter catcher.	16 May 2016	WIRP12736113

4.3 SITE SURVEY RESULTS

The following section(s) list the fauna species recorded on the subject site during recent inspections and previous detailed surveys (Aspect North, 2004). Results are grouped by the Class of species recorded.

BIRDS

FAMILY	SPECIES NAME	COMMON NAME
Acanthizidae	*Sericornis frontalis*	White-browed Scrubwren
Accipitridae	*Aviceda subcristata*	Pacific Baza
Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-Eagle
Accipitridae	*Haliastur sphenurus*	Whistling Kite
Alcedinidae	*Dacelo novaeguineae*	Laughing Kookaburra
Ardeidae	*Ardea ibis*	Cattle Egret

FAMILY	SPECIES NAME	COMMON NAME
Ardeidae	*Nycticorax caledonicus*	Nankeen Night Heron
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird
Artamidae	*Cracticus tibicen*	Australian Magpie
Artamidae	*Cracticus torquatus*	Grey Butcherbird
Artamidae	*Strepera graculina*	Pied Currawong
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike
Centropodidae	*Centropus phasianinus*	Pheasant Coucal
Charadriidae	*Vanellus miles*	Masked Lapwing
Cisticolidae	*Cisticola exilis*	Golden-headed Cisticola
Columbidae	*Chalcophaps indica*	Emerald Dove
Columbidae	*Columba leucomela*	White-headed Pigeon
Columbidae	*Streptopelia chinensis*	Spotted Turtle-dove
Columbidae	*Geopelia striata*	Peaceful Dove
Columbidae	*Leucosarcia picata*	Wonga Pigeon
Columbidae	*Macropygia amboinensis*	Brown Cuckoo-Dove
Columbidae	*Ocyphaps lophotes*	Crested Pigeon
Columbidae	*Ptilinopus magnificus*	Wompoo Fruit-Dove
Coraciidae	*Eurystomus orientalis*	Dollarbird
Corvidae	*Corvus orru*	Torresian Crow
Cuculidae	*Chalcites basalis*	Horsfield's Bronze-Cuckoo
Dicruridae	*Dicrurus bracteatus*	Spangled Drongo
Estrildidae	*Neochmia temporalis*	Red-browed Finch
Estrildidae	*Taeniopygia bichenovii*	Double-barred Finch
Hirundinidae	*Hirundo neoxena*	Welcome Swallow
Maluridae	*Malurus lamberti*	Variegated Fairy-wren
Maluridae	*Malurus melanocephalus*	Red-backed Fairy-wren
Megaluridae	*Megalurus timoriensis*	Tawny Grassbird
Megapodiidae	*Alectura lathami*	Australian Brush-turkey
Meliphagidae	*Manorina melanocephala*	Noisy Miner
Meliphagidae	*Meliphaga lewinii*	Lewin's Honeyeater
Meliphagidae	*Philemon corniculatus*	Noisy Friarbird
Monarchidae	*Carterornis leucotis*	White-eared Monarch
Monarchidae	*Grallina cyanoleuca*	Magpie-lark
Monarchidae	*Myiagra rubecula*	Leaden Flycatcher
Oriolidae	*Oriolus sagittatus*	Olive-backed Oriole
Oriolidae	*Sphecotheres vieilloti*	Australasian Figbird
Pachycephalidae	*Colluricincla harmonica*	Grey Shrike-thrush
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler
Pelecanidae	*Pelecanus conspicillatus*	Australian Pelican
Petroicidae	*Eopsaltria australis*	Eastern Yellow Robin
Phasianidae	*Coturnix ypsilophora*	Brown Quail
Podargidae	*Podargus strigoides*	Tawny Frogmouth
Psittacidae	*Trichoglossus haematodus*	Rainbow Lorikeet
Psophodidae	*Psophodes olivaceus*	Eastern Whipbird
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail
Strigidae	*Ninox novaeseelandiae*	Southern Boobook
Threskiornithidae	*Threskiornis molucca*	Australian White Ibis

MAMMALS

FAMILY	SCIENTIFIC NAME	COMMON NAME	METHOD
Canidae	**Vulpes vulpes*	Fox	SL
Leporidae	**Lepus capensis*	Brown Hare	O
Macropodidae	*Wallabia bicolor*	Swamp Wallaby	O
Muridae	*Melomys burtoni*	Grassland Melomys	T
Muridae	**Mus musculus*	House Mouse	T
Muridae	*Rattus fuscipes*	Bush Rat	T
Muridae	*Rattus lutreolus*	Swamp Rat	T
Phalangeridae	*Trichosurus vulpecula*	Brushtail Possum	SL
Pteripodidae	*Pteropus poliocephalus*	Grey-headed Flying-fox	SL

REPTILES

FAMILY	SCIENTIFIC NAME	COMMON NAME	METHOD
Agamidae	*Pogona barbata*	Bearded Dragon	O
Colubridae	*Morelia spilota*	Carpet Snake	SL
Elapidae	*Pseudechis porphyriacus*	Red-bellied Black Snake	O
Elapidae	*Pseudonaja textilis*	Eastern Brown Snake	O
Scincidae	*Carlia vivax*	Lively Lizard	O,T
Scincidae	*Cryptoblepharus virgatus*	Wall Skink	O,T
Scincidae	*Lampropholis delicata*	Grass Skink	O,T
Scinidae	*Cyclodomorphus gerrardii*	Pink tongued Skink	O
Scinidae	*Tiliqua scincoides*	Blue-tongued Lizard	O
Varanidae	*Varanus varius*	Lace Monitor	O

AMPHIBIANS

FAMILY	SCIENTIFIC NAME	COMMON NAME	METHOD
Bufonidae	**Bufo marinus*	Cane toad	SL, O
Hylidae	*Litoria fallax*	Eastern Sedgefrog	C
Hylidae	*Litoria dentata*	Bleating Treefrog	C
Hylidae	*Litoria gracilenta*	Graceful Treefrog	C, SL
Myobatrachidae	*Limnodynastes terraereginae*	Northern Pobblebonk	C
Myobatrachidae	*Pseudophryne spp.*	Toadlet spp.	C

Underlined species are those additional species recorded during January 2015 site survey

4.4 DISCUSSION OF SURVEY RESULTS

4.4.1 BIRDS

Seventy-four (74) species of bird were recorded during surveys of the subject site. Two species scheduled as vulnerable under the *Threatened Species Conservation Act 1995* or *Environment Protection and Biodiversity Conservation Act 1999* were recorded on the site during fauna survey works.

A reasonably large number of bird species were detected during the survey conducted for the purposes of this report. None of these species are listed as vulnerable or endangered according to the relevant legislation. The subject site would provide preferred foraging habitat for a diversity of avifauna species due to the fact that there are a variety of flora

species at the site including a number of fruiting and nectar bearing plants that provide a food resource for avifauna. Additionally, the Camphor Laurel dominated Closed to Open Forest occurring on the site affords a good degree of cover for avifauna species as they forage and roost (Aspect North, 2004: 20-21).

4.4.2 MAMMALS

A total of nine (9) mammal species were recorded on the subject site. One species scheduled as vulnerable under the *Threatened Species Conservation Act 1995* or *Environment Protection and Biodiversity Conservation Act 1999* was recorded on the site during fauna survey works.

Ground-dwelling Mammals

All terrestrial mammals require vegetated cover for shelter and to facilitate movement. Small terrestrial mammals prefer areas within a complex vegetation structure which is dense within the lower strata and subsequently provides shelter/nesting sites and refuge from predators. Larger terrestrial mammals (larger wallabies, kangaroos) also generally require dense cover for refuge but tend to favour more open areas for grazing/feeding.

The rainforest understorey habitat of the subject site provides potential habitat for ground-dwelling mammal species particularly when it is considered that the site is relatively densely vegetated and provides a high degree of cover. Additionally, the more dense grassland occurring at the site is preferred habitat for ground mammals such as native rats and melomys as evidenced by the results of Elliott trapping (Aspect North, 2004: 21).

Arboreal Mammals

Arboreal mammals previously noted to occur within the vicinity of the site are all noted to be hollow dependent with the exception of the Koala and the Ringtail Possum (which does utilize hollows but will also construct leaf drays) (Strahan eds, 2002; Gibbons and Lindenmayer, 2002). It is widely accepted that a reduction in senescent trees is a limiting factor in hollow dependent arboreal mammal populations (Smith and Lindenmayer, 1998; Gibbons and Lindenmayer, 2002; Lindenmayer, 2002; Lunney, 1987).

Most arboreal mammals rely on tree hollows for habitat and as there are few hollow-bearing trees at the site it is unlikely that significant numbers of such species utilise the area. However, the presence of fruiting and flowering trees and the occasionally dense foliage of the rainforest understorey may provide foraging habitat for some arboreal mammal species. The relatively comprehensive survey undertaken for the purposes of this report failed to detect any evidence of arboreal mammals utilising the site. No Koala food trees were detected at the site (Aspect North, 2004: 21).

Flying Mammals

The survey results indicate that the site is utilised opportunistically by flying-foxes for the purposes of foraging. This is likely due to the fact that there are a variety of both rainforest and wet-sclerophyll tree species that would provide fruit as a food source for such species. Microbat species are less likely to utilise the area as flyways are largely absent from the closed forest at the site as are tree hollows such as those required by microbat species (Aspect North, 2004: 21).

No flying fox roosts were encountered onsite with a colony noted to roost on Big Island within the Terranora Broadwater to the north.

Anabat Detection survey did not result in the detection of any microbat species (Aspect North, 2004). More recent surveys within the locality (JWA, 2009; Biolink, 2008; Planit, 2009 & 2013) note the recording of eleven bat species within 5km of the site.

It is considered that the site contains a variety of suitable foraging spaces for mircrochiropteran bats (i.e. the open grassland/disturbed areas of the site and the areas above the canopy line of forested areas provide 'uncluttered open space' for 'open space aerial foragers'; 4wd tracks, adjacent roadways and powerline easements provide 'edge' space for 'edge space aerial foragers', the western forests with distinct canopy and small tree strata provides 'cluttered' space for 'gleaning' and 'flutter-detection' foragers). Numerous street lights and floodlights within the adjacent residential areas also provide additional micro-bat activity areas associated with increased insect activity per Adams et al (2005).

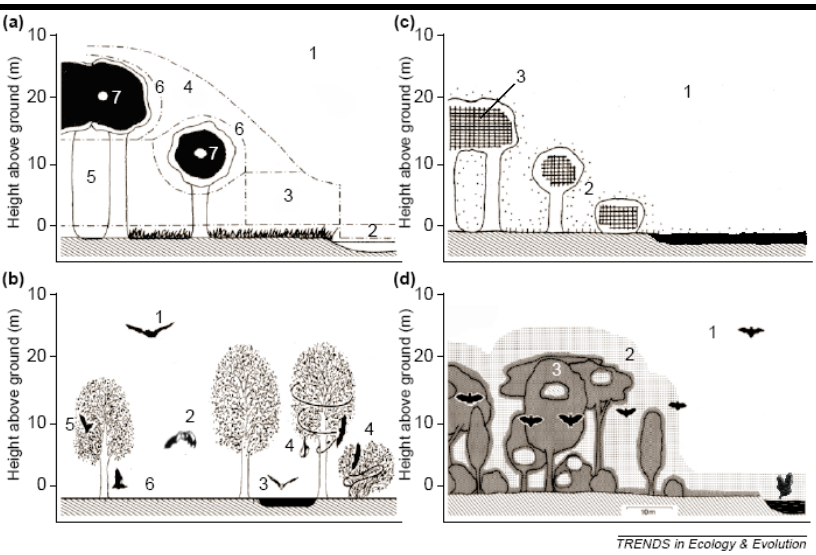


Fig. I. Characterization of foraging habitats of bats from key publications.: (a) Aldridge and Rautenbach [16]; (b) Neuwiler [17]; (c) Fenton [18]; and (d) Schnitzler and Kalko [12,13]. The origins of the diagrams [12,13,16–18] and the names of the different habitat types (labeled by numbers) are presented in Table I. Adapted, with permission, from [12,13,16–18].

Table I. Characterization of the foraging habitats of bats[a]

(a) Aldridge and Rautenbach [16]	(b) Neuweiler [17]	(c) Fenton [18]	(d) Schnitzler and Kalko [12,13]
1 Open areas	**1** Above canopy	**1** Open habitat	**1** Uncluttered or open space
2 0.5 m above water **3** Over pasture **4** 0.5 m away from canopy **5** Between trees	**2** Open spaces between canopy **3** Over water surfaces		**2** Background cluttered space or edge space
6 Surface of vegetation **7** Within vegetation	**4** Close to and within foliage **5** Foliage **6** Ground	**2** Edge habitats **3** Closed habitats	**3** Highly cluttered or narrow space

[a]See Fig. I for pictorial representation of the different foraging habitats of bats.

Figure 14: REVIEW OF MICRO-BAT FORAGING HABITATS
(SOURCED FROM SCHNITZLER ET AL, 2003)

A review of the bats previously recorded within the locality indicates that tree cavities and caves/crevices are necessary for roosting/breeding. In addition to providing shelter, maternity places and retreats for hibernation, roosts are also important places for social interactions among bats. The availability of suitable roosts is therefore critical for the survival of forest bats (Herr, 1998). Within the site it is considered that cave/mine potential breeding sites are absent with tree hollows and cavities very scarce.

Palm fronds which are suitable for species such as the Eastern Long-eared Bat are present in association with *Archontophoenix* species are present in moderate abundance in the south west (mostly offsite) and disused structures such as buildings which are potentially suitable for various species (i.e. Gould's Wattled Bat, Yellow-bellied Sheathtail Bat, Eastern Broad-nosed Bat) are restricted to the small shed in the northern paddock.

Bridge structures which may provide potential roosting sites for several species such as the Large-eared Pied Bat, Eastern Bentwing, Little Bentwing and Southern Myotis (Hoye, 2009; Bat Advisory Recovery Team, 2001; TSC, 2010) were not located onsite but are common within the broader locality.

TABLE 3: ROOSTING TYPES OF MICRO-BATS

ROOSTING TYPES OF MICRO-BATS [RECORDED DURING SITE SURVEY AND PREVIOUS SURVEYS WITHIN THE LOCALITY]		
Species Name	**Common Name**	**Roost Type**
Chalinolobus gouldii	Gould's Wattled Bat	Mostly within tree cavities although occasionally within other areas [tree stump, disused birds nests, building roofs, canvas roll, tractor exhaust] (Chruszcz and Barclay, 2002). Victoria studies conducted by Lumsden and Bennett (1995) and later by Lumsden (2004) found roost switching was common in individuals faithful to a roost area. Roosts used on successive days were usually within 300m of each other. Lumsden (2004) showed a strong bias for roost trees within floodplain forests and preference toward large Blue Gum/River Red Gums. Colonies are generally small (up to 30) within individuals (primarily males) also roosting individually (Dixon and Lumsden in Van Dyck and Strahan, 2008).
Chalinolobus nigrogriseus	Hoary Wattled Bat	Roosting has been recorded in tree hollows and rock crevices (Kutt et al in Van Dyck and Strahn, 2008).
Miniopterus schreibersii oceanensis	Eatern bentwing Bat	Twelve known maternity roost sites occur within its distribution ranging from tens of thousands to >100000 individuals. The known large roost sites are located in limestone and sandstone caves, abandoned gold mines, concrete bunkers and lava tubes. Outside the breeding season the eastern bentwing often selects cool areas within caves, mines, tunnels, drains and bridges (Hoye & Hall in Van Dyck & Strahan, 2008).
Minopterus australis	Little Bentwing Bat	Caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day (DECC 2005). DECC (2005) note the following additional particulars with regard to roosting of little bentwing bat: • Maternity colonies form in spring. Males and juveniles disperse in summer. • Only five nursery sites /maternity colonies are known in Australia. • They often share roosting sites with the Common Bentwing-bat and, in winter, the two species may form mixed clusters. • In NSW the largest maternity colony is in close association with a large maternity colony of Common Bentwing-bats (*M. schreibersii*) and appears to depend on the large colony to provide the high temperatures needed to rear its young.
Mormopterus norfolkensis	Eastern Freetail Bat	Tree hollows but occasionally found in buildings (Parnaby, Coles and Hoye, 1999). All known natural roosts have occurred within the hollow spouts of large mature eucalypts (Hoye et al in Van Dyck and Strahan, 2008).
Myotis macropus	Large-footed Myotis	The Myotis roosts within caves, tunnels, hollow-bearing trees, bridges, buildings and dense tree foliage always in close proximity to permanent water (NPWS, 2002; Richards, 2002). Breeding colonies may consist of 10-15 individuals or occasionally up to several hundred. Within breeding colonies small clusters are made where a male establishes a territory from which other males are actively excluded and breeding females are protected. Outside of breeding males roost solitarily within a defended zone or established a small group of up to 20 males.
Nyctophilus bifax	Eastern Long-eared Bat	Roosting occurs within tree-hollows, under bark and/or palm fronds and within dense foliage with a seasonal shift in roost sites from rainforest edges (summer) to the rainforest interior (winter) (NPWS, 2002; Parnaby in Strahan, 2002; Lunney et al, 1995).
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	Roosting may occur within hollow trees and buildings and also within caves and derelict mines (NPWS, 2004; Richards in Van Dyck and Strahan, 2008). DECC (2005) also notes that burrows of terrestrial mammals in treeless areas or bird nests or sugar glider nests may be utilized.
Scoteanax rueppellii	Greater Broadnosed Bat	This species is noted to favour roosts within tree hollows although it has also been recorded within buildings (DEC, 2005, Hoye & Richards in Strahan eds, 2002). Radiotracking within Bunjalung National Park noted the species to roost exclusively within Melaleuca quinquenervia (Campbell, 2001).

Tadarida australis	White-striped Freetail Bat	Roosts in tree hollows either singly or in groups. Research in Brisbane shows *T. australis* to roost in hollows in old eucalypt trees, especially in Forest Red Gums *(E. tereticornis*) and in Grey Gums *(E. propinqua)* with colony sizes up to 300 individuals. Such studies in Brisbane have also identified occasional roost cohabitation with the Brushtail Possum where neither species appeared to show any aggression toward the other (Rhodes, 2001; Rhodes, 2006).
Vespadelus pumilis	Eastern Forest Bat	Tree hollows, favouring large hollow bearing trees, with maternity colonies up to 50 adult females (Law et al in Van Dyck & Strahan, 2008). Large hollow bearing trees proximate to riparian zones are particularly favoured (Land and Anderson, 2000). Males may also roost within understorey species such as Blackwood (Turbill et al, 2003)

* sourced from Lumsden, 2004; Herr, 1998; DECC, 2007; Richards & Martin, 2001; Birt et al, 2001; Rhodes & Richards, 2008; Rohdes and Wardell-Johnson, 2006; Rhodes, 2006; Richards, Reardon and Pennay, 2008; Lumsden, Bennett and Silins, 2002; Aust. Museum, 1999; NPWS, 2004; Richards in Van Dyck and Strahan, 2008; Tidemann & Parnaby in Van Dyck and Strahan, 2008; Law and Anderson, 2000; Churchill, 2008

4.4.3 REPTILES

A total of Ten (10) reptile species were recorded on the subject site. No species listed as endangered or vulnerable under the *Threatened Species Conservation Act 1995* or *Environment Protection and Biodiversity Conservation Act 1999* were recorded on the site during fauna survey works.

Typically reptile species require a diversity of microhabitats (including vegetation structure, ground substrates, basking sites etc) and suitable shelter sites to regulate body heat. Such components are crucial as reptiles require differing levels of microhabitat to regulate body heat which controls essential functions such as movement, digestion, respiration and breeding activity (Kaplan, 1996). In this regard, it is considered that habitat for reptile species is present across the site including rank grassland/weedland areas over the majority of the site and a combination of forested areas and weed thickets on the western, southern and eastern fringes on exposed rocky surfaces.

A small variety of snakes and skinks were recorded during fauna survey with those encountered considered to be common occurrences within the locality and will be minimally affected by the proposal via modification of the grassland ground refuge within the area occupied by the development envelope.

4.4.4 AMPHIBIANS

Five (5) species of native frog and one (1) introduced toad were recorded on the subject site. No species listed as endangered or vulnerable under the *Threatened Species Conservation Act 1995* or *Environment Protection and Biodiversity Conservation Act 1999* were recorded on the site during fauna survey works.

Although the site does not contain any permanent waterways, there are some soakage areas that provide breeding habitat for amphibians (some Northern Pobblebonks were heard calling from such a soak). Additionally, some individual *Pseudophryne* sp. were heard calling from the damp leaf litter occurring in the closed forest areas of the site (Aspect North, 2004: 21). The eastern sedgefrog, graceful treefrog and bleating treefrog were also recorded in January 2015 within the western and southern (offsite) forests which contained flowing rocky gullies following rainfall.

Ponded water following rainfall. Community 3 offsite to the south

It is considered that the development envelope (principally cleared and modified exotic grassland) does not contain significant amphibian habitat.

The recorded frog species recorded can be attributed to adult and breeding habitat guilds (per Ecotone, 2007) based upon habitat information (Cogger, 1992; Robinson, 1998; Barker et al, 1995) and breeding information (Anstis, 2002, Tyler, 1999).

TABLE 4: FROG HABITAT GUILDS

FROG HABITAT GUILDS			
Species	**Common Name**	**Adult Habitat**	**Breeding Habitat**
Limnodynastes terraereginae	Northern Pobblebonk	Ground	Lentic Dams and ponds, flooded roadside ditches, swamps.
Litoria fallax	Eastern Sedgefrog	Tree & ground frog	Permanent-temporary pools/lentic. Dams, ponds and swamps especially those with emergent reeds.
Litoria dentata	Bleating Treefrog	Tree & ground frog	Permanent-temporary pools/lentic. Permanent or temporary ponds, ditches and swamps. Calling from trees, the ground, low vegetation or afloat in shallow water.
Litoria gracilenta	Graceful Treefrog	Tree & ground frog	Permanent-temporary pools/lentic. Swamps, roadside ditches, ponds and flooded grassland.
Pseudophyrne coriacea	Red-backed Broodfrog	Ground	Permanent-temporary pools/lentic. Hidden nests under leaf litter, grasses and rocks on moist slopes just above or at the water level of small temporary water courses, ditches or creeks.

5.0 SCHEDULED COMMUNITIES, POPULATIONS AND SPECIES OF CONSERVATION SIGNIFICANCE

A review of the flora and fauna assessments undertaken for the site identifies a number of environmental constraints to any proposed development or activity over the site. Identified constraints include:

- Significant vegetation communities (poorly reserved, rare or vulnerable within UNE region, regionally significant within Tweed Shire etc)
- Potential endangered ecological communities
- Recorded threatened flora species (and associated habitat)
- Recorded or potential occurrence of threatened fauna species (and associated habitat)
- Fauna corridors/linkages

The potential presence of scheduled endangered populations, threatened flora and fauna and declared critical habitats are also discussed below:

5.1 ENDANGERED/THREATENED ECOLOGICAL COMMUNITIES

Endangered ecological communities are listed under Schedule 1, Part 3 of the *Threatened Species Conservation Act 1995*, while threatened ecological communities are listed under the *Environment Protection and Biodiversity Conservation Act 1999* as critically endangered, endangered and vulnerable.

One potential endangered ecological community has been recorded on the subject site:

Table 5: RECORDED ENDANGERED ECOLOGICAL COMMUNITIES

EEC	SITE VEGETATION COMMUNITY
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	VEGETATION COMMUNITY 4

It is recommended that this community be retained in association with the proposal and a weed management plan be implemented to progressively decrease the existing risk of native flora species diversity reduction through exotic species dominance.

5.2 ENDANGERED POPULATIONS

Endangered populations are listed under Schedule 1, Part 2 of the *Threatened Species Conservation Act 1995*. No endangered populations are considered to occur on or proximate to the site with the closest being the 'Cobaki Lakes and Tweed Heads West population of the Long-nosed Potoroo *Potorous tridactylus* (Kerr 1792) in the Tweed local government area.'

This population is assessed in detail within Bali et al (2003) and is remote from the location of this site.

5.3 THREATENED FLORA SPECIES

No flora species listed as endangered or vulnerable under Schedules 1 and 2 of the *Threatened Species Conservation Act 1995* or listed as critically endangered, endangered, vulnerable or conservation dependant under the *Environment protection and Biodiversity Conservation Act 1999* were observed within the development envelope.

The following threatened species were encountered (as documented within Aspect North 2004 or during 2015 investigations) within treed areas external to the development envelope which are recommended to be retained:

TABLE 6: RECORDED THREATENED FLORA SPECIES

SPECIES NAME	TSCA STATUS	VEGETATION COMMUNITY	LOCATED 2014	LOCATED 2015
Lepiderema pulchella	Vulnerable	2 & 4	√	√
Macadamia tetraphylla	Vulnerable	4	√	√
Syzygium hodgkinsoniae	Vulnerable	4	√	√
Syzygium moorei	Vulnerable	4	√	√
Floydia praealta	Vulnerable	4	√	

The following species are also known from the locality based upon recent survey works performed by JWA (2009), Biolink (2008), Planit (2009) and Planit (2013) in nearby areas:

SPECIES	TSC ACT	SOURCE
Acacia bakeri	V	JWA (2009) , Biolink (2008)
Amorphospermum whitei	V	Biolink (2008)
Archidendron hendersonii	V	Planit (2009), JWA (2009), Planit (2013)
Bosistoa transversa	V	JWA (2009)
Cryptocarya foetida	V	JWA (2009), Biolink (2008)
Cupaniopsis newmanii	V	Planit (2009) , Biolink (2008)
Diploglottis campbellii	E	JWA (2009)
Diospyros mabacea	E	Planit (2009)
Diospyros major var ebenus	E	Planit (2009)
Drynaria ruigidula	E	JWA (2009), Planit (2009)
Endiandra hayesii	V	JWA (2009)
Floydia praealta	V	JWA (2009)
Geijera paniculata	E	JWA (2009)
Gossia fragrantissima	E	JWA (2009)
Grevillea hilliana	E	JWA (2009)
Hicksbeachia pinnatifolia	V	JWA (2009)
Lepiderema pulchella	V	JWA (2009), Planit (2009) , Biolink (2008), Planit (2013)
Macadamia tetraphylla	V	JWA (2009), Planit (2009) , Biolink (2008), Planit (2013)
Ochrosia moorei	E	JWA (2009)
Randia moorei	E	JWA (2009), Planit (2009) , Biolink (2008), Planit (2013)
Syzygium hodgkinsoniae	V	Planit (2013)
Syzygium moorei	V	JWA (2009), Planit (2009), Planit (2013)

A search of the *NPWS 'Atlas of NSW Wildlife' [2015]* has determined that twenty-eight species of threatened flora occur within the locality (search area North: -28.17 West: 153.47 East: 153.57 South: -28.27). Based on habitat assessment and the known distribution of these species within the NENSW bioregion, 8 of these species are considered unlikely to be present within the site. It is considered that suitable or potential habitat occurs for 18species, with 5 encountered during field survey (2004 or 2015).

It is considered that preferred habitat for the majority of the nominated species is absent from the development envelope and none were encountered within the area proposed for the roadway and allotments.

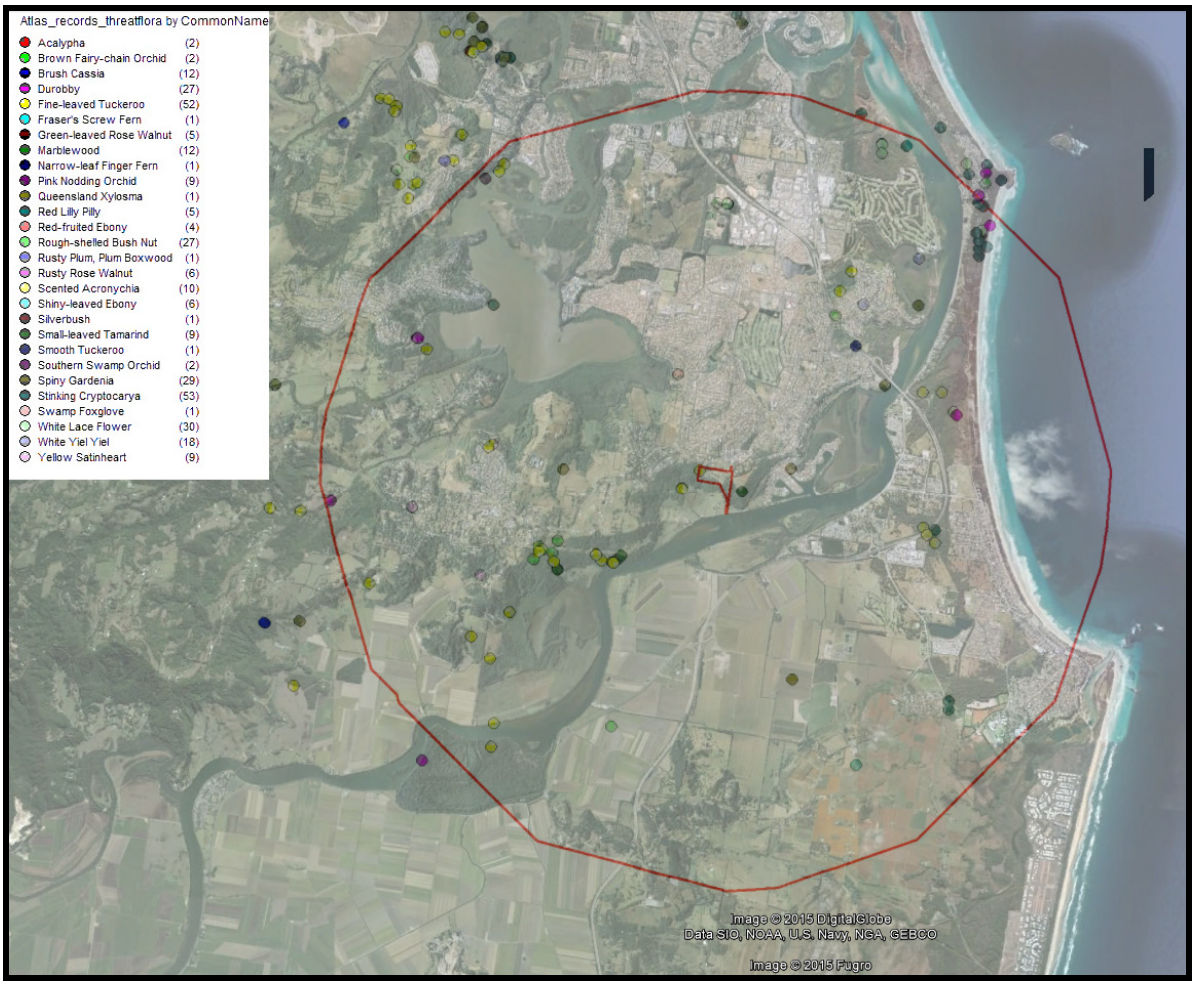


Figure 15: THREATENED FLORA RECORDS 5KM RADIUS FROM SITE

TABLE 7: POTENTIALLY OCCURRING THREATENED FLORA

Species Name	Preferred Habitat	TSCA Status	Comment
Acacia bakeri	*Acacia bakeri* has a restricted distribution in north-east New South Wales and south-east Queensland and is found In or near lowland subtropical rainforest, in adjacent eucalypt forest and in regrowth of both (DEH, 2012 online @http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10004)	V	Not recorded. No impact expected. It is considered that all areas of the site provides potential habitat for this species which is known to occur within otherwise cleared or modified habitat associated within farming lands within the locality (pers. obs).
Acalypha eremorum	This shrub occurs within subtropical rainforest, dry rainforest and vine thickets. Although widespread and moderately common in south-east Queensland, in NSW it occurs in only a few localities, including the Chaelundi, Lismore and Burringbar areas.	E	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Acronychia littoralis	Scented Acronychia occurs from Fraser Island in Queensland to Port Macquarie in NSW. In 1996, the species occurred at 42 sites (Benwell, 1996). Most populations occur in NSW, between Ballina and Tweed Heads. The two Queensland populations include two trees at the Gold Coast and a few individuals in Great Sandy National Park (NP) (EPA, 2007). In NSW, populations are conserved in Bongil Bongil NP, Bundjalung NP, Broken Head Nature Reserve (NR), Cape Byron NR, Brunswick Heads NR, Cudgen Lake NR and Cooloola NP. Scented Acronychia is found on sand in humid, high rainfall zones (greater than 1600 mm), within 2 km of the ocean. The species occurs in transition zones between littoral rainforest and swamp sclerophyll forest; between littoral and coastal cypress pine communities; and margins of littoral forest and cleared land (Harden, 2002). Associated species include *Lophostemon confertus*, *Banksia integrifolia*, *Callitris columellaris*, *Araucaria cunninghamii*, *Eucalyptus intermedia* and *Melaleuca quinquenervia* (Benwell, 1996). Former habitat has been reduced as a result of coastal development, sand mining, waterlogging and land clearing for agriculture (Hunter et al., 1992; Benwell, 1996) [in DSEWPC, 2008:1-2]	E1	Not recorded. No impact expected. Preferred habitat absent.
Archidendron hendersonii	This tree is has been recorded from riverine and lowland subtropical rainforest and littoral rainforest from north Queensland south to the Richmond River in north-east NSW. It is found on a variety of soils including coastal sands and those derived from basalt and metasediments (DECC, 2005). This species is also known from pasture areas associated with deep red soils within the Billambil Valley (pers. obs.)	V	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.

Bosistoa transversa	Three-leaved Bosistoa is known from the Richmond River, NSW, to Mt Larcom near Gladstone, Queensland. This species is conserved within Mt Warning National Park, Numbinbah Nature Reserve, Limpinwood Nature Reserve and Whian Whian State Forest (Floyd, 1989). Population information is unavailable; however, it has been asserted that this species is common in its range (Hartley, 2004, pers. comm.). This species occurs within the Northern Rivers (NSW), Fitzroy, Burnett Mary and South East Queensland Natural Resource Management Regions. Three-leaved Bosistoa grows in wet sclerophyll forest, dry sclerophyll forest and rainforest up to 300m in altitude. Associated vegetation includes *Argyrodendron trifoliolatum*, *Syzygium hodgkinsoniae*, *Endiandra pubens*, *Dendrocnide photinophylla*, *Acmena ingens*, *Diploglottis australis* and *Diospyros mabacea' (DSEWPC, 2008:1-2)*	V	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Cassia brewsteri var.marksiana	This species is known from Brunswick Heads, around Murwillumbah, and north into south-east Queensland as far as Beenleigh where it occurs within Littoral and riverine rainforest, and in regrowth vegetation on farmland and along roadsides (DECC., 2005)	E1	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Centranthera cochinchinensis	In NSW, it is known from only 6 locations from near Wooli to north of Grafton in swampy areas and other moist sites. Two locations occur within conservation reserves, Yuraygir National Park and Fortis Creek National Park (DEC, 2008 online at http://www.environment.nsw gov.au/determinations/CentrantheraCochinchinensis EndSpListing.htm)	E1	Not recorded. No impact expected. Preferred habitat absent.
Cryptocarya foetida	Stinking Cryptocarya is known from Iluka, NSW, to Fraser Island and east of Gympie, southern Queensland where it occurs within littoral rainforest, usually on sandy soils, but mature trees are also known on basalt soils. (DECC, 2005; DSEWPC, 2008)	V	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Cupaniopsis serrata	'Within New South Wales, an historical collection of *Cupaniopsis serrata* has been made from the Tweed River valley. There are no other specimen-backed records in NSW, although there have been a few unconfirmed reports of the species. The preferred habitat in New South Wales for *Cupaniopsis serrata* appears to be sub-tropical and dry rainforest. It is likely that historical decline of the species has occurred due to the reduction of the extent of rainforest in the region' (NSW Scientific Committee, 2003 online @ http://www.environment.nsw.gov.au/determinations/CupaniopsisSerrataEndSpListing.htm).	E1	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Diploglottis campbellii	"The forest types in which the species occurs varies from lowland subtropical rainforest to drier subtropical rainforest with a *Lophostemon confertus* (Brush Box) open overstorey. Hunter *et al*. (1992) showed that the species occurs on basalt-derived soils and also on poorer soils such as those derived from quartz monzonite" (NPWS, 2004: 6).	E1	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.

Diospyros mabacea	This species 'occurs only in north-east NSW. It is found in a few stands on the Tweed and Oxley Rivers, upstream from Murwillumbah, on Stotts Island in the lower Tweed River and one other small population west of Mullumbimby on the Brunswick River. The largest population is in Limpinwood Nature Reserve. It usually grows as an understorey tree in lowland subtropical rainforest, often close to rivers where soils are generally basalt-derived or alluvial (DEC online @ http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10227).	E1	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Diospyros major var ebenus	This species occurs in the understorey of riverine or lowland subtropical rainforest in SEQLD and northern NSW (NPWS, 2002). In NSW this species is found only in Hogans Scrub at North Tumbulgum and on Mount Cougal, in the Tweed Valley (NSW DEH, 2012))	E1	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Endiandra hayesii *&* *Endiandra muelleri subsp. bracteata*	'According to the literature the Green-leaved Rose Walnut is known from north-eastern NSW, north from the Clarence River (where a specimen from Maclean was employed in Hyland's 1989 description) to southern and central Queensland (Hyland 1989). The taxon is not considered threatened in Queensland, and is apparently moderately common. In NSW, records nominally of this taxon are concentrated on the Tweed and Byron coasts, but also extend inland to the hinterland ranges, and south to Tuckean, Bungawalbin and Maclean. The literature states that the Rusty Rose Walnut has a restricted distribution in northern NSW and southern Queensland (Hyland 1989). The type specimen is from Minyon Falls in Nightcap National Park. Records nominally of this species are clustered in the Border Ranges, Nightcap Ranges and surrounds, and at a few scattered near-coastal locations. Harden (2002) gives the Clarence River as the southern limit. In Queensland, the species is apparently very rare, with locations reported by Barry and Thomas (1994) only at Burleigh Heads, Tallebudgera and Springbrook. Records for the combined taxa (E. hayesii and E. muelleri subsp. bracteata) are usually from the poorer soils derived from sedimentary, metamorphic or acid volcanic rocks. Vegetation includes subtropical and warm temperate rainforests and Brush Box forests, including regrowth and highly modified forms of these habitats' (NPWS, 2004: 5).	V	Not recorded. No impact expected. Preferred habitat absent.
Floydia praealta	'The Ball Nut occurs in small, scattered populations from Gympie, Queensland, southwards to the Clarence River in north-east NSW, where it inhabits riverine and subtropical rainforest, usually on soils derived from basalt (DECC, 2005) or in coastal scrub (Foreman, 1995). This species occurs within the Northern Rivers (NSW), Burnett Mary and South East (Queensland) Natural Resource Management Regions' (Environment Australia, 2008:1).	V	Previously recorded within Community 4 although the previous specimen was not encountered within 2015 ground-truthing surveys of vegetation community boundaries. Community 4 will be retained in association with the proposal.

Geodorum densiflorum	This orchid is found in dry sclerophyll forest, often on coastal sand, at lower altitudes, north from the Macleay River on the north coast of NSW (NPWS, 2004 online at http://www.nationalparks.nsw.gov.au /npws.nsf/Content/Geodorum+densiflorum +a+terrestrial+orchid+-+endangered+species+listing)	E1	Not recorded. No impact expected. Preferred habitat absent.
Grammatis stenophylla	The Narrow-leaf Finger Fern is a small fern, growing in small colonies, with hanging or erect fronds which occurs in moist places, usually near streams, on rocks or in trees, in rainforest and moist eucalypt forest. It occurs in eastern Queensland and eastern NSW. In NSW it has been found on the south, central and north coasts and as far west as Mount Kaputar National Park near Narrabrai (DECC, 2005 online @ http://www.threatenedspecies.environment.nsw.gov.au/ tsprofile/profile.aspx?id=10356).	**E1**	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Grevillea hilliana	*Grevillea hilliana* grows in subtropical rainforest, often on basic igneous substrates. It is found north of Brunswick Heads on the north coast of NSW and in Queensland (Makinson in Harden et al. 2000). The only populations currently known in NSW are in the areas of Brunswick Heads and Tweed Heads, in small remnant areas of vegetation (NSW Scientific Committee online @ http://www.environment.nsw.gov.au/determinations/GrevilleaHillianaEndSpListing.htm).	E1	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Lepiderema pulchella	This species occurs within Lowland subtropical rainforest and is largely confined to infertile metasediments in the Tweed Valley (NPWS, 2002).	V	Recorded within Communities 2 and 4. All stems and Communities 2 and 4 will be retained in association with the proposal.
Lindsaea fraseri	OEH (2012) notes that the Frasers Screw Fern occurs on poorly drained, infertile soils in swamp forest or open eucalypt forest (usually as part of a ferny understorey) and is only known from two areas in NSW - near Hastings Point on the Tweed coast and in the Pillar Valley east of Grafton (online @ http://www.environment.nsw.gov.au/threatenedspeciesapp/ profile.aspx?id=10481)	E	Not recorded. No impact expected. Preferred habitat absent.
Macadamia tetraphylla	This species of nut tree is confined chiefly to the Richmond and Tweed Rivers in north-east NSW, extending just across the border into Queensland where it occurs within subtropical rainforest, particularly on basaltic soils. (Williams, Harden and McDonald, UNE, 1984; DECC, 2005). The species is also commonly noted as a paddock tree on soils of basaltic influence and as an ornamental or orchard tree associated with residential and/or rural activities (pers.obs.).	V	Recorded within Community 4. All stems and Community 4 will be retained in association with the proposal.
Niemeyera whitei	Rusty Plum occurs in the coast and adjacent ranges of northern NSW from the Macleay River into southern Queensland where it occurs within rainforest and the adjacent understorey of moist eucalypt forest. Its distributional stronghold is on the mid north coast around Coffs Harbour. (online @ http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10044).	V	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.

Peristeranthus hillii	In NSW this orchid is restricted to coastal and near-coastal environments, particularly Littoral and Lowland Rainforest north from Port Macquarie (DEC, 2005)	V	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Phaius australis	'The Lesser Swamp-orchid is commonly associated with coastal wet heath/sedgeland wetlands (Barry 2005), swampy grassland or swampy forest (NSW DECCW 2005iw) and often where Broad-leaved Paperbark or Swamp Mahogany are found (NH NSW 2006; Sparshott & Bostock 1993). Typically, the Lesser Swamp-orchid is restricted to the swamp-forest margins, where it occurs in swamp sclerophyll forest (Broad-leaved Paperbark/Swamp Mahogany/Swamp Box (*Lophostemon suaveolens*)), swampy rainforest (often with sclerophyll emergents), or fringing open forest. It is often associated with rainforest elements such as Bangalow Palm (*Archontophoenix cunninghamiana*) or Cabbage Tree Palm (*Livistona australis*) (Benwell 1994b; Bishop 1996; Weston in Harden 1993)' [DoE, 2013 online @ http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=5872]	E1	Not recorded. No impact expected. Preferred habitat absent.
Randia moorei	The known range of the Spiny Gardenia extends from Lismore on the north coast of NSW, northwards to the Logan River, southern Queensland (Quinn *et al.* 1995). The Spiny Gardenia occurs in subtropical, riverine, littoral and dry rainforest and sometimes along moist scrubby watercourses. In NSW the species is often found in Hoop Pine (*Araucaria cunninghamii*) - Brush Box (*Lophostemon confertus*) forest with other rainforest elements present in the understorey. Although plants are typically found within rainforest or in Hoop Pine - Brush Box forest, at Terranora in Tweed Shire and on the southern slopes of Mount Chincogan in Byron Shire, the Spiny Gardenia occurs as a scattered remnant shrub in open grazing land that was formerly rainforest (NPWS, 2004: 3-4).	E1	Not recorded. No impact expected. Potential lowland rainforest habitat is present in association with Community 4 and these areas will be retained in association with the proposal.
Sophora tomentosa	The silverbush occurs on "recent sands on frontal coastal dunes. Historic records suggest it was a fairly common plant from Port Stephens northwards. Populations previously recorded from Tweed Heads, Coffs Harbour and Iluka are now thought to be extinct. The currently known southern limit of distribution is at Old Bar, near Taree. The largest known population at Port Macquarie is estimated at up to 500 plants, other populations are of less than 20 plants" NSWSC, 2001 online @ http://www.environment.nsw.gov.au/determinations/SophoraTomentosaEndSpListing.htm).	E1	Not recorded. No impact expected. Preferred habitat absent.
Syzygium hodgkinsoniae	Smooth-bark Rose Apple occurs in riverine rainforest on rich alluvial or basaltic soils, from the Richmond River in NSW to Gympie, Queensland, with a disjunct occurrence in north Queensland (Floyd, 1989; NSW NPWS, 2002). The species occurs mostly as scattered individuals along watercourses, where the habitat is frequently limited and degraded (Landmark Ecological Services, Ecograph & Terrafocus, 1999). There are four recorded individuals in Tweed LGA (Tweed Shire Council, 2002).	V	Recorded within Community 4. All stems and Community 4 will be retained in association with the proposal.
Syzygium moorei	The Durobby occurs in warm, protected, fertile soils in riverine and gully rainforests at low altitudes, along sections of the Richmond, Brunswick and Tweed Rivers in NSW, as well as at three sites in Upper Mudgeeraba Creek and Upper Tallebudgera Creek in south-east Queensland (Floyd, 1989). Rose Apple is most commonly found in Subtropical Rainforest *Argyrodendron trifoliatum* Alliance, including sub-alliance 1 (*Argyrodendron trifoliatum*) on lowland krasnozem; suballiance 2 (*Toona-Flindersia* spp.) on lowland alluvium; and sub-alliance 6 (*Archontophoenix-Livistona*) on alluvium with excess moisture (Floyd, 1990). Stands of the *A. trifoliatum* Alliance originally occurred on the best potential agricultural land, so consequently was mostly cleared, with the exception of small patches occurring in floodprone, stony or poorly drained soils (DSEWPC, 2008:1-2).	V	Recorded within Community 4. All stems and Community 4 will be retained in association with the proposal.

Xylosma terrae-reginae	This species is known from six populations in NE NSW north of Lismore where it occurs in association with Littoral and Sub-tropical Rainforest (NPWS, 2004). Of the six populations only two populations in conservation reserves, at Broken Head and Brunswick Heads Nature Reserves. Individual populations are small and the best estimate of the total population in New South Wales is less than 250 mature individuals (NSW Scientific Committee, 2000 online @ http://www.environment.nsw.gov.au/determinations/XylosmaTerraeReginaeEndSpListing.htm).	E1	Not recorded. No impact expected. Preferred habitat absent.

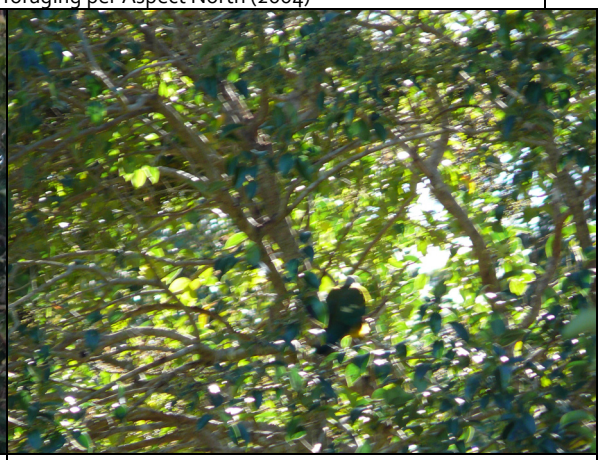
5.4 THREATENED FAUNA SPECIES

A search of the *NPWS 'Atlas of NSW Wildlife' [2013]* has determined that forty-two species of threatened fauna have been previously recorded within the locality (search area North:-28.17 West: 153.47 East: 153.57 South: -28.27). During surveys of the subject site three of these species were recorded:

Table 8: RECORDED THREATENED FAUNA SPECIES

Species	Location Recorded
White-eared Monarch	Recorded within community 4
Wompoo Fruit-dove	Recorded within community 4
Grey Headed Flying Fox	Opportunistic foraging per Aspect North (2004)

White-eared monarch



Woompoo Fruit-dove

Additionally the following threatened fauna species have been recorded during relatively recent ecological surveys in proximate areas.

Species	Location Recorded	Recorded by
Eastern Bentwing Bat	Terranora Lakes Country Club	JWA, 2009
Eastern Freetail Bat		
Grey-headed Flying-fox		
Little Bentwing Bat		
Rose-crowned Fruit-dove		
White-eared Monarch		
Grey-headed Flying-fox	Walmsleys Road, Bilambil	Biolink, 2008
Yellow-bellied Sheathtail-bat		
Eastern Bentwing Bat		
Little Bentwing Bat		
Eastern Long-eared Bat		
Little Bentwing Bat	Scenic Drive, Bilambil	Planit, 2009
Southern Myotis		
Eastern Bentwing Bat		
Rose-crowned Fruit-dove		
Wompoo Fruit-dove		
Grey-headed Flying Fox	Sierra Vista Boulevard, Terranora	Planit, 2013
Little Bentwing Bat		
Southern Myotis		
Eastern Bentwing		
Rose-crowned Fruit-dove		
Wompoo Fruit-dove		
White-eared Monarch		
Osprey		
Collared Kingfisher		
Bush Stone-curlew		
Koala		

A review of available habitats and the ecology of the database listed species (i.e. range, preferred habitat, home range etc) indicate that it is unlikely that all of these previously recorded species in the locality would rely on the habitats of the subject site or be significantly affected by the new subdivision proposal.

Subsequently several such threatened species are considered unlikely to be significantly affected by the proposal for one or more of the following reasons:

- core habitats were not recorded in the study area
- resources used by the species are unlikely to be adversely affected or only likely to be minimally affected by the proposal.

Details of such species requirements and reasons for not considering impacts to these species further are contained within the below Table. A number of threatened species have been excluded from discussion in the below table where they are considered reasonably unlikely occurrences due to the following:

- Being a marine reptile or mammal (i.e. whale, turtle, seal)
- Being a pelagic seabird, wader bird or intertidal zone coastal bird (i.e. tern, godwit, oystercatcher)

For species considered a potential occurrence (based upon distribution, database recording, suitable habitat present etc) or which were recorded within or directly adjacent the site during either survey period and for which it is considered that the species may have the potential to be significantly affected by the proposal (i.e. impact on feeding, roosting, nesting, behaviour and associated habitat), the seven-part test of significance has been performed in Section 6 of this report.

Notwithstanding, all the species tabled below were targeted during the fauna survey or were reviewed in the context of documented ecology and available habitats. It is to be noted that the previous conclusions provided by Aspect North (2004) are agreed with in association with the review.

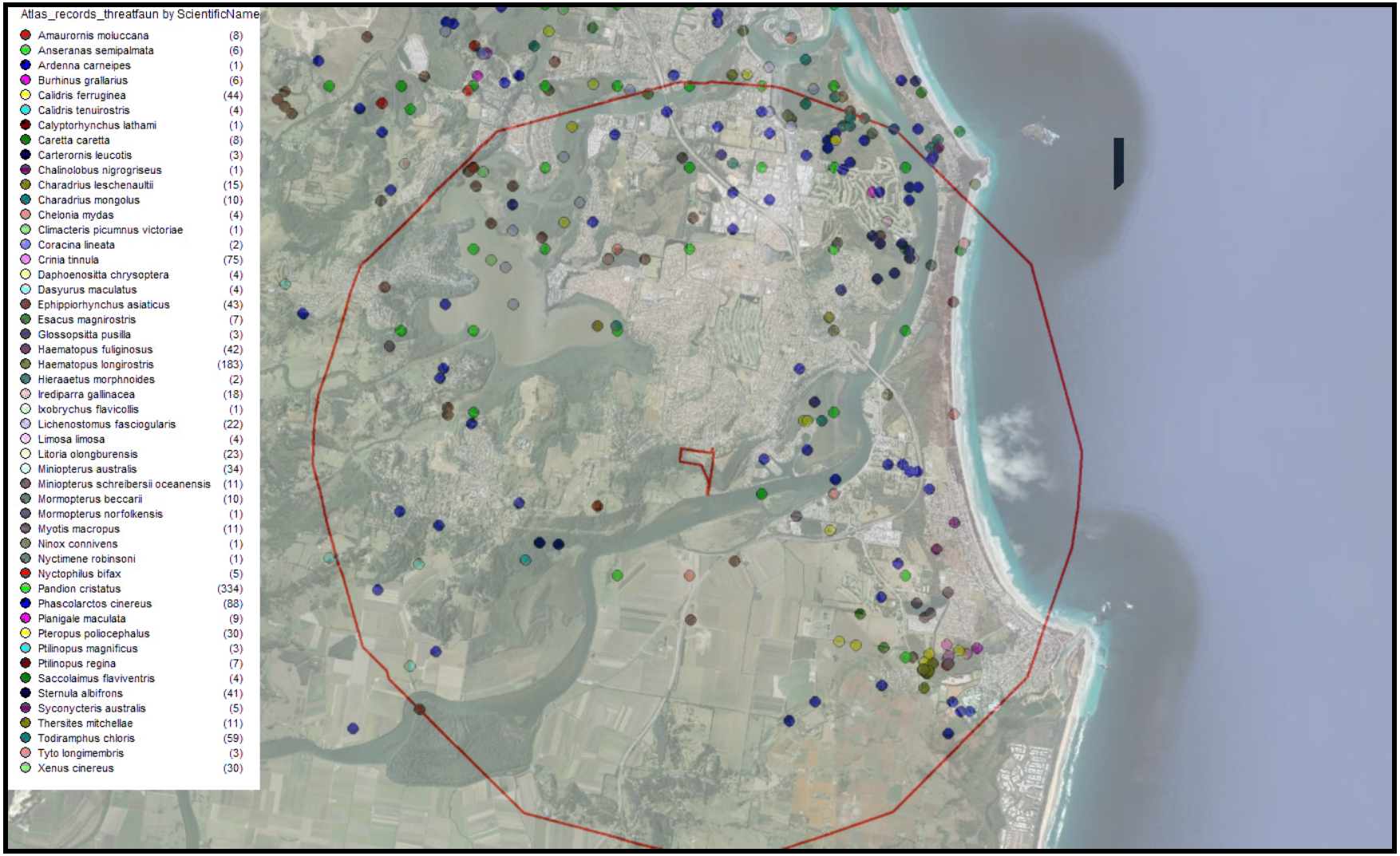


Figure 16: THREATENED FAUNA RECORDS 5KM RADIUS FROM SITE

Table 9: POTENTIALLY OCCURRING THREATENED FAUNA SPECIES

Species	Potential occurrence based upon known habitat and range	Notes	Potential for the species or associated habitat to be impacted upon by proposal
Osprey (*Pandion haliaetus*)	Unlikely	This species is associated with waterbased habitats including estuaries, coastal wetlands, rivers and streams. The Osprey is predominately a coastal raptor frequenting estuaries, bays, inlets, islands and rocky cliffs within all Australian states except for Tasmania and sporadically within Victoria (DEC, 2005; NPWS, 2002). It is noted however, that the species sometimes inhabits inland islands (Pizzey and Knight, 1997; Readers Digest, 2002). Within suitable environment it usually constructs a nest in an overhanging large tree or upon elevated man made structures such as platforms or telegraph poles. The species preys almost exclusively on fish by usually hunting alone and traversing the water's surface for prey which it secures by swooping over the waters surface or plunging below (Readers Digest, 2002; Clancy, 2005). Studies of prey middens on Lizard Island within the Great Barrier Reef also noted that occasional Terns and crustaceans are sourced for food (Smith, 1985). Expansive favoured habitat for the osprey occurs in the locality (in association with the foreshore and river estuaries) although such habitat is absent from the site and the species has not been recorded on the site during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Glossy Black-Cockatoo (*Calyptorhynchus lathami*)	Unlikely	Glossy Black Cockatoos are uncommon parrots found in scattered localities in the forests and woodlands of eastern Australia and Kangaroo Island (Forshaw, 1981). The eastern subspecies of Glossy Black Cockatoos seems thinly distributed through its range with the highest densities occurring in south-eastern Queensland and north-eastern New South Wales (Forshaw, 1989). The main habitat of the eastern subspecies is *Eucalyptus* woodlands and forest with moderate-high densities of *Allocasuarina* which are required for feeding (Clout, 1989; Park & Borsboom, 1996; Forshaw & Cooper, 1989; Crome & Shields, 1992; Cleland & Sims, 1968; Garnett, 1992b; Blakers *et al*, 1984). Suitable senescent trees (large hollow within a live or dead Eucalypt: 10-20m, Depth: 40-120cm, Entry: ~21cm: Inside Dia: ~23cm (Forshaw, 1981; Gibbons & Lindenmayer, 2002)) are also required for nesting. Preferred habitat for the Glossy Black Cockatoo is considered to be absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Varied Sittella (*Daphoenositta chrysoptera*)	Unlikely	"The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands, with a nearly continuous distribution in NSW from the coast to the far west (Higgins and Peter 2002; Barrett *et al.* 2003). It inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee and *Acacia* woodland. The Varied Sittella feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees, and from small branches and twigs in the tree canopy. It builds a cup-shaped nest of plant fibres and cobweb in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years" (DECC, 2009 online @ http://www.environment.nsw.gov.au/determinations/variedsittellapd.htm). Preferred habitat for the Sittella is considered to be absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.

Yellow-bellied Sheathtail (*Saccolaimus flaviventris*)	Possible	This species of bats utilises most habitats across its wide distribution and hunts over the canopy in forested areas and lower within mallee or open country (DECC, 2005). Roosting may occur within hollow trees and buildings and also within caves and derelict mines (NPWS, 2004; Richards in Van Dyck and Strahan, 2008). DECC (2005) notes that in treeless areas the sheathtail bat is known to utilise mammal burrows. This species of bat is known to utilise a wide variety of habitats (including treeless areas) and it has been recorded further to the south east (Kingscliff) by Kendall & Kendall (2008) and northwest (Biolink, 2008). Whilst potential forested and cleared habitat occurs no potential roosting sites were encountered.The sheathtail bat was not recorded via Anabat survey.	Not recorded. Potential foraging habitat abundant. Potential roosting/breeding sites absent Unlikely to be significantly affected by proposal. 7-part test performed
Mitchell's Rainforest Snail (*Thersites mitchellae*)	Possible	This species was formally widely distributed on coastal alluvia between the Richmond and Tweed Rivers (Stanisic, 1998, 2000; NSWNPWS, 2001). NPWS previously funded surveying within northern NSW to determine the extant distribution of the species in relation to its historical distribution. Surveys conducted (1998-2000) have provided limited success with only one robust population being recorded within the region at Stotts Island and evidence of marginal populations present at four additional sites (Stanisic 1998, 2000). An additional population was more recently discovered within Swamp Sclerophyll Forest in Kingscliff (Planit 2002, Stanisic 2003). Within its range the species is restricted to lowland subtropical rainforest and swamp sclerophyll forest with a rainforest understorey, typically on alluvial soils with a basaltic influence (NPWS, 2001, Stanisic 2002). It is considered that site falls within the known range of the snail and potential habitats occur in association with Community 4. No snails (or shells) were encountered in these areas during fauna survey.	All areas of potential habitat will be retained in association with the proposal. This species is considered unlikely to be significantly affected by the proposal.
Comb-crested Jacana (*Irediparra gallinacea*)	Unlikely	This species inhabits deep, permanent freshwater lagoons, swamps and dams with abundant aquatic vegetation, especially water-lilies throughout coastal Australia and well inland in the north from the Kimberley to Sydney (DEC, 2005). The jacana is also know from constructed stormwater wetlands and sewerage treatment ponds containing abundant floating vegetation including areas adjacent to urban development (pers. obs.). A review of the subject site notes that extensive open wetlands with floating vegetation coverage are absent and as such the jacana is considered a reasonably unlikely occurrence and has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Barred Cuckoo-shrike (*Coracina lineata*)	Possible	This species has been recorded from a variety of habitats including rainforest, eucalypt forests and woodlands, clearings in secondary growth, swamp woodlands and timber along watercourses within Coastal NSW (NPWS, 2002). Foraging requirements include fruiting tree species within in rainforest, wet sclerophyll forest, vegetation remnants or isolated trees (DEC, 2005) and insects captured among foliage (NPWS, 2002). Potential habitat is considered to be present in association with Community 4 although the cuckoo shrike was not recorded during fauna survey.	All areas of preferred habitat will be retained in association with the proposal. This species is considered unlikely to be significantly affected by the proposal.

Eastern Long-eared Bat (*Nyctophilus bifax*)	Possible	This species of bat inhabits lowland subtropical rainforest and wet and swamp eucalypt forest, extending into adjacent moist eucalypt forest with coastal rainforest and patches of coastal scrub particularly favoured (DEC, 2005; NPWS, 2002). Roosting occurs within tree-hollows, under bark and/or palm fronds and within dense foliage with a seasonal shift in roost sites from rainforest edges (summer) to the rainforest interior (winter) (NPWS, 2002; Parnaby in Strahan, 2002; Lunney et al, 1995). Churchill (2008) notes that northern NSW the species is restricted to rainforest. Potential habitat for the eastern long-eared bat occurs within Community 4 although no species of Nyctophilus were recorded via previous Anabat survey.	All areas of preferred habitat will be retained in association with the proposal. This species is considered unlikely to be significantly affected by the proposal.
Beccari's Freetail (*Mormopterus beccarri*)	Possible	Beccari's freetail utilises a range of vegetation types including rainforest, riverine and floodplain margins with paperbark and pandanus, eucalypt open forest/woodland and mostly along watercourses (McKenzie & Bullen in Van Dyck and Strahan, 2008). Roosting occurs in tree hollows and under building roofs (Australian Museum, 1999). DECC (2005) notes that the only confirmed record in NSW is of a colony found in the roof of a house in Murwillumbah. Community 4 represents potential habitat for this Freetail Bat although the species has not been recorded during fauna survey. No potential roosting sites will be impacted by the proposal.	All areas of preferred habitat will be retained in association with the proposal. This species is considered unlikely to be significantly affected by the proposal.
Little Eagle (*Hieraaetus morphnoides*)	Unlikely	The Little Eagle occupies habitats rich in prey within open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used (Marchant and Higgins 1993; Aumann 2001a). For nest sites it requires a tall living tree within a remnant patch, where pairs build a large stick nest in winter and lay in early spring (OEH, 2011). Prey species include birds, reptiles and mammals, occasionally adding large insects and carrion (DECC, 2005). Most of its former native mammalian prey species in inland NSW are extinct (terrestrial mammals of rabbit size or smaller, *e.g.* large rodents, bandicoots, bettongs, juvenile hare-wallabies and nailtail wallabies: Van Dyck and Strahan 2008). Favoured habitat for the Little Eagle is considered to be absent from the site and it has not been recorded durinal fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Barking Owl (*Ninox connivens*)	Unlikely	The habitat requirements of the barking owl is summarized in NPWS (2003: 4) from Kavanagh *et al.* (1995a), Debus (1997) and Higgins (1999): The Barking Owl lives in forests and woodlands of tropical, temperate and semi-arid zones. Its habitat is typically dominated by eucalypts, often red gum species and, in the tropics, paperbarks *Melaleuca* species. It usually roosts in or under dense foliage in large trees including rainforest species of streamside gallery forests, River She-oak *Casuarina cunninghamiana*, other *Casuarina* and *Allocasuarina* species, eucalypts, *Angophora* or *Acacia* species. Roost sites are often near watercourses or wetlands. It typically breeds in hollows of large eucalypts or paperbarks, usually near watercourses or wetlands. Barking Owls have been recorded in remnants of forest and woodland and in clumps of trees at farms, towns and golf courses. DECC (2005) notes that large home ranges of 30-200 hectares are occupied by the owl. It is considered that favoured habitat for this species of owl is absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.

Black-necked Stork (*Ephippiorhynchus asiaticus*)	Unlikely	The species is generally associated with wetlands, mudflats, mangroves, swamps and floodplains while it may also sometimes be found in open woodland environs where a grassy understorey is present (NPWS, 2002, Readers Digest, 2002; DEC, 2005). Irrigated lands are also occasionally a foraging resource and it has also been recorded foraging in artificial wetlands of sewerage treatment plants (ERM, 2001). The species has also been recorded foraging within grassed paddocks and pasture areas in Cedar Creek, Mudgeeraba and Coomera (pers. obs.). The stork has been previously observed within Hastings Point foraging within a dredge pond by Planit (2006) and within Saltmarsh habitats at Cobaki (pers obs). The breeding behaviour is poorly understood within information available for NSW (DEC, 2005) noting that breeding activity (from nest construction to fledging of young) occurs from May to January. Most activity, however, takes place between June and December, and clutches present May to September. In NSW, Jabirus usually nest in a tall, live and isolated paddock tree, but also in other trees, including paperbarks, or even lower shrubs within wetlands. The nest is a large platform, 1-2 m in diameter, made in a live or dead tree, in or near a freshwater swamp (DEC, 2005). Preferred habitat for the Jabiru is considered to be absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Grey-headed Flying-fox (*Pteropus poliocephalus*)	Recorded	The Grey-headed Flying-fox inhabits subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps (Eby, 1995). Urban gardens and cultivated fruit crops also provide habitat for this species (NSW NPWS 1999c). Grey-headed Flying-foxes forage on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca, Banksia (Eby, 2000) and fruits of rainforest trees and vines (NSW NPWS 1999c). During periods when native food is limited, Grey-headed Flying-foxes disperse from colonial roosts, often foraging in cultivated gardens and fruit crops (NSW NPWS 1999c). This species roosts in large aggregations or camps in close proximity (20 km or less) to a regular food source, often in stands of riparian rainforest, Paperbark or Casuarina forest (Eby, 1995). This species is a canopy-feeding frugivore, blossom-eater and nectarivore of rainforests, open forests, woodlands, Melaleuca swamps and Banksia woodlands. As such, it plays an important ecosystem function by providing a means of seed dispersal and pollination for many indigenous tree species (Eby 1996; Pallin 2000). Grey-headed Flying-foxes roost in large aggregations in the exposed branches of canopy trees (Ratcliffe 1931, Nelson 1965a, Parry-Jones and Augee 1992). The locations of camps are generally stable through time, and several sites have documented histories that exceed 100 years (Lunney and Moon 1997). Camps provide resting habitat, sites of social interactions and refuge for animals during significant phases of their annual cycle, such as birth, lactation and conception (Parry-Jones and Augee 1992, 2001). On the basis of current knowledge, roosting habitat that meets at least one of the following criteria can be explicitly identified as habitat critical to survival, or essential habitat, for Greyheaded Flying-foxes. Roosting habitat that: 1. is used as a camp either continuously or seasonally in > 50% of years 2. has been used as a camp at least once in 10 years (beginning in 1995) and is known to have contained > 10 000 individuals, unless such habitat has been used only as a temporary refuge, and the use has been of limited duration (i.e. in the order of days rather than weeks or months) 3. has been used as a camp at least once in 10 years (beginning in 1995) and is known to have contained > 2 500 individuals, including reproductive females during the final stages of pregnancy, during lactation, or during the period of conception (i.e. September to May) (in DECCW, 2009) All vegetated areas of the site represent potential habitat for this species and it was encountered at night flying across the site. No evidence of roosting on the site was observed with a colony site noted further to the north within the Terranora Broadwater ('Big Island').	Recorded. Potential habitat abundant. No roosting sites encountered. 7-part test performed

Magpie Goose (*Anseranas semipalmata*)	Unlikely	This species favours coastal wetlands and swamps with prolific reed/sedge growth mostly within northern Australia (NPWS, 2002; Tulloch et al, 1981). Breeding is confined to the northern areas in association with large floodplains of creeks/rivers generally within 80km of the coast (Frith and Davies, 1961). Dense sedge/rush growth within shallow waters in these locations is favoured for nest formation (Tulloch et al, 1981; Bayliss and Yeoman, 1990). Foraging within floodplain grazed paddocks and breeding within constructed stormwater wetlands has also been observed at Carrara on the Gold Coast (pers. obs.). Potential habitat for the magipie goose is considered to be absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Black Bittern (*Ixobrychus flavicollis*)	Unlikely	The species is widely distributed throughout the coastal regions of Australia but is more common in the northern extent of the country. Within its distribution, the species shows a preference for densely vegetated areas within terrestrial and aquatic wetlands. It has been recorded from a variety of vegetation types (including grassland, mangroves, wet sclerophyll forest, rainforest) where permanent water is present (Marchant & Higgins, 1990; Simpson & Day, 1996; NPWS, 2001). In northern NSW black bitterns are most often recorded in riparian habitats along fresh or brackish streams, although the species is also known to utilise drains, permanently inundated swamp forest, and freshwater wetlands (Sandpiper Ecological Surveys, 2003). Potential habitat for the black bittern is considered to be absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Wallum Froglet (*Crinia tinnula*)	Unlikely	This species of wallum frog is found along drainage lines in sub-coastal wet heath, in acid paperbark (*Melaleuca*) swamps, and sedge swamps associated with sandy coastal plains (but rarely from around coastal lakes) and low slopes below 40m altitude and above areas of tidal influence (Ehmann, 1997; Meyer et al, 2006). The habitats in which the wallum froglet species breed are typically oligotrophic (i.e. nutrient poor), tannin-stained and acidic ((pH 4.3-5.2) [QPWS 2001; Meyer et al. 2006; McDonald et al, 2009; Hines et al, 2004]. These attributes may render wallum frog breeding habitat unsuitable for related species (i.e. the common sedgefrog *Litoria fallax*, striped rocketfrog *L. nasuta*, clicking froglet *C. signifera* and beeping froglet *C. parinsignifera*). This could explain why wallum frog species and related species seldom occur together" (Ingram and Corben, 1975; Straughan, 1966 in Myer et al, 2006: 16). The coastal distribution occurs as far north as Litabella National Park on the southeast coast of Queensland south to Kurnell in mid-eastern New South and also upon a number of offshore islands including Fraser Island, Bribie Island, Moreton Island and North Stradbroke Island (BCC, 2010). Breeding usually occurs in autumn or early winter, but has been recorded in all seasons following rain with males vocalising from the base of sedges near water or atop matted sedges (McDonald et al, 2009; Meyer et al, 2006). A regionally significant population of the species is noted to occur within a wide variety of habitats investigated in association with the Tugun Bypass SIS (PB, 2004; Hero et al, 2001). Known habitat broadly encompasses the following vegetation communities: Slashed Heathland, Wet Heathland, Swamp Mahogany Forest, Swamp Mahogany–Brushbox Forest, Littoral Rainforest, Swamp Paperbark Forest and other moist forest types. Breeding is confined to slow-moving water less than 1.5 metres deep within the pH range of 3.0 to 5.2 (PB 2004; 4.23). Preferred habitat for the wallum froglet is considered to be absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.

Wompoo Fruit Dove (*Ptilinopus magnificus*)	Recorded	'In NSW, the Wompoo Fruit-dove occurs in patches of subtropical rainforest and adjoining wet sclerophyll habitats (Recher *et al.* 1995; Higgins & Davies 1996) but has also been recorded using single trees in farmland (Hawkins *in litt.* 2009). They appear to be most abundant in warmer, mature rainforests dominated by *Ficus* spp. (Recher *et al.* 1995; Hawkins *in litt.* 2009) and less common in fragments. Moran *et al.* (2004) classified the Wompoo Fruit-dove as a 'decreaser' on the basis that it was significantly more common in extensive rainforest (2.65 birds per count) than in remnants (1.00 bird per count) or regrowth (0 birds per count). Breeding of the Wompoo Fruit-dove takes place from late winter to mid-summer; varying in response to suitable weather conditions. Both sexes share in the construction of the nest which is a small, sturdy, flat platform made from twigs and is usually positioned low in the tree, between 2-10 m from the ground (Recher *et al.* 1995). As an obligate frugivore it requires a high availability of fruiting materials which it generally feeds on in the high canopy (Recher et al, 1995) but the species will also secure food in the lower storeys of the forest (Higgins & Davies 1996). The Wompoo Fruit-dove selectively forages on species that are more common in well-developed rainforest than in regrowth. Fruit is taken from palms (Arecaceae), vines (Vitaceae) and trees in the families Araliaceae, Cunoniaceae, Ebenaceae, Elaeocarpaceae, Lauraceae, Meliaceae, Moraceae, Myrtaceae, Oleaceae, Pennantiaceae, Rutaceae and Sapindaceae (Innis 1989; Milledge & Bower *in litt.* 2009). Individual mature paddock trees such as figs (*Ficus* spp.) may also be visited during fruiting (Milledge & Bower *in litt.* 2009). The Wompoo Fruit-dove does not travel large distances, but rather moves around in small localised areas in response to food availability and nesting requirements (Higgins & Davies 1996). Nevertheless, the species has a seasonal altitudinal migration, spending time in upland forests during summer and moving to lower elevations during winter (Milledge & Bower *in litt.* 2009). Occasionally, particularly during autumn and winter when rainforest fruit is scarce, individuals will move up to 15 km to temporarily occupy more open country (Higgins & Davies 1996). The species has an estimated home range requirement of approximately 20 ha when breeding (Milledge & Bower *in litt.* 2009).' [in NSW Scientific Committee, 2010:3-4]. Potential habitat for the fruit-dove is considered to be present within Community 4 and it was recorded in this habitat during January 2015 survey works.	Recorded within Community 4. All areas of preferred habitat will be retained in association with the proposal. This species is considered unlikely to be significantly affected by the proposal. 7-part test performed
Eastern Bentwing (*Miniopterus schreibersii oceanensis*)	Possible	This species usually forages on insects within intact, well timbered forest complexes and have been found to roost within caves, tunnels, stormwater culverts or disused mining areas (Strahan eds, 2002; DEH, 2005). They utilise a broad range of habits including wet and dry sclerophyll forest, open woodland, paperbark forests, rainforests and open grasslands (North & Pasic, 2006). Twelve known maternity roost sites occur within its distribution ranging from tens of thousands to >100000 individuals. The known large roost sites are located in limestone and sandstone caves, abandoned gold mines, concrete bunkers and lava tubes. Outside the breeding season the eastern bentwing often selects cool areas within caves, mines, tunnels, drains and bridges (Hoye & Hall in Van Dyck & Strahan, 2008). All forested habitats of the site represent potential habitat for the eastern bentwing which is also known to forage over modified habitats such as grasslands although significant roosting/breeding areas are considered to be absent. The eastern bentwing was not recorded via previous Anabat survey	An insignificant area of marginal potential habitat (i.e. modified exotic grassland) will be removed in association with establishing the subdivision. This species is considered unlikely to be significantly affected by the proposal. 7-part test performed

Common Planigale (*Planigale maculata*)	Unlikely	This species is known to 'inhabit a broad range of habitats incorporating a dense ground cover layer including rainforest, eucalypt forest, heathland, marshland, grassland and rocky areas (Redhead in Strahan, 2002; Lewis, 2005). In northern NSW, it has been suggested that their distribution often corresponds with the low lying flat and undulating areas of the coastal plains often near intensively settled areas (Gilmore and Parnaby 1994 in Lewis, 2005). *Planigale maculata* is an unspecialised predator foraging mainly on insects, other invertebrates, small vertebrates, and occasionally nectar (Callaghan *et al.* 2005 and references therein). *Planigale maculata* is generally most active from slightly before dusk to before sunrise, interspersed with rest periods and periods of high activity, and is capable of eating the equivalent of its own body weight in food daily (Van Dyck 1979). In contrast, Van Dyck (1979) also notes that *P. maculata* has the ability to enter torpor in response to cold weather or food deprivation. Introduced predators of *P. maculata* include cats (Redhead 1995) and dogs (Fleay 1981) with foxes also considered likely predators (Callaghan *et al* 2005). There is currently little movement data available for *P. maculata* although other members of this genus are widely recognised as having a shifting home range in response to local climatic conditions and food resources (Denny 1982; Read, 1982; 1988; and Miller 1998; in Lewis 2004)' (and in Hannah, 2007: 5) A small population of the species has been recently recorded on the northern banks of the Cobaki Broadwater in association with Swamp Mahogany/Brushbox Forest (Ecopro, 2004; Lewis Ecological Surveys, 2004). A population of Planigales is also known further south of the site within the Koala Beach development where the species has been recorded within Brushbox Forest, Tall Eucalypt dominated Wet Sclerophyll Forest, Swamp Forest, Regrowth Eucalypt Forest and utilising artificial habitats within recorded habitats (AKF, 2005; TSC, 2007). Habitat features that appear most important to the local Planigale population include: i) Dense or scattered tree canopy-cover; ii) Dense ground-cover vegetation; and iii) Areas within or adjacent to low-lying sites subject to seasonally wet conditions, with occasional inundation for short periods (AKF, 2005: 7) Preferred habitat for the planigale is considered to be absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Eastern Freetail-bat (*Mormopterus norfolkensis*)	Possible	This species has been recorded in dry eucalypt forest and coastal woodlands but individuals have been captured in riparian zones in rainforest and wet sclerophyll forest and mangrove forests east of the Great Dividing Range (Allison and Hoye, 1995; DEC, 2005). An extensive study near Coffs Harbour found it to be more active on the upper slopes where flyways are large than along creeklines (Hoye, Law and Allison in Van Dyck and Strahan, 2008). The species forages upon insects above the forest canopy or at forest edges (Allison, 1983). It is known to roost in tree hollow, particularly in hollow spouts, but occasionally found in buildings (Gilmore and Parnaby, 1994; Allison and Hoye, 1995; DEC, 2005). Recent studies performed by McConville et al (2013) indicate that mangrove habitats may also provide important roost sites. Favoured dry eucalypt forest habitats are absent from the site although less favoured rainforest habitats are present within Community 4. Hollow bearing trees are scarce although none will be impacted upon by the proposal. The Eastern freetail bat was not recorded via previous Anabat survey	All areas of potential habitat will be retained in association with the proposal. This species is considered unlikely to be significantly affected by the proposal.

Rose-crowned Fruit Dove (*Ptilinopus regina*)	Possible	'The Rose-crowned Fruit-dove inhabits rainforests, especially with vines, and also nearby sclerophyll forests and coastal scrub with abundant fruiting trees or shrubs. The species occurs in small remnants and regrowth patches, and in Camphor Laurel-privet regrowth in farmland. It has a wider habitat and dietary tolerance than the larger, more specialised Wompoo Fruit-dove, which is more restricted to fig-rich rainforest (Higgins & Davies 1996). The Rose-crowned Fruit-dove is not restricted to lowland, larger and denser rainforest, or to northern lowland and basswood forests in winter (Recher *et al.* 1995), but also occurs in the same types as recorded by Recher *et al.* (1995) for the Wompoo, in other moist forest and woodland with abundant fruiting trees, and occasionally in parks and gardens with fruiting trees (Higgins & Davies 1996). The Rose-crowned Fruit-dove feeds on fleshy fruits of rainforest trees, palms and vines, especially native figs, and of introduced weeds such as *Cinnamomum camphora* (Camphor Laurel), privets, *Phytolacca octandra* (Inkweed), *Solanum mauritianum* (Tobacco Bush) and *Lantana camara* (Lantana)' [in NSW Scientific Committee, 2008: 2]. The species is considered a partial migrant and moves north in autumn/winter and returning in spring/summer to breed (Recher et al, 1995). All forested habitats of the site provide potential habitat (particularly Community 4) although the fruit dove was not recorded during fauna survey. The rose-crowned fruit dove has been recorded from nearby areas (Sierra Vista Boulevard) within a variety of lowland rainforest, camphor laurel forest and early regrowth forests (Planit, 2013).	All areas of preferred habitat will be retained in association with the proposal. An insignificant area of marginal potential habitat (i.e. modified exotic grassland) will be removed in association with establishing the subdivision. This species is considered unlikely to be significantly affected by the proposal. 7-part test performed
Hoary Wattled Bat (*Chalinolobus nigrogriseus*)	Unlikely	In NSW the Hoary Wattled Bat occurs in dry open eucalypt forests, favouring forests dominated by Spotted Gum, boxes and ironbarks, and heathy coastal forests where Red Bloodwood and Scribbly Gum are common. Because it flies fast below the canopy level, forests with naturally sparse understorey layers may provide the best habitat (DEH, 2012 online @ http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10158). This species is a continuous flight forager that primarily searches for a variety of insects close above the canopy and within openings in forested habitat (Fenton 1982, Allison 1995, Churchill 1998). It also forages over open ground adjacent to forested habitat (McKenzie and Rolfe 1986). The presence of insects, such as wingless ants, in scats suggests that some gleaning off foliage and other surfaces occurs (Vestjens and Hall 1977, Allison 1995) in Lumsden et al, 2005: 131). Roosting has been recorded in tree hollows and rock crevices (Kutt et al in Van Dyck and Strahn, 2008). Favoured habitat for the hoary wattled bat is considered to be absent from the site and it was not recorded via previous Anabat survey	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Common Blossom Bat (*Syconycteris australis*)	Unlikely	This species is one of the smallest members of the flying fox family (Pteropodidae) and is considered to be a specialist pollen feeder favouring Banksia, Melaleuca, Callistemon and certain species of Eucalypt (Strahan eds, 2002). Required habitats include Coastal rainforest, heathlands and Melaleuca swamps. Roosting is noted to occur in Littoral Rainforest with foraging occurring in proximate heathland and melaleuca forest primarily on the flowers of Banksia integrifolia (Law, 1993; 1994; 1996) It is noted that the Blossom Bat has been encountered within the region including at Koala Beach to the south (Hannah & Lewis, 2007) with significant habitat plantings also occurring at Casuarina Beach. Potential habitat for the Blossom Bat is considered to be absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.

Little Bentwing Bat (*Miniopterus australis*)	Possible	This species utilises well-timbered habitats including rainforest, *Melaleuca* swamps and dry sclerophyll forests where it It feeds on insects within the canopy and requires caves, mines, stormwater drains and/or tree hollows to roost (Strahan eds, 2002). DECC (2005) note the following additional particulars with regard to the little bentwing bat: • Maternity colonies form in spring. Males and juveniles disperse in summer. • Only five nursery sites /maternity colonies are known in Australia. • Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas. • Little Bentwing-bats roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day, and at night forage for small insects beneath the canopy of densely vegetated habitats. • They often share roosting sites with the Common Bentwing-bat and, in winter, the two species may form mixed clusters. • In NSW the largest maternity colony is in close association with a large maternity colony of Common Bentwing-bats (*M. schreibersii*) and appears to depend on the large colony to provide the high temperatures needed to rear its young. Vegetation community 4 represents potential habitat for the little bentwing bat although roosting sites were not observed. The species was not detected via previous Anabat survey although it is commonly encountered within the locality (pers. obs.)	All areas of preferred habitat will be retained in association with the proposal. This species is considered unlikely to be significantly affected by the proposal.
White-eared Monarch (*Monarcha leucotis*)	Recorded	This species generally occurs within Coastal/Subtropical/Littoral Rainforests and occasionally Eucalypt/Riparian Forest, Mangroves and Swamp Sclerophyll with mesomorphic understorey along the eastern coast of Australia from Cape York to the Tweed River (Readers Digest, 2002; DEC, 2005). In NSW, White-eared Monarchs occurs in rainforest, especially drier types, such as littoral rainforest, as well as wet and dry sclerophyll forests, swamp forest and regrowth forest. • They appear to prefer the ecotone between rainforest and other open vegetation types or the edges of rainforest, such as along roads. • They are highly active when foraging, characteristically sallying, hovering and fluttering around the outer foliage of rainforest trees. They are usually observed high in the canopy or subcanopy. • They eat insects, but their diet is not well studied. • They breed from about September to March, usually nesting high in the canopy, and often at the edge of patches of rainforest. (DEH, 2012 online@ http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10540) All forested habitats of the site provide potential habitat (particularly Community 4) and the species was encountered within Community 4 during 2015 survey works. The monarch has been recorded from nearby areas (Sierra Vista Boulevard) within a variety of lowland rainforest, camphor laurel forest and early regrowth forests at the edges of grazed paddocks (Planit, 2013).	Recorded within Community 4 All areas of preferred habitat will be retained in association with the proposal. This species is considered unlikely to be significantly affected by the proposal. 7-part test performed
Bush-hen (*Amaurornis olivaceus*)	Unlikely	This species favors coastal rivers and inlets from the Clarence River, north. It prefers densely overgrown margins of permanent terrestrial freshwater wetlands such as creeks and rivers, billabongs, ponds, swamps, waterholes, dams, lakes and roadside ditches (Muranyi and Baverstock, 1996). Three Bush-hens were recorded from Swamp Mahogany Forest in areas NE of the Cobaki Broadwater in association with fauna survey works undertaken in association with the Tugan Bypass SIS (Ecopro, 2004). Preferred habitat for the bush-hen is considered to be absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.

Spotted-tailed Quoll (*Dasyurus maculatus*)	Unlikely	The species has been recorded from a wide range of habitats such as rainforest, open forest, woodland, coastal heathland, and inland riparian forest (Edgar and Belcher, 2002; Forest Practices Board, 2002). Additional habitat requirements include suitable den sites (such as hollow logs, tree hollows, rock outcrops or caves) and an abundance of food (such as birds and small mammals) (NSWNPWS, 1999; Edgar & Belcher, 2001; Belcher, 2000; Jones & Ross, 1996). Habitat range for males has been estimated to be as large as 2000-2200 hectares per individual, while for females, which are more protective of their dens, this value is considerably less at between 700-850 hectares per individual (Belcher, 2000; NPWS, 1999). In addition Quolls are known to frequently swap dens and disperse large distances on any one night. A radio-tracking survey performed by Andrew (2005) noted that quolls generally moved to a new den each day and 90% of stays for females and 76% of stays for males were for a single day. Population density is therefore naturally quite low and has been estimated at 1 individual per 3 km^2 even within optimal 'core' habitat (Jones & Rose, 1996). Whilst potential habitat is present within Community 4 in the form of rainforests containing rocky debris plus fallen debris including logs it is considered that the residual patches of potential habitat are too small to support a population of the species and isolated from similar habitats (numerous dispersal barriers including development, farmland, swamps/creeks etc). Trapping surveys plus spotlighting and latrine searches, failed to yield any evidence of quoll activity on the site.	All areas of preferred habitat will be retained in association with the proposal. This species is considered unlikely to be significantly affected by the proposal.
Little Lorikeet (*Glossopsitta pusilla*)	Unlikely	"The distribution of the Little Lorikeet extends from just north of Cairns, around the east coast of Australia, to Adelaide. In New South Wales Little Lorikeets are distributed in forests and woodlands from the coast to the western slopes of the Great Dividing Range, extending westwards to the vicinity of Albury, Parkes, Dubbo and Narrabri (Barrett *et al.* 2003). There is no evidence of regular migration, but Little Lorikeets are generally considered to be nomadic (Higgins 1999), with irregular large or small influxes of individuals occurring at any time of year, apparently related to food availability. Little Lorikeets mostly occur in dry, open eucalypt forests and woodlands. They have been recorded from both old-growth and logged forests in the eastern part of their range, and in remnant woodland patches and roadside vegetation on the western slopes. In south-east Queensland (Smyth *et al.* 2002), Little Lorikeets were more likely to occupy forest sites with relatively short to intermediate logging rotations (15–23 years) and sites that have had short intervals (2.5– 4 years) between fires" (DECC, 2009 online @ http://www.environment.nsw.gov.au/determinations/littlelorikeetpd.htm) NSW DEH notes the following with regard to breeding: • Roosts in treetops, often distant from feeding areas. • Nests in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Entrance is small (3 cm) and usually high above the ground (2–15 m). These nest sites are often used repeatedly for decades, suggesting that preferred sites are limited. Riparian trees often chosen, including species like *Allocasuarina*. • The breeding biology of Little Lorikeets is little known, except for long-term observations (43 years) on the north-western slopes by Courtney and Debus (2006). This work, consistent with anecdotal records from around the country, indicates that nest hollows are located at heights of between 2 m and 15 m, mostly in living, smooth-barked eucalypts, especially Manna Gum *Eucalyptus viminalis*, Blakely's Red Gum *E. blakelyi* and Tumbledown Gum *E. dealbata*. • Hollow openings are very small, approximately 3 cm in diameter, and are kept open by the activities of the occupants, which use their beaks to bite away living bark from around the opening. When nest hollows are deserted, e.g. after storm-damage to trees, hollows can close over within 14 months (Courtney & Debus 2006). Nest hollows are occasionally located in dead trees, but birds generally desert hollows within two years of tree death. Nest-hollows are used "traditionally", with the same hollow known to be occupied for at least 29 years (not necessarily by the same individuals) (Courtney & Debus 2006). • The breeding season extends from May to September (Higgins 1999) and, if eucalypt nectar and pollen are available throughout this period, two broods of fledglings can be raised in a season. Clutch size is three to five eggs (Higgins 1999) and broods of three	Unlikely to be significantly affected by proposal. Preferred habitat absent.

		and four young have been recorded, with a single fledgling recorded from one nest (Courtney & Debus 2006). (online @ http://www.environment.nsw.gov.au/threatenedspeciesapp/ profile.aspx?id=20111 and http://www.environment.nsw.gov.au/determinations /littlelorikeetFD.htm) Long term investigation of the breeding population on the north-western slopes indicates, that breeding birds are resident from April to December, and even during their non-resident period, they may return to the nest area for short periods if there is some tree-flowering in the vicinity (Courtney & Debus 2006). Preferred dry sclerophyll/eucalypt forests are absent from the site which is well removed from known breeding grounds of the little lorikeet. The distance of the site from preferred foraging areas proximate to the Great Dividing Range reduces the importance of the site for the little lorikeet which was not recorded	
Wallum Sedge-frog (*Litoria olongburensis*)	Unlikely	This species is known from a variety of coastal sandy vegetation communities associated with wallam (banksia) including heathland, sedgeland, melaleuca forest/woodland and ephemeral wetlands with a preference for acidic (low pH) seasonally inundated sedge swamps for breeding. The known distribution includes such lowland coastal zones from Fraser Island (southeast QLD) to Yuraygir National Park (north-east NSW) including several offshore islands such as Fraser Island, Bribie Island, Moreton Island and North Stradbroke Island (DSEWPC, 2011; Meyer et al, 2006; BSC, 2010). A review of the modeled distribution of *Litoria olongburensis* (DSEWPC, 2011) notes that the species is neither mapped as 'known/likely to occur' nor 'may occur' on the mainland between approximately Tugun and Beerwah. At swamp sites, the Wallum Sedge Frog can be found sheltering amongst sedges, reeds and ferns all year round (Anstis 2002; Ehmann 1997; Ingram & Corben, 1975; James, 1996; Lewis & Goldingay, 2005; Liem & Ingram, 1977; Neilson, 2000 in DSEWPC, 2012). During wet periods the frog can be found on emergent vegetation (rushes, sedges, ferns) whilst during drier periods it may be found at the base of such vegetation (BSC, 2010). Breeding occurs after rain in spring, summer and autumn within acidic, permanent to ephemeral freshwater wetlands with emergent vegetation, most notably sedges, reeds or ferns in still water 0.5-1.5m deep (Hines et al, 2004). These wetlands (wallum swamps, bogs, lakes or creeks), which are considered habitats critical to the survival of the species, typically overlie deep, low-nutrient, sandy soils where groundwater levels are characteristically high (Wallum Sedge Frog Workshop 2010 in DSEWPC, 2012; Meyer et al, 2006). Consequently, numerous survey guidelines indicate that searches for the species are best undertaken during the warmer months as activity may be increased. It is noted, however, that studies undertaken over a four year period in northeastern NSW (Lewis and Goldingay, 2005) resulted in counts of individuals of *Litoria olongburensis* being higher in winter than in summer. Additional activity information obtained noted that counts of adults were negatively influenced by rain during the previous day, but positively influenced by rain the previous week. Counts of juveniles were influenced by rain during the previous three months (Lewis and Goldingay, 2005). A significant population of the species is noted to occur within restricted wallum habitats on Gold Coast airport lands investigated in association with the Tugun Bypass SIS (PB, 2004; Hero et al, 2001; BAAM, 2005). Breeding habitat is characterised by low pH and relatively deep pools with some capacity to retain water for longer periods with six ponds of breeding importance located proximate to the Gold Coast Airport (Hero et al, 2001). It is noted that purpose built frog ponds established adjacent the airport site have been re-colinised by the wallum sedgefrog post construction of the Tugun Bypass (QDTMR, 2007). "The context of the Tugun population with respect to other populations of the frog is as follows: • It is an isolated population that is 30-40km to the north of the nearest known population in the Pottsville Area, New South Wales and 45 km to the nearest known population in the north, North Stradbroke Island, Queensland. • It also most likely occurs on South Stradbroke Island, which is about 16km north of Tugun. • The nearest known mainland population in Queensland is at Beerwah about 100km to the north. However, it is known from in between on the major Moreton Bay Islands of Bribie, Moreton and North Stradbroke. The Stradbroke Islands were apparently connected to each other and the mainland at Southport during European memory. Preferred habitat for the wallum sedge-frog is considered to be absent from the site and it has not been recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.

Bush Stone-curlew (*Burhinus grallarius*)	Possible	In NSW, Bush Stone-curlews occur in lowland grassy woodland and open forest. Habitat is described by broad ground and understorey structural features and is not necessarily associated with any particular vegetation communities. In general, habitat occurs in open woodlands with few, if any, shrubs, and short, sparse grasses of less than 15cm in height, with scattered fallen timber, leaf litter and bare ground present. In coastal areas, structurally similar elements of tidal and estuarine communities provide suitable habitat, for example Bush Stone curlews are recorded within Casuarina woodlands, saltmarsh and mangroves (Price 2004). The important structural elements of Bush Stone-curlew habitat appear to be: o a low sparse ground cover o some fallen timber and leaf litter o a general lack of a shrubby understorey o open woodlands (DECC, 2006: 8) Foraging however, has been noted to occur over a broader spectrum of habitats including paddocks, grasslands, domestic areas (gardens, sports fields, [golf courses, residential areas pers. obs] etc), estuarine areas (mudflats, saltmarsh, mangrove forest, swamp oak, melaleuca forest) (NPWS, 1999; 2006). The Bush Stone-curlew nests on the ground, near dead timber, usually under trees within open woodlands that have an understorey of short grass or among brushwood (Wilson 1989 in NPWS, 1999). The nest site is typically in or near the edge of open grassy woodland or within a cleared paddock where there is good visibility across the surrounding lands (Johnson and Baker-Gabb 1994 in DECC, 2006). In modified environments the species is also noted to nest within various areas where they are protected from dogs and cats (i.e. golf courses, garden beds, shade houses etc pers. obs.). As the species utilizes a wide range of habitats (including modified residential areas) it is considered most of the site represents potential habitat. Favoured grassy woodland areas are, however, absent and the Stone-curlew has not been recorded on the site during fauna survey.	An insignificant area of marginal potential habitat (i.e. modified exotic grassland) will be removed in association with establishing the subdivision. This species is considered unlikely to be significantly affected by the proposal. 7-part test performed
Collared Kingfisher (*Todiramphus chloris*)	Unlikely	This species is recorded in coastal Australia from Shark Bay to the Clarance River where it is almost exclusively associated with mangrove and estuarine areas (NPWS, 2005; Readers Digest, 2002). Previous studies further north within the estuarine and riparian zones of the Cobaki Broadwater estuarine zone have recorded the species at up to 3.5 birds/ha (Sandpiper Ecological, 2001). Favoured habitat for the kingfisher is considered to be absent from this site and it was not recorded during fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Mangrove Honeyeater (*Lichenostomus fasciogularis*)	Unlikely	In NSW this species primary habitat is mangrove forest where a few colonies exist at scattered localities, including the Tweed, Richmond and Clarence River estuaries and Stuarts Point south of Macksville (DEC, 2005). The honeyeater has also been recorded from other coastal forest types including casuarinas and paperbark forest (DEC, 2005). It is noted that the honeyeater appeared to be resident within the mangrove habitats fringing the Cobaki Broadwater during 2001 fauna surveys (Sandpiper Ecological Surveys). Preferred habitat for the mangrove honeyeater is considered to be absent from the site although such areas are present to the south (Tweed River) and abundant further to the north (Terranora Broadwater).	Unlikely to be significantly affected by proposal. Preferred habitat absent.
Grass Owl (*Tyto capensis*)	Unlikely	This species is generally recorded within tussock-grasslands but has also been noted to occur within heathland, swamps, coastal dunes, tree-lined creeks, treeless plains, mangrove fringes, grassy gaps between trees and crops and sugar cane plantation (Garnett and Crowley 2000; Pizzey and Knight, 1997). Within these habitats it sources a wide range of prey including birds, insects and terrestrial mammals. However, it feeds predominately on rodents and its population numbers can fluctuate wildly with the rise and fall of prey populations (Olsend and Doran, 2002). The fall of primary prey species following plague events (during which owl breeding increases) can result in widespread dispersal by the Owls with starvation also noted as the forage base reduces (Debus et al, 1998). Preferred habitat for the Grass Owl is considered to be absent from the site and traversal of rank pasture/exotic grassland and amplified call playback session did not record the species.	Unlikely to be significantly affected by proposal. Preferred habitat absent.

Large-footed Myotis (*Myotis macropus*)	Unlikely	The Myotis roosts within caves, tunnels, hollow-bearing trees, bridges, buildings and dense tree foliage always in close proximity to permanent water (NPWS, 2002; Richards, 2002). It forages over waterbodies where it scoops insects and small fish from the water surface or catches insects aerially (DEH, 2005; Menkhorst, 1996; Richards, 2002). It has been recorded foraging over small creeks, coastal rivers, estuaries, lakes and inland rivers (Law & Anderson, 1999) and other smaller waterbodies including farm dams (Law et al, 1998). Whilst the myotis is commonly recorded within the locality the absence of suitable roosting sites and water surfaces for foraging limits its potential occurrence on this particular site. The myotis has not been recorded during previous fauna survey.	Unlikely to be significantly affected by proposal. Preferred habitat largely absent.
Koala (*Phascolarctos cinereus*)	Unlikely	This species primarily occurs within Eucalypt Forest and Woodlands containing a suitable density of favoured food trees within coastal eastern and southeastern Australia. Preferred habitat generally contains a high percentage of primary food trees although underlying geology and soil type can be an important factor. Eucalypt Forests associated with drainage lines and floodplains of richer soil types (i.e. moisture and nutrients) can also be favoured due to feed trees containing higher levels of nutrients and less potential for toxicity (Hindell & Lee, 1990; Moore & Foley, 2000). Within SEQLD six primary foraging trees were identified by Pahl (1993); Tallowwood (*Eucalyptus microcorys*), Blue Gum (*E. tereticornis*), Scribbly Gum (*E. racemosa*), Grey Gum (*E. propinqua*), Red Mahogany (*E. resinifera*) and White Stringybark (*E. tindaliae*). Further research undertaken by Phillips & Callaghan (1996) in Tweed Shire indicates that Swamp Mahogany (*E. robusta*) and Blue Gum (*E. tereticornis*) [including hybrids of the two] on alluvial deposits and Quaternary and Neranleigh-Fernvale Group geomorphologies were considered to be primary habitats. Areas with sub-dominance of these species on Neranleigh-Fernvale alliances supporting Blue Gum (*E. tereticornis*), Tallowwood (*E. microcorys*) and/or Grey Gum (*E. propinqua*) comprise secondary habitat or primary habitat depending on the density of the latter two species. Phillips & Callaghan (1998) also noted Tallowwood to be a primary browse species and two types of Grey Gum (*E. propinqua, E. biturbinata)* to be secondary browse species in Currumbin. Recent studies (Biolink, 2007) indicate that *Eucalyptus tereticornis, E. microcorys* and *E. propinqua/E. biturbinata* are the most preferred koala food trees throughout the Gold Coast LGA. Within the Tweed Coast Swamp Mahogany *Eucalyptus robusta* and Forest Red Gum *E. tereticornis* are the most preferred tree species with Tallowwood *E. microcorys* and Grey Gum *E. propinqua* being the next most preferred (Biolink, 2011). Within utilized Eucalypt Forest habitat the koala spends most of its time in distinct home-ranges which may overlap if available habitat area is reduced. Males are territorial but a dominance-hierarchy exists and they may attack during the summer breeding season. Home ranges of the species are considered to be large and can vary dependent upon habitat quality and extent. Studies have shown various home range sizes exist with the males usually larger than the female (Male 135ha, Female: 110ha [Ellis et al, 2002], Male: 34.4ha, Female: 15ha [White, 1999]). A review of a number of published scientific reports notes that Koala density generally ranges between 0.02 and 1.26 animals per hectare. Densities are considered to vary dependent upon habitat quality, size, connectivity, presence of impediments to movement (stock fences, dogs, roads etc).	Unlikely to be significantly affected by proposal. Preferred habitat absent.

Source	Study Location	Habitat Type	Additional Comments	Koala/ha
Dique et al, 2003	Southeast QLD Pine Rivers Shire	Tall shrubby open forest (Tertiary surfaces) and Tall open forest upon metamorphics	Stratified by two habitat descriptions 'urban' and 'bushland'	0-0.76
Dique et al, 2004	Southeast QLD Koala Coast ~375km^2 of Redland, Logan and Brisbane City shires	Eucalypt Forests. Predominately RE 12.9-10.4 & 12.11.5	Study stratified by habitat descriptions: 'urban', 'remnant bushland', 'bushland' and 'other'. Remnant and bushland areas further stratified by proximity to the centre of the study area (high density=close to centre, low density=further away)	Range 0.02-1.26 Urban: 0.17 +/-0.013 High remnant: 0.70 +/-0.023 Low remnant: 0.20 +-/0.014 High bushland: 0.30+/-0.006 Low bushland: 0.11 +/-0.007 Other: 0
White and Kunst 1990	Southeast QLD Sheldon	Eucalypt Forest		0.4 (0.3-0.46)
Sullivan et a 2004	Southwest QLD	Eucalypt Forest/woodland within the mulgalands	Habitat stratified by floristics and landzone.	0.0007-2.513
Biolink 2007	Coombabah Koala Habitat Area	Mapped gold coast city vegetation (per Ryan et al, 2003) filtered to exclude communities not containing eucalypts	Spot assessment technique for koala faecal pellets.	0.22+/-0.04
Biolink 2007	Coomera- Pimpama Koala Habitat Area	Mapped gold coast city vegetation (per Ryan et al, 2003) filtered to exclude communities not containing eucalypts	Spot assessment technique for koala faecal pellets.	0.23+/-0.03

Preferred eucalypt forest/woodland habitat is considered to be absent from the site and the koala has not been recorded during fauna survey.

5.5 CRITICAL HABITAT

Critical habitat listed under the *Threatened Species Conservation Act 1995* includes:

- Bomaderry zieria within the Bomaderry bushland
- Eastern Suburbs Banksia Scrub Endangered Ecological Community
- Wollemia nobilis (the Wollemi pine)
- Gould's Petrel
- Little penguin population in Sydney's North Harbour
- Mitchell's Rainforest Snail in Stotts Island Nature Reserve

The proposed development will not impact upon any of these declared critical habitats.

5.6 WETLANDS AND WATERWAYS

A review of SEPP14 and TVMP drainage line mapping indicates that no wetlands or waterways are present on the site. No creeks, streams, constructed drainage lines, dams, wetlands or rivers were encountered during inspections of the land.

5.7 FAUNA CORRIDORS/LINKAGES

Wildlife corridors can be defined as 'retained and/or restored systems of (linear) habitat which, at a minimum enhance connectivity of wildlife populations and may help them overcome the main consequences of habitat fragmentation' (Wilson & Lindenmayer, 1995). Corridors can assist ecological functioning at a variety of spatial and temporal scales from daily foraging movements of individuals, to broad-scale genetic gradients across biogeographical regions (Parsons Brinkerhoff, 2005).

Corridors serve a number of different functions in terms of biodiversity conservation including:

- providing increased foraging area for wide-ranging species
- providing cover for movement between habitat patches, particularly for cover dependent species and species with poor dispersal ability and enhancing the movement of animals through sub-optimal habitats
- reducing genetic isolation by maintaining continuity between sub-populations in a metapopulation and thereby preventing and /or reversing localised extinction
- facilitating access to a mix of habitats and successional stages to those species which require them for different activities (for example, foraging or breeding)
- providing refuge from disturbances such as fire
- providing habitat in itself (Wilson, A. & Lindenmayer 1995; Lindenmayer, 1994; Bennett, 1999).

How species use the corridor network will depend largely on the home and activity ranges of the species, their habitat requirements and the ecological characteristics of the corridor. For example, some large or mobile species may make direct movements through the corridor network, moving from one patch of habitat to another. These direct movements may be on the scale of a foraging expedition or a migration (Bennett 1990b). Other species may have movements by single individuals punctuated by pauses in the corridor, which can last anything from a small foraging or resting bout to weeks and even months. If the corridor contains sufficient resources to maintain a population, then continuity through the corridor may be through gene flow through the resident population (Bennett 1990b; Wilson, A. & Lindenmayer 1995).

For example a mobile species with a large home range (i.e. koala) may regularly traverse a corridor to move between favoured feeding grounds or in attempt to access mates, whereas a species with a comparably minor home range (i.e. antechinus) may spend its entire life within a portion of the same corridor.

It is noted that parts of the site are nominated as being located within a fragmented sub-regional corridor connecting the site to the east and the Tweed River at Stotts Island. Development of the site would be suitably responsive to this conceptual mapping via the consolidation of impacts within the northern/central cleared and modified grassland areas and retention of the fringing treed areas.

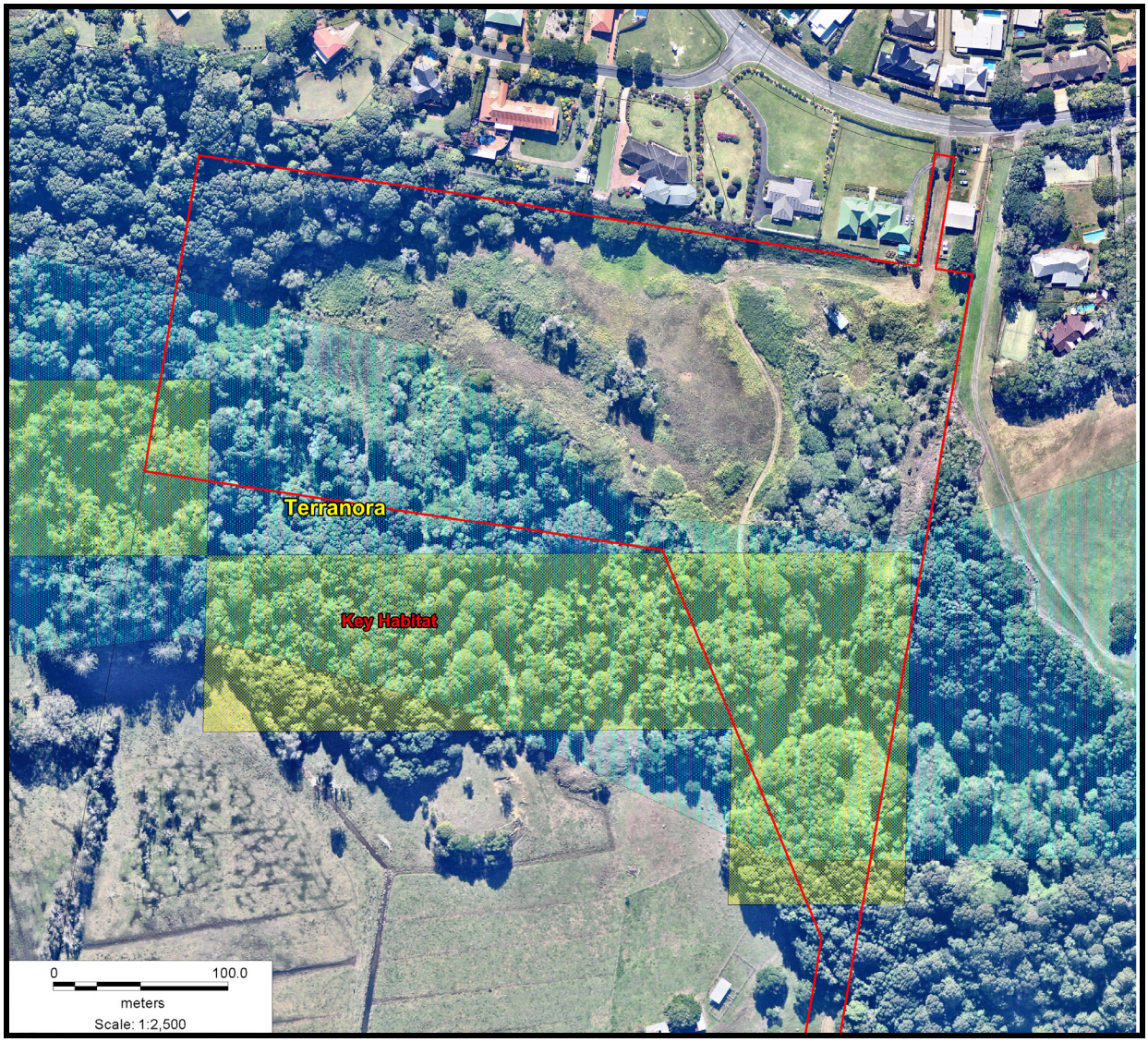


Figure 17: NENSW KEY HABITATS AND CORRIDORS MAPPING

6.0 STATUTORY CONSIDERATIONS – THE 7-PART TEST OF SIGNIFICANCE

Further to the provisions of Schedules 1 and 2 of the *Threatened Species Conservation Act 1995*, Section 5A of the *Environmental Planning and Assessment Act 1979* (the '7-Part Test') is applied to assess any potentially adverse impacts of the site-proposal on threatened species, populations and/or communities occurring within the site or surrounding locality.

The Assessment of Significance is not a 'pass/fail' test or technique based on a scoring system. Instead, the outcome of each factor needs to be considered as to whether effects are likely and whether they are significant (NPWS 1996a).

It is further noted that a positive finding in respect of one or more factors of the 7-part test of significance does not necessarily lead to the conclusion that an SIS is then required (Talbot in Gales Holdings Pty Ltd v Tweed Shire Council [2006] NSWLEC 212). Rather it allows consideration as to whether a particular effect may be present or occur as a result of the development and whether that effect is likely to be significant.

The 7-Part Test is applied to scheduled flora, fauna, populations and communities (where applicable) to assess potentially adverse impacts of the proposal on threatened species, populations or communities identified on or likely to utilise the site based on available habitat components, geography and local environmental conditions.

Note that threatened species, populations and/or communities have been excluded from this assessment where:

- No direct observations of threatened species, populations or communities were made on the site during survey works;
- No previous sightings of threatened species, populations or communities within a 10-kilometre radius of the site have been registered within the NPWS database and scheduled under the *Threatened Species Conservation Act 1995*; and
- An abundance of primary habitat requirements for said species are not located on or within the locality of the proposal (refer previous sections)
- Potential habitat (feeding, roosting, nesting or refuge) will not be or will be minimally affected by the proposal (refer previous sections)

As such it is considered that, of the scheduled species, populations and/or communities described previously within this report, the following 5 species of threatened flora, 13 species of threatened fauna and 1 endangered ecological community were recorded on the site or are considered potential occurrences within the area based upon available habitat components and may have the potential to be significantly affected through any inappropriate development of the site (NB. All 8-part considered species by Aspect North 2004 are also included within this 7-part test)

Table 10: THREATENED SPECIES AND COMMUNITIES SUBJECT TO 7-PART TEST

ECOLOGICAL COMMUNITIES	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions
Populations	N/A
FLORA	Fine-leaved Tuckeroo Rough-shelled Bushnut Red Lillipilli Durrobby Floyds Ball Nut

FAUNA	Eastern Long-eared Bat Beccaris Freetail Bat Eastern Bentwing Bat Eastern Freetail Bat Little Bentwing Bat Yellow-bellied Sheathtail bat Grey-headed Flying Fox Bush Stone-curlew Rose-crowned Fruitdove White-eared Monarch Wompoo Fruitdove Common Blossom Bat Barred Cuckoo Shrike

6.1.1 FACTORS OF ASSESSMENT 7-part Test

(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

The National Parks and Wildlife Service (NPWS) describe a local population as one *"that occurs within the study area, unless the existence of contiguous or proximal occupied habitat and the movement of individuals or exchange of genetic material across the boundary of the study area can be demonstrated."*

DECC (2007) & DPI (2008) further expands the local population definition to include:

- The *local population* of a threatened *plant* species comprises those individuals occurring in the study area or the cluster of individuals that extend into habitat adjoining and contiguous with the study area that could reasonably be expected to be cross-pollinating with those in the study area.

- The *local population* of *resident fauna* species comprises those individuals known or likely to occur in the study area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the study area.

- The *local population* of *migratory or nomadic fauna* species comprises those individuals that are likely to occur in the study area from time to time.

DECC (2007) & DPI (2008) further states that the key assessment for this component is the "risk of extinction of the local population. The risk of extinction will increase if any factor operates to reduce population size or reproduction success." It is further noted that any known or presumed local population should be assumed to be viable for the purpose of this assessment unless otherwise proven.

Megachiropterans (Grey-headed Flying-fox)

Local Population

As the noted mega-bat species are considered to be wide ranging in the region, it is considered that they are not genetically isolated on the subject site and form part of populations within the wider region.

Grey-headed Flying Fox

The NPWS database contains thirty (30) records of this species within 10 kilometres of the site. Two-hundred and thirty-nine (239) records are contained within the Tweed LGA.

Stages of lifecycle potentially affected by development

Grey Headed Flying Fox

Habitat Preference	Roosting/Breeding
The Grey-headed Flying-fox inhabits subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps (Eby, 1995). Urban gardens and cultivated fruit crops also provide habitat for this species (NSW NPWS 1999c). Grey-headed Flying-foxes forage on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca, Banksia (Eby, 2000) and fruits of rainforest trees and vines (NSW NPWS 1999c). During periods when native food is limited, Grey-headed Flying-foxes disperse from colonial roosts, often foraging in cultivated gardens and fruit crops (NSW NPWS 1999c). This species is a canopy-feeding frugivore, blossom-eater and nectarivore of rainforests, open forests, woodlands, Melaleuca swamps and Banksia woodlands. As such, it plays an important ecosystem function by providing a means of seed dispersal and pollination for many indigenous tree species (Eby 1996; Pallin 2000).	This species roosts in large aggregations or camps in close proximity (20 km or less) to a regular food source, often in stands of riparian rainforest, Paperbark or Casuarina forest (Eby, 1995). Camps provide resting habitat, sites of social interactions and refuge for animals during significant phases of their annual cycle, such as birth, lactation and conception (Parry-Jones and Augee 1992, 2001). "Roosting habitat critical to survival: Grey-headed Flying-foxes roost in large aggregations in the exposed branches of canopy trees (Ratcliffe 1931, Nelson 1965a, Parry-Jones and Augee 1992). The locations of camps are generally stable through time, and several sites have documented histories that exceed 100 years (Lunney and Moon 1997). Camps provide resting habitat, sites of social interactions and refuge for animals during significant phases of their annual cycle, such as birth, lactation and conception (Parry-Jones and Augee 1992, 2001). On the basis of current knowledge, roosting habitat that meets at least one of the following criteria can be explicitly identified as habitat critical to survival, or essential habitat, for Greyheaded Flying-foxes. Roosting habitat that: 1. is used as a camp either continuously or seasonally in > 50% of years 2. has been used as a camp at least once in 10 years (beginning in 1995) and is known to have contained > 10 000 individuals, unless such habitat has been used only as a temporary refuge, and the use has been of limited duration (i.e. in the order of days rather than weeks or months) 3. has been used as a camp at least once in 10 years (beginning in 1995) and is known to have contained > 2 500 individuals, including reproductive females during the final stages of pregnancy, during lactation, or during the period of conception (i.e. September to May) (in DECCW, 2009)

The site contains ~3.29ha of potential forested habitat containing suitable flowering flora species capable of attracting the flying fox to the area. Extensive fruiting and flowering resources are also present within the locality in association with similar rainforest and camphor laurel habitats which cover ~460ha within a 5km radius of the site.

The proposed development will result in the removal of a small percentage of native and exotic flowering or fruiting trees from the site with the majority retained. It is noted that the development envelope proposal involves the removal of ~4ha of cleared/weed invaded grassland formally utilized as a quarry. It is considered that this reduction in potential habitat is considered unlikely to represent a significant reduction of potential flying fox habitats on the site or within the locality. This removal is not considered to be a significant reduction in the regional foraging base for the Grey-headed Flying Fox. Furthermore, as no roost sites were recorded within the site, it is considered that breeding requirements will not be disturbed as part of the proposal.

Likelihood of Local Extinction

Reviewing the above, it is considered unlikely that the proposal will disrupt the lifecycle of the local population of the discussed megabats to the point that they are at risk of extinction.

THREATENED MICROCHIROPTERAN BATS (LITTLE BENT-WING BAT, EASTERN BENTWING BAT; EASTERN FREETAIL BAT, EASTERN LONG-EARED BAT, BECCARIS FREETAIL BAT)

As the noted micro-bat species are considered to be wide ranging in the region, it is considered that they are not genetically isolated on the subject site and form part of populations within the wider region.

Little Bent-wing Bat (Miniopterus australis)

This species was not recorded on the subject site but is known from the locality (JWA, 2009; Biolink, 2008; Planit, 2009; Planit, 2013). The NPWS database contains 34 records of this species within 10 kilometres of the site. Ninety-four (94) records are contained within the Tweed LGA.

Eastern Bentwing (Miniopterus schreibersii oceanensis)

This species was not recorded on the subject site but is known from the locality (JWA, 2009; Biolink, 2008; Planit, 2009; Planit, 2013). The NPWS database contains 11 records of this species within 10 kilometres of the site. Eighteen (18) records are contained within the Tweed LGA.

Eastern Freetail Bat (Mormopterus norfolkensis)

This species was not recorded on the subject site but is known from the locality (JWA, 2009). The NPWS database contains one (1) record of this species within 10 kilometres of the site. Four (4) records are contained within the Tweed LGA.

Eastern Long-eared Bat (Nyctophilus bifax)

This species was not recorded on the subject site but is known from the locality (Biolink, 2008). The NPWS database contains 5 records of this species within 10 kilometres of the site. Thirty-two (32) records are contained within the Tweed LGA.

Beccari's Freetail Bat

This species was not recorded on the subject site but is known from the locality (Planit, 2008). The NPWS database contains 5 records of this species within 10 kilometres of the site. Twenty-four (24) records are contained within the Tweed LGA.

Yellow-bellied Sheathtail Bat

This species was not recorded on the subject site but is known from the locality (Planit, 2008; Kendall and Kendall, 2008; Parsons Brinkerhoff, 2008). The NPWS database contains 4 records of this species within 10 kilometres of the site. Six (6) records are contained within the Tweed LGA.

Stages of lifecycle potentially affected by development

The habitat and roosting preferences of the nominated bat species are tabulated below:

Species	Habitat Preference	Roosting/Breeding
Little Bentwing Bat	This species utilises well-timbered habitats including rainforest, *Melaleuca* swamps and dry sclerophyll forests where it feeds on insects within the canopy.	DECC (2005) note the following particulars with regard to the little bentwing bat: • Maternity colonies form in spring. Males and juveniles disperse in summer. • Only five nursery sites /maternity colonies are known in Australia. • Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest,

		Melaleuca swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas. • Little Bentwing-bats roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day • They often share roosting sites with the Common Bentwing-bat and, in winter, the two species may form mixed clusters. • In NSW the largest maternity colony is in close association with a large maternity colony of Common Bentwing-bats (*M. schreibersii*) and appears to depend on the large colony to provide the high temperatures needed to rear its young.
Eastern Bentwing Bat	Utilises a broad range of habits including wet and dry sclerophyll forest, open woodland, paperbark forests, rainforests and open grasslands (North & Pasic, 2005) where they forage upon insects.	Has been found to roost within caves, tunnels, stormwater culverts or disused mining areas (Strahan eds, 2002; DEH, 2005). Twelve known maternity roost sites occur within its distribution ranging from tens of thousands to >100000 individuals. The known large roost sites are located in limestone and sandstone caves, abandoned gold mines, concrete bunkers and lava tubes. Outside the breeding season the eastern bentwing often selects cool areas within caves, mines, tunnels, drains and bridges (Hoye & Hall in Van Dyck & Strahan, 2008).
Beccaris Freetail Bat	Beccari's freetail utilises a range of vegetation types including rainforest, riverine and floodplain margins with paperbark and pandanus, eucalypt open forest/woodland and mostly along watercourses (McKenzie & Bullen in Van Dyck and Strahan, 2008).	Roosting occurs in tree hollows and under building roofs (Australian Museum, 1999). DECC (2005) notes that the only confirmed record in NSW is of a colony found in the roof of a house in Murwillumbah.
Eastern Long-eared Bat	This species of bat inhabits lowland subtropical rainforest and wet and swamp eucalypt forest, extending into adjacent moist eucalypt forest with coastal rainforest and patches of coastal scrub particularly favoured (DEC, 2005; NPWS, 2002).	Roosting occurs within tree-hollows, under bark and/or palm fronds and within dense foliage with a seasonal shift in roost sites from rainforest edges (summer) to the rainforest interior (winter) (NPWS, 2002; Parnaby in Strahan, 2002; Lunney et al, 1995).
Eastern Freetail Bat	Recorded in dry eucalypt forest and coastal woodlands but individuals have been captured in riparian zones in rainforest and wet sclerophyll forest and mangrove forests east of the Great Dividing Range (Allison and Hoye, 1995; DEC, 2005). The species forages upon insects above the forest canopy or at forest edges (Allison, 1983).	Known to roost in tree hollows but occasionally found in buildings (Gilmore and Parnaby, 1994; Allison and Hoye, 1995; DEC, 2005).
Yellow-bellied Sheathtail Bat	This species of bats utilises most habitats across its wide distribution and hunts over the canopy in forested areas and lower within mallee or open country (DECC, 2005).	Roosting may occur within hollow trees and buildings and also within caves and derelict mines (NPWS, 2004; Richards in Van Dyck and Strahan, 2008). DECC (2005) notes that in treeless areas the sheathtail bat is known to utilise mammal burrows.

A review of the above indicates that potential habitat for the discussed microbats is present in association with rainforest vegetation community 4 located in the west of the site. This report recommends the retention of this vegetation community.

Vegetation community 1 also represents a potential foraging area for the Eastern Bentwing and Yellow-bellied Sheathtail Bats which may forage over grasslands although the species has not been recorded from this area. Cleared/grassland areas are considered to be abundant within the locality.

It is noted that the development envelope proposal involves the removal of ~4ha of cleared/weed invaded grassland formally utilized as a quarry. It is considered that this reduction in potential habitat is considered unlikely to represent a significant reduction of the discussed microbat habitats on the site or within the locality. This habitat is considered to be marginal (i.e. marginal potential foraging area for the eastern bentwing and yellow-bellied sheathtail).

A review of the discussed species indicates that tree cavities and caves/crevices are necessary for roosting/breeding. In addition to providing shelter, maternity places and retreats for hibernation, roosts are also important places for social interactions among bats. The availability of suitable roosts is therefore critical for forest bat survival (Herr, 1998). Within the site it is considered that cave/mine potential breeding sites are absent and hollow bearing trees are scarce with none to be removed in association with the proposal. Several Archontophoenix palms with hanging fronds potentially suitable for the Eastern Long-eared Bat were also encountered within Vegetation Community 4 which will be similarly unaffected by the proposal.

In review of the above it is considered unlikely that the proposed development envelope will have a significant impact upon the breeding/roosting of the discussed microchiropteran bat species.

Likelihood of Local Extinction
Reviewing the above, it is considered unlikely that the proposal will disrupt the lifecycle of the local population of the discussed micro-bats to the point that they are at risk of extinction.

BUSH-STONE CURLEW
The bush-stone curlew was not recorded onsite during the survey period.
The following bush stone curlew recordings are noted from the locality:

- Within the Northstar Holiday Resort (TSC, 2011).
- Within North Pottsville (SKM, 2003).
- Within the Creek Street road reserve [western end] at Hastings Point (Planit, 2011).
- From locality database records (Birds Australia/Royal Australasian Ornithologists Union, 2011)
- From locality database records (NPWS Wildlife Atlas, 2011)
- From within the Kings Forest 'Cudgen Paddock' in scattered Scribbly gum on the margin of regrowth heathland (Landpartners, 2008; Aspect North, 2005).
- From a small population within the Koala Beach residential estate (Koala Beach Wildlife and Habitat Management Committee, 2009; DEC, 2006)

No specific population estimates are known from the Terranora/Banora Point locality although the Koala Beach Wildlife and Habitat Management Committee (2009) note that over the last ten years more than twenty juvenile Bush Stone-curlews have been killed by car strike at Koala Beach Estate (further to the south) indicating a breeding population occurs throughout the locality.

DEC (2006) notes that breeding pairs of bush stone curlew are generally sedentary within home ranges estimated to be 250-600ha for foraging year round, with a core of 10-25ha during breeding. Home ranges are likely to be highly variable in size, depending on the type of habitat, resource availability and level of disturbance within the area' (DEC, 2006; App4 pg 1).

As the bush-stone curlew is likely to be wide ranging in the region, it is considered unlikely that the species would be genetically isolated on the subject site and would form part of the population within the wider region.

The NPWS database contains 6 records of this species within 10 kilometres of the site. Twenty-seven (27) records are contained within the Tweed LGA.

Stages of lifecycle potentially affected by development
The habitat and breeding preferences, as outlined by NSW NPWS, of the curlew are tabulated below:

Habitat Preference	Roosting/Breeding
This species is widespread throughout predominately coastal Australia where its preferred habitat consists of open forest-woodlands containing a grassy understorey with fallen timber and leaf litter (Readers Digest, 2002; NPWS, 2006). Foraging however, has been noted to occur over a broader spectrum of habitats including paddocks, grasslands, domestic areas (gardens, sports fields, [golf courses, residential areas pers. obs] etc), estuarine areas (mudflats, saltmarsh, mangrove forest, swamp oak, melaleuca forest) (NPWS, 1999; 2006). In NSW, Bush Stone-curlews occur in lowland grassy woodland and open forest. Habitat is described by broad ground and understorey structural features and is not necessarily associated with any particular vegetation communities. In general, habitat occurs in open woodlands with few, if any, shrubs, and short, sparse grasses of less than 15cm in height, with scattered fallen timber, leaf litter and bare ground present. In coastal areas, structurally similar elements of tidal and estuarine communities provide suitable habitat, for example Bush Stone curlews are recorded within Casuarina woodlands, saltmarsh and mangroves (Price 2004). The important structural elements of Bush Stone-curlew habitat appear to be: o a low sparse ground cover o some fallen timber and leaf litter o a general lack of a shrubby understorey o open woodlands (DECC, 2006: 8)	The Bush Stone-curlew nests on the ground, near dead timber, usually under trees within open woodlands that have an understorey of short grass or among brushwood (Wilson 1989 in NPWS, 1999). The nest site is typically in or near the edge of open grassy woodland or within a cleared paddock where there is good visibility across the surrounding lands (Johnson and Baker-Gabb 1994 in DECC, 2006).

With regard to the above it is considered that all areas (~9.9ha) of the site represent potential habitat for the bush stone curlew as it will utilize modified residential habitats, however, preferred grassy eucalypt forest/woodland and associated important structural elements per DECC (2006) are absent.

However, similar to the site, it must also be considered that the majority of the locality also provides potential habitat for the curlew (obviously excluding impervious areas and open water surfaces). This is supported by TSC statements that the curlew exists in proximate areas (Northstar Resort/caravan park further south) which have been developed at a high density with no known domestic animal bans.

It is noted that the development envelope proposal involves the removal of ~4ha of cleared/weed invaded grassland formally utilized as a quarry. It is considered that this reduction in potential habitat is considered unlikely to represent a significant reduction of potential curlew habitats on the site or within the locality. This habitat is considered to be marginal (i.e. not reflective of favoured woodland/open forest containing recognised structural elements).

Likelihood of Local Extinction
Reviewing the above, it is considered unlikely that the proposed development will disrupt the lifecycle of bush stone-curlew populations to the point that they are at risk of extinction.

ROSE-CROWNED FRUIT-DOVE

As the Fruit-dove is considered to be wide ranging in the region, it is considered that it is not genetically isolated on the subject site and forms part of a population within the wider region.

The rose-crowned fruit-dove was not recorded during fauna survey works of the site although it is known from the locality including lands further to the northwest (Planit, 2009; JWA, 2009; Planit, 2013). The NPWS database contains 7 records of this species within 10 kilometres of the site. The NPWS database contains 33 records within the Tweed LGA.

Stages of lifecycle potentially affected by development

The habitat and roosting preferences of the fruit-dove is tabulated below:

Species	Habitat Preference	Roosting/Breeding
Rose-crowned Fruit-dove	This species generally occurs within sub-tropical rainforest, camphor laurel and occasionally wet sclerophyll and swamp forests which contain suitable fruiting species for foraging (DEC, 2005; Recher et al, 1995). As an obligate frugivore a high proportion of fruiting species (figs, lillipillis, laurels etc) is necessary and as such rainforest habitats are favoured (Recher et al, 1995; Innis, 1989).	The species is considered a partial migrant and moves north in autumn/winter and returning in spring/summer to breed. The nest consists of a platform of sticks and vines within dense vegetation usually with 6m of the ground (Recher et al, 1995).

Although potential rainforest and camphor laurel habitats (Vegetation Communities 2-4) are present the species has not been encountered on the site. The absence of extensive remnant rainforest habitats limits the significance of the site for Rose-crowned Fruit-dove populations although potential foraging during peak fruiting periods of rainfoest trees (particularly Vegetation Community 4) and camphor laurels cannot be discounted given the presence of an interconnected, albeit fragmented, corridor of native and exotic vegetation occurring westwards towards Stotts Island.

It is noted that the development envelope proposal involves the removal of ~4ha of cleared/weed invaded grassland formally utilized as a quarry. It is considered that removal of this vegetation is considered unlikely to represent a significant reduction of potential rose-crowned fruit-dove habitats on the site or within the locality. This habitat is considered to be marginal (i.e. not reflective of favoured remnant rainforest).

Likelihood of Local Extinction

Reviewing the above, it is considered unlikely that the proposed action will disrupt the lifecycle of local rose-crowned fruit dove populations to the point that they are at risk of extinction.

WHITE-EARED MONARCH

As the Monarch is considered to be wide ranging in the region, it is considered that it is not genetically isolated on the subject site and forms part of a population within the wider region.

The monarch was recorded in the west of the site within Vegetation Community 4 and it is known from the locality including lands further to the northwest (JWA, 2009; Planit, 2013).

The NPWS database contains 3 records of this species within 10 kilometres of the site. The NPWS database contains 85 records within the Tweed LGA.

Stages of lifecycle potentially affected by development
The habitat and breeding preferences of the white eared monarch are tabulated below:

Habitat Preference	Roosting/Breeding
This species generally occurs within Coastal/Subtropical/Littoral Rainforests and occasionally Eucalypt/Riparian Forest, Mangroves and Swamp Sclerophyll with mesomorphic understorey along the eastern coast of Australia from Cape York to the Tweed River (Readers Digest, 2002; DEC, 2005). They appear to prefer the ecotone between rainforest and other open vegetation types or the edges of rainforest, such as along roads (DEC, 2005). They are highly active when foraging, characteristically sallying, hovering and fluttering around the outer foliage of rainforest trees where they are usually observed high in the canopy or subcanopy (DEC, 2005; Young, 2005).	They breed from about September to March usually nesting high in the canopy, and often at the edge of patches of rainforest (DEC, 2005; Young, 2005).

A review of the available habitats of the site indicates that potential subtropical/lowland rainforest habitats are available in the west of the site in association with Vegetation Community 4 and an individual of the species was encountered in this area during January 2015 surveys. As no known foraging or roosting habitat will be removed in association with the proposal it is considered unlikely that a significant impact to the white-eared monarch will be occasioned.

It is noted that the development envelope proposal involves the removal of ~4ha of cleared/weed invaded grassland formally utilized as a quarry. It is considered that removal of this vegetation is considered unlikely to represent a significant reduction of potential white-eared monarch habitats on the site or within the locality.

Likelihood of Local Extinction
Reviewing the above, it is considered unlikely that the proposed development will disrupt the lifecycle of white-eared monarch populations to the point that they are at risk of extinction.

<u>WOMPOO FRUIT-DOVE</u>
As the Wompoo Fruit-dove is considered to be wide ranging in the region, it is considered that it is not genetically isolated on the subject site and forms part of a population within the wider region.

One wompoo fruit-dove was sighted during fauna survey works within Community 4 (but offsite to the west) and the species was also noted vocalising in this area. It is also known from the locality including lands further to the northwest (JWA, 2009; Planit, 2013). The NPWS database contains 3 record of this species within 10 kilometres of the site. The NPWS database contains 115 records within the Tweed LGA.

Stages of lifecycle potentially affected by development
The habitat and roosting preferences of the fruit-dove is tabulated below:

Habitat Preference	Roosting/Breeding
This species is confined to mature rainforest and adjacent wet sclerophyll environments in eastern Australia from Cape York to around Coffs Harbour. As an obligate fruigivore it requires a high availability of fruiting materials which it generally feeds on in the high canopy (Recher et al, 1995).	Breeding in NENSW extends from winter to midsummer with a simple stick platform nest constructed generally below 10m from the ground (Recher et al, 1995).

A review of the available habitats of the site indicates that potential subtropical/lowland rainforest habitats are available in the west of the site in association with Vegetation Community 4 which will be retained.

The absence of extensive remnant rainforest habitats limits the significance of the site for Woompoo Fruit-dove populations although potential additional foraging during peak fruiting periods of rainforest trees within Vegetation Community 4 cannot be discounted given the presence of an interconnected, albeit fragmented, corridor of native and exotic vegetation occurring westwards towards Stotts Island. During the survey period Maclura cochinchinensis was fruiting heavily with Dysoxylum mollissimum also fruiting.

It is noted that the development envelope proposal involves the removal of ~4ha of cleared/weed invaded grassland formally utilized as a quarry. It is considered that removal of this vegetation is considered unlikely to represent a significant reduction of potential wompoo fruit-dove habitats on the site or within the locality.

Likelihood of Local Extinction
Reviewing the above, it is considered unlikely that the proposed action will disrupt the lifecycle of local wompoo fruit dove populations to the point that they are at risk of extinction.

COMMON BLOSSOM BAT
As the Blossom Bat is wide ranging in the region, it is considered that it is not genetically isolated on the subject site and would form part of a population within the wider region. The Blossom Bat was not recorded during fauna survey works of the site.

The NPWS database contains 5 records of this species within 10 kilometres of the site. The NPWS database contains 25 records within the Tweed LGA.

A mark-recapture study (TSC, 2007) estimated that 16.33 (± 1.76) Blossom Bats occurred within the Koala Beach Blossom Bat Reserve (~1.2 ha) at the time which effectively equates to approximately 12.14 - 15.02 bats per hectare (TSC, 2007: 20). This reserve comprises about 1.2 hectares of Coast Banksia dominated forest on southern facing slopes of a low ridge approximately 20km southeast of the site.

Stages of lifecycle potentially affected by development
The habitat and breeding preferences of the blossom bat are tabulated below:

Habitat Preference	**Roosting/Breeding**
This species is one of the smallest members of the flying fox family (Pteropodidae) and is considered to be a specialist pollen feeder favouring Banksia, Melaleuca, Callistemon and certain species of Eucalypt (Strahan eds, 2002). Required habitats include Coastal rainforest, heathlands and Melaleuca swamps.	Roosting is noted to occur in Littoral Rainforest with foraging occurring in proximate heathland and melaleuca forest primarily on the flowers of Banksia integrifolia (Law, 1993; 1994; 1996).

A review of the available habitats of the site indicates that potential habitat is absent and the blossom bat has not previously been recorded.

It is noted that the development envelope proposal involves the removal of ~4ha of cleared/weed invaded grassland formally utilized as a quarry. It is considered that removal of this vegetation is considered unlikely to represent a significant reduction of potential blossom bat habitats on the site or within the locality.

Likelihood of Local Extinction
Reviewing the above, it is considered unlikely that the proposed development will disrupt the lifecycle of blossom bat populations to the point that they are at risk of extinction.

BARRED CUCKOO SHRIKE
As the Barred Cuckoo Shrike is wide ranging in the region, it is considered that it is not genetically isolated on the subject site and would form part of a population within the wider region. The shrike was not recorded during fauna survey works of the site.

The NPWS database contains 2 records of this species within 10 kilometres of the site. The NPWS database contains 15 records within the Tweed LGA.

Stages of lifecycle potentially affected by development
The habitat and breeding preferences of the barred cuckoo shrike are tabulated below:

Habitat Preference	Roosting/Breeding
This species has been recorded from a variety of habitats including rainforest, eucalypt forests and woodlands, clearings in secondary growth, swamp woodlands and timber along watercourses within Coastal NSW (NPWS, 2002). Foraging requirements include fruiting tree species within in rainforest, wet sclerophyll forest, vegetation remnants or isolated trees (DEC, 2005) and insects captured among foliage (NPWS, 2002). Although they do eat insects up to 90% of their diet is freshly plucked fruit and because they swallow fruit whole they only take those of the right size (Readers Digest, 2002). The species is nomadic in search of its food wandering in flocks of often 10-20 but up to more than 50 birds (Readers Digest, 2002; Moorcombe, 2004)	Breeding occurs from September-March within a flat saucer shaped nest of fine twigs, bark and sometimes casuarina needles bound with spider webs in a broad fork of a thick tree branch between 15m and 30m above ground (Moorcombe, 2004; Readers Digest, 2002)

A review of the available habitats of the site indicates that potential subtropical/lowland rainforest habitats are available in the west of the site in association with Vegetation Community 4 although the species has not been recorded during fauna survey works.

It is noted that the development envelope proposal involves the removal of ~4ha of cleared/weed invaded grassland formally utilized as a quarry. It is considered that removal of this vegetation is considered unlikely to represent a significant reduction of potential cuckoo-shrike habitats on the site or within the locality.

Likelihood of Local Extinction
Reviewing the above, it is considered unlikely that the proposed development will disrupt the lifecycle of barred cuckoo shrike populations to the point that they are at risk of extinction.

THREATENED FLORA SPECIES

Five threatened species of flora were recorded during previous surveys of the site (Aspect North, 2004). The local population of these species is unlikely to be restricted to the habitats of this site and are likely to be found within additional and interconnected remnants of lowland rainforest and mixed highly disturbed camphor laurel/early regrowth rainforest within the locality

Species	Abundance 2004 (Aspect North)	Abundance 2015	Locality Records
Floydia praelta	Noted as infrequent within Community 4	Not encountered	The NPWS database contains 0 records of this species within 10 kilometres of the site. The NPWS database contains 23 records within the Tweed LGA.
Lepiderema pulchella	Noted as infrequent within Community 2 Noted as occasional within Community 4	>30 stems	The NPWS database contains 52 records of this species within 10 kilometres of the site. The NPWS database contains 197 records within the Tweed LGA.
Macadamia tetraphylla	Noted as occasional within Community 4	>10 stems	The NPWS database contains 27 records of this species within 10 kilometres of the site. The NPWS database contains 212 records within the Tweed LGA.
Syzygium hodgkinsoniae	Noted as infrequent within Community 4	3 stems	The NPWS database contains 5 records of this species within 10 kilometres of the site. The NPWS database contains 105 records within the Tweed LGA.
Syzygium moorei	Noted as occasional within Community 4	3 stems (one offsite)	The NPWS database contains 27 records of this species within 10 kilometres of the site. The NPWS database contains 226 records within the Tweed LGA.

Stages of lifecycle potentially affected by development
The habitat preferences of the recorded threatened plant species are tabulated below:

Species	Habitat Preference
Floydia praealta	The Ball Nut occurs in small, scattered populations from Gympie, Queensland, southwards to the Clarence River in north-east NSW, where it inhabits riverine and subtropical rainforest, usually on soils derived from basalt (DECC, 2005) or in coastal scrub (Foreman, 1995) from Gympie, Queensland, south to the Clarence River, near Dorrigo in north-east NSW (Floyd 1989; Foreman 1995a; Harden 2000; Quinn et al. 1995). Individuals may live for more than 100 years, with a juvenile period of 10 years (Queensland CRA/RFA Steering Committee 1997). Flowering of the Ball Nut has been recorded from January to February (Floyd 1989; Foreman 1995a; Harden 1991; Quinn et al. 1995) and January to July (Forster et al. 1991). Fruits have been recorded as present between January and June (Floyd 1989), though Harden (1991), Foreman (1995a) and Quinn and colleagues (1995) suggest fruit is present closer to June only (Department of the Environment (2015). *Floydia praealta* in Species Profile and Threats Database online @ http://www.environment.gov.au/sprat.)
Lepiderema pulchella	"*Lepiderema pulchella* occurs in lowland subtropical rainforest and in New South Wales is largely confined to infertile metasediments in the Tweed Valley. There are few populations of mature trees in conservation reserves, and the number of adult trees in individual sites is small, mostly less than 20" (NSWSC, 2011 online @ http://www.environment.nsw.gov.au/ determinations/LepideremaPulchellaVulSpListing.htm).

	Two recent surveys (Planit, 2008) including small patches of lowland/subtropical rainforest and mixed camphor laurel/early regrowth rainforest within Terranora and Bilambil have recorded >400 stems of this species within the locality, predominately within lowland/subtropical rainforest.
Macadamia tetraphylla	"Rough-shelled Bush Nut occurs from north-east New South Wales (chiefly in the Richmond & Tweed River areas) to south-east Queensland (Mt Glorious, near Brisbane) (Stanley & Ross, 1986; Floyd, 1989; Gross, 1995; Sheringham & Westaway, 1995). Populations at any given location tend to be small, with fewer than 20 individuals (Fanning et al., 1998). Populations in the south-east Queensland Regional Forest Agreement area are estimated at 350 mature individuals in 12 populations (Queensland CRA/RFA Steering Committee, 1997). There are no population estimates available for New South Wales. The geographic range of the Rough-shelled Bush Nut is estimated to be less than 100 km (Briggs & Leigh, 1996). Rough-shelled Bush Nut occurs in subtropical rainforest and notophyll vine forest in near coastal areas. It is often found on steep slopes, especially at ecotones" (TSSC, 2008adi: 1). 'Rough-shelled Bush Nut is estimated to have a lifespan of over 100 years, with a juvenile period greater than six years (Queensland CRA/RFA Steering Committee 1997). Rough-shelled Bush Nut flowers from August to October, and is recorded fruiting between January and April. The species reproduces from seed and seed dispersal is via streams. Clean nuts germinate within a period of two weeks and the seed remains viable for a period of a few weeks to six months. Seeds of this species are subject to Black Rat (*Rattus rattus*) predation" (DoE, 2015 online @ http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=6581).
Syzygium hodgkinsoniae	Smooth-bark Rose Apple occurs in riverine rainforest on rich alluvial or basaltic soils, from the Richmond River in NSW to Gympie, Queensland, with a disjunct occurrence in north Queensland (Floyd, 1989; NSW NPWS, 2002). The species occurs mostly as scattered individuals along watercourses, where the habitat is frequently limited and degraded (Landmark Ecological Services, Ecograph & Terrafocus, 1999). Recorded occurrences in NSW include Toonumbar and Unumgar State Forests, Big Scrub and Minyon Falls Forest Reserves, Davis Scrub and Brunswick Heads Nature Reserves, as well as sites at Lismore, Alstonville, Wardell, Hayters Hill, Mullumbimby, Billinudgel, Crabbes Creek, Burringbar, Eungella, Upper Oxley and Couch Creek (Floyd, 1989; Sheringham & Westaway, 1995; NSW NPWS, 2002). There are 37 recorded occurrences of this species in the Byron Bay Local Government Area (LGA), of which 12 are within Nature Reserves. There are four recorded individuals in Tweed LGA (Tweed Shire Council, 2002)" (TSSC, 2008agi: 1) "Smooth-bark Rose Apple flowers have been recorded in January to May (Floyd 1989), June, November and December (Hyland 1983). Ripe fruits have been found in August to November (Floyd 1989) and May (Hyland 1983)"(DoE, 2015 online @ http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=3539)
Syzygium moorei	"Rose Apple occurs in warm, protected, fertile soils in riverine and gully rainforests at low altitudes, along sections of the Richmond, Brunswick and Tweed Rivers in NSW, as well as at three sites in Upper Mudgeeraba Creek and Upper Tallebudgera Creek in south-east Queensland (Floyd, 1989). This species occurs within the Northern Rivers (NSW) and Border Rivers Maranoa–Balonne (Queensland) Natural Resource Management Regions. Recorded occurrences include Emigrant Creek, Hayters Hill, Mullumbimby, Crabbes Creek, Burringbar, Big Scrub, Dum Dum, Eungella, Couchy Creek, Durobby Creek and Hogans Scrub. Individual plants are conserved within several conservation reserves, including Inner Pocket, Brunswick Heads, Tyagarah and Broken Head Nature Reserves (Floyd, 1989; NSW NPWS, 2002). Rose Apple is most commonly found in Subtropical Rainforest *Argyrodendron trifoliatum* Alliance, including sub-alliance 1 (*Argyrodendron trifoliatum*) on lowland krasnozem; suballiance 2 (*Toona-Flindersia* spp.) on lowland alluvium; and sub-alliance 6 (*Archontophoenix-Livistona*) on alluvium with excess moisture (Floyd, 1990). Stands of the *A. trifoliatum* Alliance originally occurred on the best potential agricultural land, so consequently was mostly cleared, with the exception of small patches occurring in floodprone, stony or poorly drained soils. There are 75 recorded occurrences of this species in the Byron Bay Local Government Area (LGA), although in many cases the record relates to one isolated individual. Two of the records are located within nature reserves (Landmark Ecological Services, Ecograph & Terrafocus, 1999). There are 40 recorded individuals in Tweed LGA (Tweed Shire Council, 2002) and three in Queensland (Biodiversity Assessment & Management, 2006)." (TSSC, 2008vp: 1)

Recorded habitat for all of the threatened species is associated with Vegetation Community 4 with Vegetation Community 2 also providing habitat for the Lepiderema (previously noted in this area by Aspect North, 2004). In association with the development of the site all individuals of the threatened flora species encountered are recommended to be retained in their existing habitats.

It is noted that the development envelope proposal involves the removal of ~4ha of cleared/weed invaded grassland formally utilized as a quarry. It is considered that removal of this vegetation is unlikely to represent a significant reduction of potential habitats for the discussed threatened flora on the site or within the locality and no specimens were observed within the grassland/weeded community in 2004 or 2015.

Likelihood of Local Extinction
Reviewing the above, it is considered unlikely that the proposed development will disrupt the lifecycle of the recorded threatened flora populations to the point that they are at risk of extinction.

(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

No endangered fauna populations listed under Part 2 Schedule 1 of the *Threatened Species Conservation Act 1995* are located on or within the proximity of the site. As such, the proposed activity is unlikely to disrupt the lifecycle of any species constituting an endangered population or the viability of such a population. The endangered populations currently listed include the following:

Tusked Frog population in the Nandewar and New England Tablelands Bioregions

Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area

Gang-gang Cockatoo population in the Hornsby and Ku-ring-gai Local Government Areas

Glossy Black-Cockatoo, Riverina population

Little Penguin in the Manly Point Area (being the area on and near the shoreline from Cannae Point generally northward to the point near the intersection of Stuart Street and Oyama Cove Avenue, and extending 100 metres offshore from that shoreline)

White-browed Treecreeper population in Carrathool local government area south of the Lachlan River and Griffith local government area

Broad-toothed Rat at Barrington Tops in the local government areas of Gloucester, Scone and Dungog

Long-nosed Bandicoot, North Head

Squirrel Glider in the Wagga Wagga Local Government Area

Squirrel Glider on Barrenjoey Peninsula, north of Bushrangers Hill

Koala, Hawks Nest and Tea Gardens population

Koala in the Pittwater Local Government Area

Long-nosed Potoroo, Cobaki Lakes and Tweed Heads West population

(c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:
(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

DEC (2007) notes the following with regard to EECs:

Ecological communities are usually defined by two major components – the geographical distribution and the species composition which influences the physical structure and ecological function of the ecological community. The relative importance of the geographical distribution and the species composition varies according to the specific listed ecological community. Hence this factor provides for consideration of two criteria:
(i) local occurrence of the ecological community
(ii) modification of the ecological community's composition.

Interpretation of key terms used in this factor:
Local occurrence: the ecological community that occurs within the study area. However the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of that ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.

Risk of extinction: similar to the meaning set out in factor (a), this is the likelihood that the local occurrence of the ecological community will become extinct either in the short-term *or* in the long-term as a result of direct or indirect impacts on the ecological community, and includes changes to ecological function.

Composition: both the plant and animal species present, and the physical structure of the ecological community. Note that while many ecological communities are identified primarily by their vascular plant composition, an ecological community consists of all plants and animals as defined under the TSC and FM Acts that occur in that ecological community.

LOWLAND RAINFOREST IN THE NSW NORTH COAST AND SYDNEY BASIN BIOREGIONS
It is considered that Vegetation Community 4 within the west of the site (and extending offsite) may be reflective of the above listed EEC as described by the Scientific Committee (subject to the limitations and discussion provided in Section 3.2.1 above).

The local occurrence of this EEC is considered to be that occurring on the site (~0.89ha), that contained within bushland contiguous with the EEC of the site connected to other mapped lowland rainforest EECs in nearby areas [but excluding non-connected incidences of early regrowth rainforest and all floodplain rainforests] and other mapped areas of lowland/subtropical rainforest within the locality (~169ha per Kingston et al mapping, 2004; OEH UNE CRAFTI Vis 1108, 2012). Kingston et al (2004) notes the presence of 8919ha of this vegetation type (described type TVMP102) within the Tweed LGA.

This report recommends that Community 4 be retained in association with any development proposal and a weed management plan be implemented to progressively decrease the existing risk of native flora species diversity reduction through exotic species dominance.

Conclusion
With regard to the above it is therefore considered that the action proposed is unlikely to modify or adversely affect the existing mapped Vegetation Community 4 such that its local occurrence is placed at risk of extinction.

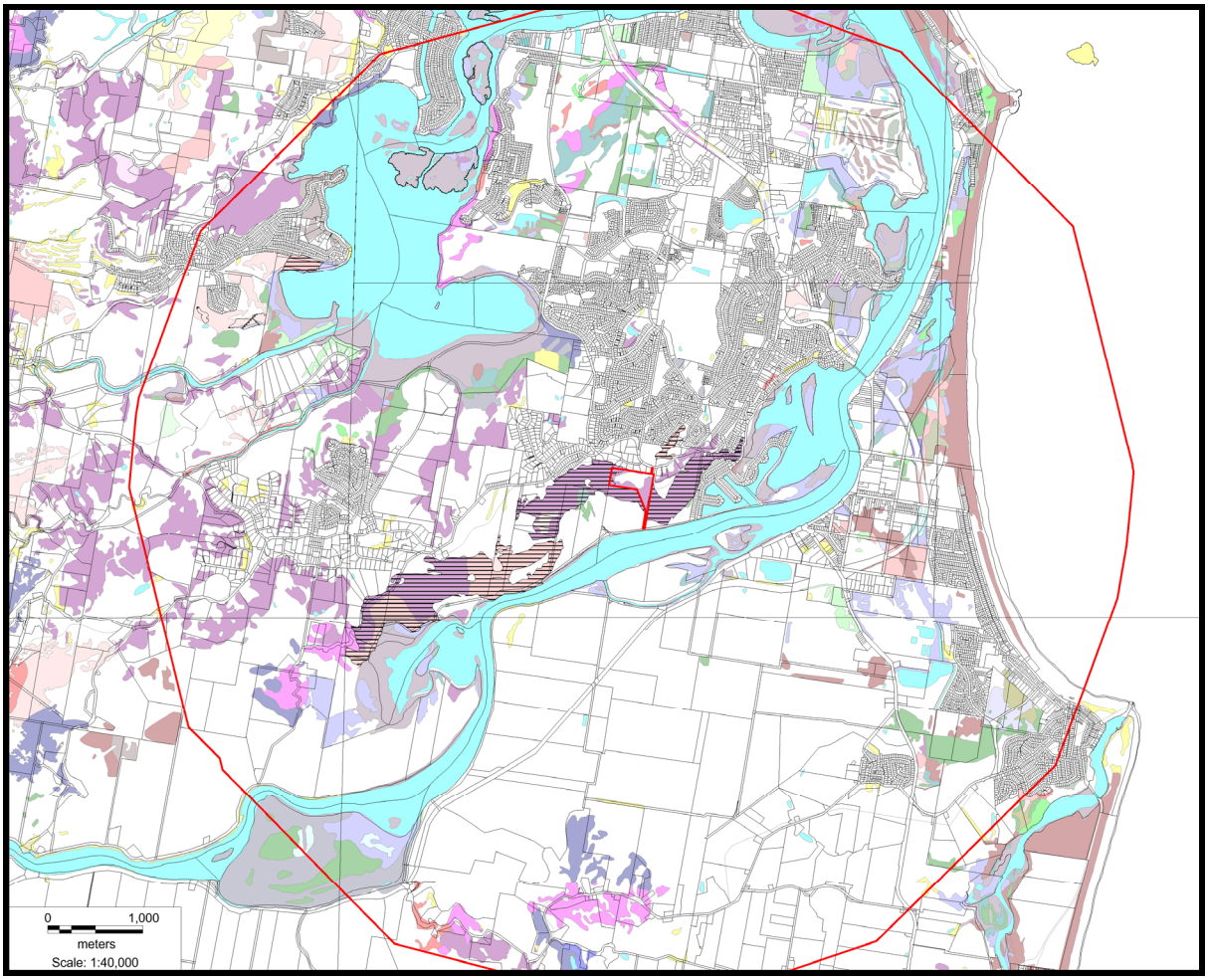


Figure 18: POTENTIAL LOCAL OCCURRENCE OF EEC LOWLAND RAINFOREST [INCLUDES SIMILAR BUT UNINSPECTED MAPPED TVMP VT1002 CONTIGUOUS WITH TVMP VT102 & 103]

(d) in relation to the habitat of a threatened species, population or ecological community:
(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,

Habitat for a given threatened species, community or population is considered to be an area containing similar known (documented) habitat preferences for that species within the species' geographic distribution.

In assessing whether a significant area of the habitat of a threatened species, population or ecological community is to be modified or removed the following should be considered:

- The geographic range of the threatened species, population or ecological community and its known or documented occurrence within the region and locality;
- The relative scale and value of the habitat within the region and locality;
- The importance of the habitat (i.e. relationship to life cycle, reproductive success etc)

DEC (2005) indicates that a "quantitative and qualitative approach to assessing the extent to which habitat is likely to be removed or modified/degraded should consist of the following steps:

- an assessment of the amount of habitat of the threatened species, population or ecological community that occurs within the locality;
- an assessment of the amount of habitat of the threatened species, population or ecological community that occurs within the study area;
- an estimation of the area and quality that the habitat of the study area represents in relation to the local distribution of that habitat;
- An estimation of the area and quality of the habitat of the study area which is to be removed or modified by the proposed development or activity;
- a calculation of the amount of the habitat of the region that will be removed or modified by the proposed development, activity or action or indirectly by longer term impacts from the proposed development such as increased predation weed invasion, salinity etc;
- An estimation of the area and quality of the habitat of the region that will be removed or modified by the proposed development, activity or action; and
- an assessment of the ecological integrity of the habitat to be affected and of the habitat which will remain"

Within the site it is considered that Communities 2-4 represent potential or recorded habitat for listed the discussed threatened flora and fauna species and Community 4 represent habitat for the discussed EEC. These communities cover ~3.29ha of the site and are recommended to be retained although most areas are considered highly disturbed due to weed invasion and fragmentation.

~460ha of mapped similar habitat (VT102, 103, 1002, 1004) occurs within 5km of the site. The regional (Shirewide) occurrence of these habitat types are noted to cover >15700ha per the TVMP (2004).

It is noted that the development proposal involves the removal of ~4ha of cleared/weed invaded grassland (Vegetation Community 1) formally utilized as a quarry. As analyzed within this 7-part test Vegetation Community 1 represents marginal habitat for the bushstone curlew, yellow-bellied sheathtail bat and eastern bentwing bat none of which were encountered within 2004 or 2015 surveys. ~2000ha of mapped similar habitat (VT1099) occurs within 5km of the site. The regional (Shirewide) occurrence of this habitat type is noted to cover >59000ha per the TVMP (2004).

Reviewing the above and (a) and (c) as previously discussed, the areas to be modified are not considered to represent a 'significant area of habitat' for the recorded or potentially occurring threatened species or occurring endangered ecological communities.

In assessing the potential for habitats of threatened species, populations or ecological communities to become fragmented or isolated to such an extent that the long-term survival of the said species, population or community is at risk, the following is to be considered:

- 'Interconnecting or proximate areas of habitat' (which may be at risk of being fragmented or isolated from other habitat areas) are considered to be two or more habitat areas where currently an individual can move between the two. Such areas could become 'isolated' in the event that the development negates future potential movement of individuals between the two habitats. This could occur through the clearance of habitat, creation of physical impediments (i.e. roads, fences) or potential impacts to behaviour (fauna) which may restrict future movements.

- For threatened species, in reviewing whether isolation may occur, consideration must be given to the movement values of the site and surrounds for particular species, the mobility of threatened species, connectivity of habitats within and external to the site and the degree to which the proposal may significantly disrupt these patterns.

- Consideration should be given to the dispersal and genetic exchange mechanisms of individual species and whether the isolation of currently interconnecting or proximate areas of habitat for threatened species, communities or populations will adversely affect the maintenance of gene flow and the ability to sustain viable populations (DEC, 2005).

In association with the development proposal it is considered that the potential impacts associated with habitat fragmentation, barrier and edge effects on the ecological processes and biodiversity of the native bushland of the site will be minor given the development envelope is recommended to be restricted to Vegetation Community 1 which is a previously cleared area of the site which was formally utilized as a quarry and is now occupied principally by grasses and weeds. Restriction of the development to this area will ensure that Vegetation Communities 2-4 (recommended for retention) will not be fragmented, no physical barriers are introduced into the retained vegetation area as a result of the proposal and the existing canopy/treed edges not altered.

To ensure terrestrial fauna dispersal can continue through the retained vegetation of the site the following is proposed:

- No clearing of vegetation (other than weed species) is permitted within the retention areas
- No free roaming of domestic animals is permitted within the retention areas

The following management initiatives are recommended in association with the development to reduce the impact of existing 'edge effects' on the retained, vegetation:

- A weed management plan is to be developed and implemented with the aim of reducing existing weed abundance on the site which is likely to be suppressing native regeneration in numerous areas

Additionally, the recorded and potentially occurring threatened fauna species as analysed in this 7-part test are considered to be highly mobile occupying large home ranges or dispersal ability (particularly avifauna and bats) and are unlikely to be precluded from using the habitats of the site or adjacent habitats as a result of this proposal.

Reviewing the above, it is considered that the proposal will not result in a significant area of habitat for a threatened species, population or ecological community to become isolated from currently interconnecting or proximate areas of habitat for threatened species, populations or ecological communities. Further the proposal is unlikely to adversely impact upon or alienate movement corridors or limit dispersal options for any threatened species.

(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),
N/A. To date the only 'Critical Habitat Areas' within the state declared pursuant to the *Threatened Species Conservation Act 1995* are the Mitchell's Rainforest Snail Habitat of Stott's Island NR and Little Penguin Population habitat in Sydney's North Harbour (NPWS, 2005). The proposal is unlikely to affect 'critical habitat' areas.

The proposal is also considered unlikely to affect nominated 'critical habitat' areas which are pending determination by the Scientific Committee

- Bomaderry zieria within the Bomaderry bushland
- Eastern Suburbs Banksia Scrub Endangered Ecological Community
- Wollemia nobilis (the Wollemi pine)

(sourced online at http://www.nationalparks.nsw.gov.au/npws.nsf/ Content/Critical +habitat+protection+by+doctype)

(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,
Section 69(1) of the TSC Act requires that a public authority implement actions for which they are responsible and "must not make decisions that are inconsistent with the provisions in a recovery plan". In this regard it is considered important that the proposed development does not conflict with the objectives or actions listed within the recovery plan(s) for recorded or potentially occurring threatened species, populations or communities (as discussed within this report). Recovery plans associated with such threatened species or communities as discussed in this 7-part test include:

- Grey-headed Flying Fox (National) Recovery Plan
- Bush-stone Curlew Recovery Plan

It is noted that under the EP&A Act, it is the responsibility of the consent or determining authority to form a view as to whether a proposed development or activity is likely to significantly affect threatened species, communities, populations or their habitat. This is achieved by undertaking an Assessment of Significance under Section 5A of the EP&A Act. In this regard, an assessment of significance has been conducted for the proposed development which concludes that a species impact statement is not required provided all recommendations contained herein are implemented. It is further concluded within this report that the proposal is unlikely to have a significant impact on recorded or potentially occurring threatened species, communities and their associated habitat.

As such, it is considered that the development as proposed is not in conflict with the objectives or actions of the listed recovery plans.

"Any process can be listed as a key threatening process (KTP) under schedule 3 of the NSW *Threatened Species Conservation Act 1995* (TSC Act), provided the process and its nomination meet the specific requirements and criteria established under the Act. A threat abatement plan or TAP is a statutory document prepared in accordance with the TSC Act, for a KTP listed under the Act. The TAP's principle aim is to reduce, abate or ameliorate the threat posed by the KTP to threatened species and ecological communities, or those species which may become threatened as a result of the KTP (DEC, 2004: vii). Existing TAPs include:

- Predation by the red fox (2001)
- Predation by *Gambusia holbrooki* (plague minnow) (2003)

The proposed subdivision is unlikely to exacerbate the impacts of the red fox on native wildlife and as such is not considered to be in conflict with the objectives or actions of the TAP.

The proposed subdivision is unlikely to exacerbate the impacts of the plague minnow on native wildlife and as such is not considered to be in conflict with the objectives or actions of the TAP.

As such, it is considered that the proposal is not in conflict with the objectives or actions of the listed threat abatement plans.

(g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.
The *Threatened Species Conservation Act 1995* defines a 'threatening process' as 'a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities.' Accordingly Key Threatening Processes are nominated within Schedule 3 of the Act and include the following (online @ http://www.environment.nsw.gov.au/threatenedspecies/KeyThreateningProcessesByDoctype.htm):

THREATENING PROCESS	COMMENT
Alteration of habitat following subsidence due to longwall mining	Not applicable
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	Not applicable
Anthropogenic climate change	Not applicable
Bushrock removal	Not applicable
Clearing of native vegetation	The proposed dwelling envelope will involve clearing of some native vegetation (including clearing of one or more strata within a stand of native vegetation). The NSW Scientific Committee notes in their final determination that 'clearing of native vegetation' is recognised as a major factor contributing to the loss of biological diversity and includes impacts such as the following: • Destruction of habitat results in loss of local populations of individual species • Fragmentation • Expansion of dryland salinity • Riparian zone degradation • Increased greenhouse gas emissions • Increased habitat for invasive species • Loss of leaf litter layer • Loss or disruption of ecological function • Changes to soil biota (NSW Scientific Committee, 2001) However, a review of this report notes that clearance will be restricted to a very small area previously cleared and quarried and the level of clearing proposed is unlikely to significantly impact upon the viability of threatened fauna species and habitat values available within the site and surrounding locality.
Competition and grazing by the feral European rabbit (*Oryctolagus cuniculus*)	Not applicable
Competition and habitat degradation by feral goats (*Capra hircus*)	Not applicable
Competition from feral honey bees (*Apis mellifera*)	Not applicable

Death or injury to marine species following capture in shark control programs on ocean beaches	Not applicable
Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments	Not applicable
Forest Eucalypt dieback associated with over-abundant psyllids and bell miners	Not applicable
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	Not applicable
Herbivory and environmental degradation caused by feral deer	Not applicable
Importation of red imported fire ants (*Solenopsis invicta*)	Not applicable
Infection by psittacine circoviral (beak and feather) disease affecting endangered psittacine species and populations	Not applicable
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	Not applicable
Infection of native plants by *Phytophthora cinnamomi*	Not applicable
Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae	Not applicable
Introduction of the large earth bumblebee (*Bombus terrestris*)	Not applicable
Invasion and establishment of exotic vines and scramblers	Exotic vines have been recorded on the site and recommendations are included within this report regarding eradication of weed species.
Invasion and establishment of Scotch broom (*Cytisus scoparius*)	Not applicable
Invasion and establishment of the cane toad (*Bufo marinus*)	Not applicable
Invasion of native plant communities by African Olive *Olea europaea* L. subsp. *cuspidata*	Not applicable
Invasion, establishment and spread of *Lantana camara*	Lantana has been recorded on the site and recommendations are included within this report regarding eradication of weed species.
Invasion of native plant communities by *Chrysanthemoides monilifera* (bitou bush and boneseed)	Not applicable
Invasion of native plant communities by exotic perennial grasses	Exotic grasses have been recorded on the site and recommendations are included within this report regarding eradication of weed species.
Invasion of the yellow crazy ant (*Anoplolepis gracilipes* (Fr. Smith)) into NSW	Not applicable
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants,	Garden escapee type species (i.e. Murraya, Passiflora, Protoasparagus etc) have been

including aquatic plants	recorded on the site and recommendations are included within this report regarding eradication of weed species.
Loss of hollow-bearing trees	Not applicable
Loss or degradation (or both) of sites used for hill-topping by butterflies	Not applicable
Predation and hybridisation of feral dogs (*Canis lupus familiaris*)	Not applicable
Predation by the European red fox (*Vulpes vulpes*)	Not applicable
Predation by the feral cat (*Felis catus*)	Not applicable
Predation by *Gambusia holbrooki* Girard, 1859 (plague minnow or mosquito fish)	Not applicable
Predation by the ship rat (*Rattus rattus*) on Lord Howe Island	Not applicable
Predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*)	Not applicable
Removal of dead wood and dead trees	Not applicable

Conclusion
Based upon the above assessments, it is considered that a Species Impact Statement (SIS) is not required.

6.1.2 SEPP 44 KOALA HABITAT ASSESSMENTS
In February 1995 the NSW Department of Infrastructure, Planning and Natural Resources enacted the *State Environmental Planning Policy No. 44: Koala Habitat Protection*. This Policy 'aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline.'

In association with development applications and in areas where the policy applies a number of criteria are to be addressed to determine levels of assessment and to govern management considerations. The steps are as follows:

1. Does the Policy Apply?
Is the land greater than 1ha in size and located within one of the Local Government areas listed within Schedule 1 of SEPP 44?

Yes. The land is approximately 9.9ha in area and located within the Tweed Local Government Area

2. Is the land potential koala habitat?
The SEPP defines 'potential koala habitat' as 'areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.' The trees within Schedule 2 are tabulated below:

Scientific Name	Common Name
Eucalyptus tereticornis	Forest red gum
Eucalyptus microcorys	Tallowwood
Eucalyptus punctata	Grey Gum
Eucalyptus viminalis	Ribbon or manna gum
Eucalyptus camaldulensis	River red gum
Eucalyptus haemastoma	Broad leaved scribbly gum
Eucalyptus signata	Scribbly gum
Eucalyptus albens	White box
Eucalyptus populnea	Bimble box or poplar box
Eucalyptus robusta	Swamp mahogany

Trees from the above list do not constitute 15% of the trees within the upper or lower strata of the tree component of any native vegetation communities present on the site. As such it is considered that the site does not represent potential koala habitat.

3. Is the land core koala habitat?
The SEPP defines 'core koala habitat' means 'an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population.'
The site does not represent core koala habitat.

4. Is there a requirement to prepare a Plan of Management for land containing core koala habitat?
A plan of management is not required.

6.1.3 SEPP 14 COASTAL WETLANDS

State Environmental Planning Policy No. 14 aims to preserve and protect coastal wetlands in the environmental and economic interest of the State. It does this by defining any development that involves clearing, draining or filling wetlands, or constructing levees on wetlands to be designated development (EDO, 2007). The site is not mapped as containing SEPP 14 Coastal Wetlands and no such communities were recorded during inspection.

6.1.4 SEPP 26 LITTORAL RAINFOREST

State Environmental Planning Policy No. 26 relates to development applications likely to damage or destroy littoral rainforest (rainforests in coastal areas) (EDO, 2007). The site is not mapped as containing SEPP 26 littoral rainforest and no such communities were recorded during inspection.

7.0 SITE IMPACTS

This section of the report reviews the development proposal and likely resultant impact to flora, fauna and habitat value.

7.1 SIGNIFICANCE OF IMPACTS TO THREATENED SPECIES AND/OR COMMUNITIES

DEC (2005 & 2008) outline assessments relating to the significance of impacts of actions to threatened species, communities and populations. DEC (2005) notes that evaluation of impacts should involve not only the magnitude and extent of impacts, but also the significance of the impacts as related to the conservation importance of the habitat, individuals and populations likely to be affected.

Impacts are considered more significant if:

- Areas of high conservation value are affected.
- Individual animals and/or plants and/or subpopulations that are likely to be affected by a proposal play an important role in maintaining the long-term viability of the species, population or ecological community.
- Habitat features that are likely to be affected by a proposal play an important role in maintaining the long-term viability of the species, population or ecological community.
- The impacts are likely to be long-term in duration.
- The impacts are likely to be permanent and irreversible.

A number of threatened species have been found (or are considered potential occurrences) within the subject site and individuals of these species have the potential to be impacted through the removal of vegetation or disturbance to habitat. Areas of endangered ecological communities (EECs) are also present which, along with threatened species potential habitat, have the potential to be affected through indirect impacts (i.e. edge effects, inappropriate or no management of weeds and pest animals etc). Significance assessments for these EECs and threatened species have been undertaken in Section 6. The significance assessments indicate that the proposed action is unlikely to have a significant impact on any EECs, threatened plants or threatened animals (as summarized below).

Table 11: SUMMARY OF SPECIES/COMMUNITIES FOR WHICH SIGNIFICANCE TESTS WERE UNDERTAKEN

TYPE	LIKELY TO BE SIGNIFICANTLY AFFECTED BY PROPOSED ACTION?
Endangered Ecological Community	
LOWLAND RAINFOREST IN THE NSW NORTH COAST AND SYDNEY BASIN BIOREGIONS	No
Threatened Animals	
Eastern Long-eared Bat	No
Beccaris Freetail Bat	No
Eastern Bentwing Bat	No
Eastern Freetail Bat	No
Little Bentwing Bat	No
Yellow-bellied Sheathtail bat	No
Grey-headed Flying Fox	No
Bush Stone-curlew	No
Rose-crowned Fruitdove	No
White-eared Monarch	No
Wompoo Fruitdove	No
Common Blossom Bat	No
Barred Cuckoo Shrike	No

Threatened Plants	
Fine-leaved Tuckeroo	No
Rough-shelled Bushnut	No
Red Lillipilli	No
Durrobby	No
Floyds Ball Nut	No

Although the potential impacts of the proposed action on threatened biodiversity are not considered significant (as summarized above and discussed in detail within Section 6), mitigation measures are proposed to manage potential impacts (refer Section 8).

7.2 CLEARING OF VEGETATION COMMUNITIES

Clearing of vegetation (native and exotic) will be the major direct impact associated with the intended establishment of the dwelling envelope. Clearing is recognized as a key threatening process under the TSCA 1995. As discussed in this report it is considered that the proposed clearing works for this proposal will not have a significant environmental impact due to the highly modified nature of the areas to be affected which were previously utilized for quarrying purposes.

The removal of native trees to facilitate the development envelope will be limited to scattered swamp oak, macaranga, blackwood and camphor laurel scattered across the existing paddock.

7.3 IMPACTS TO FAUNA HABITAT

The proposal will involve the clearing of ~4ha of principally exotic vegetation to deliver the residential development as proposed. These proposed vegetation removal/modification works are not considered to represent a significant impact upon the endemic fauna assemblage of the study area, site or locality. The area to be modified has been selected to minimize native tree removal and avoids the treed communities of the site (Vegetation Communities 2-4) focusing upon consolidation of impacts within a previously quarried area of the site.

No observed habitat for threatened flora or fauna, poorly conserved vegetation types or endangered ecological communities will be removed. Due to the small size of the development envelope, area of habitat to be retained and the existence of areas of similar habitat augmenting the habitats of the site in adjacent areas, the proposed vegetation disturbance is not considered to represent a significant impact to local fauna values.

It is acknowledged that any clearing of vegetation may impact upon fauna habitat elements including loss of feeding resources, removal of dead timber (fallen and standing), removal of low levels of ground strata, debris and leaf-litter. Such elements are necessary (depending upon species) for shelter, refuge from predators, feeding, temperature regulation and breeding. Typical additional impacts associated with vegetation clearing on fauna and associated habitat include:

- Overall loss of standing biomass and reduction in flora species abundance/diversity
- Mortality as a result of construction activities (removal/disturbance of nests, hollows, burrows and general habitat)
- Loss of habitat complexity from the clearance zones including loss of potential foraging and nesting/roosting resources
- Increased potential from 'edge effects' to retained remnants (on or offsite)

- Disturbance of species behaviour (i.e. some species are less tolerant to human presence or a higher level of human activity and may abandon currently utilized habitats)
- Reduction of potential fauna movement linkages throughout the overall landscape
- Alteration to the fauna assemblage (some species tolerant to modified habitats (i.e. rats, minors, crows etc) may dominant the newly created niches and displace species from adjacent vegetated remnants)

It is to be noted that habitats element loss from within the development envelope will be minor as this area currently exists as a cleared/weed invaded grassland formally utilized as a quarry. Taking into account the minor extent of principally modified habitat to be cleared, it is considered unlikely that a significant impact to the site's fauna habitat and associated assemblage will be occasioned by the proposal.

Following stabilization and development a modified habitat zone (i.e. residential areas with gardens beds, lawn, buildings etc) will be restored within the disturbance area. This zone however is likely to only favour common species (i.e. common animals tolerant to human proximity). The remaining Vegetation Communities 2-4 will be maintained in their existing state (with weed management works recommended) to retain fauna habitat across the site.

No hollow bearing trees will be removed and as such loss of potential breeding/roosting sites for hollow dependent arboreal mammals, birds or microchiropteran bats is considered to be minor.

7.4 FAUNA MORTALITY/INJURY

Any level of vegetation clearing, construction or earthworks modification undertaken has the potential to kill or injure fauna species. Whilst potential does exist for dispersal of numerous species (particularly avifauna) to retained habitats, less dispersive species or species not tolerant to a surrounding human interface may become trapped within the construction zone during earthworks.

7.5 HABITAT FRAGMENTATION, BARRIER EFFECTS AND EDGE EFFECTS

Habitat fragmentation is considered to be the division of a single area of habitat into two or more smaller habitats separated by a new habitat type in the area between the remaining fragments (PB, 2007). Often the dividing habitat is anthropogenic (i.e. crop, roadway, residential development etc) which limits continued interaction and movement of individuals between the new patches to varying degrees (i.e. birds may be still able to move between patches). Additionally the dividing habitat tends to favour a different assemblage of animals typically described as generalist and/or aggressive (i.e. crows, noisy minors, black rat). This is particularly relevant to urban development where domestic and feral species (cats, foxes, dogs) are favoured by the new habitat to the exclusion of native species.

The resultant habitat fragments or patches are also impacted as a result of a reduction in patch size, reduction in the 'interior' area and creation or expansion of the habitat 'edge.' Edge areas also typically favour aggressive and generalist species particularly in relation to exotic flora. Dominance of exotic flora or weeds can threatened the integrity of the 'interior' habitat thus expanding the edge further. Weed dominance also typically simplifies the structural and floristic diversity to the exclusion of numerous 'niches' and the fauna that occupy such spaces.

Many wildlife studies have shown how the relative abundance of fauna species changes with habitat fragment size (e.g. Ambuel and Temple 1983; Lynch and Whigham 1984; Robinson *et al.* 1997) with some species showing a greater abundance in smaller remnants, while others decrease or even disappear from remnants due to habitat fragmentation (Berry, 2001).

"Species can be grouped according to their response to edges. 'Edge' species are those that increase in abundance at habitat edges. Typically, these are habitat generalist or open-country species, and often they are species also found in greater numbers in small habitat remnants. In contrast, 'interior' species decrease in abundance or are absent from habitat edges; these are typically specialists, have large home ranges, inhabit large forest areas, and are rare or absent from small habitat remnants (Ambuel and Temple 1983; Ford *et al.* 1995; Canady 1997; Luck *et al.* 1999). For example, Catterall *et al.* (1991) found that in forest–suburb boundaries in Brisbane, forest-interior birds were typically smaller and insectivorous, while forest-edge species were usually larger and fed on open ground" (Berry, 2001: 240).

Some of the above and more commonly discussed impacts are summarized below:

Barrier effects "result when severed habitat connections restrict the movement of species (Yahner 1988). Barrier effects can result from relatively small-scale anthropogenic disjunction of habitat and may preclude dispersal or migration and disrupt population processes (e.g. Mansergh and Scotts 1989). The distance over which such effects operate may vary among species. For example, many bird species may be able to readily cross discontinuities in suitable habitat by using small remnants as stepping stones (e.g. Date *et al.* 1991). In contrast, forest-dependent mammals may be reluctant to cross relatively small areas of open habitat (e.g. Burnett 1992)" (Goldingah & Whelan, 1997:24-25)

Genetic isolation may occur when individuals from a previously connected population can no longer interbreed due to the creation of fragments and barrier effects. Such isolation can result in problems associated with inbreeding (and associated loss of genetic diversity and risk of disease, mutation, population crash), divergence and genetic drift.

"Edge effects may occur when a new boundary is established within an existing habitat, producing a change in the remaining habitat (Harris 1984). Abiotic and biotic factors may be responsible for an edge effect (Murcia 1995). Abiotic factors include changes in microclimate such as altered temperature regimes, increased light levels and greater wind speeds (e.g. Scougall *et al.* 1993). Changes in the nutrient status of the soil surrounding an edge may occur when remnant habitat occurs adjacent to agricultural land. Biotic factors include changes in the abundance of animals and plants. These may occur in response to the abiotic factors or because particular species are favoured by the close association of two different habitat types. Edges may promote access by predators to existing habitat, particularly those that favour boundaries between open and remnant habitat (Harris 1988). This may increase the vulnerability of species and lead to a decline in their abundance near the edge (Yahner 1988; Marini *et al.* 1995)" (Goldingah & Whelan, 1997:24)

In association with the development proposal it is considered that the potential impacts associated with habitat fragmentation, barrier and edge effects on the ecological processes

and biodiversity of the native bushland of the site will be minor given the development envelope is recommended to be restricted to Vegetation Community 1 which is a previously cleared area of the site which was formally utilized as a quarry and is now occupied principally by grasses and weeds. Restriction of the development to this area will ensure that Vegetation Communities 2-4 (recommended for retention) will not be further fragmented by the proposal and the existing canopy/treed edges not altered by development works.

To ensure terrestrial fauna dispersal can continue through the retained vegetation of the site the following is proposed:

- No clearing of vegetation (other than weed species) is permitted within the retention areas
- No new tracks or trails are permitted within the retention areas
- No free roaming of domestic animals is permitted within the retention areas

The following design and management initiatives are recommended in association with the development to reduce the impact of existing 'edge effects' on the retained, vegetation:

- A weed management plan is to be developed and implemented with the aim of reducing existing weed abundance on the site which is likely to be suppressing native regeneration in numerous areas

7.6 MORTALITY ASSOCIATED WITH ROADWAYS/VEHICLE STRIKE

Roads and traffic are widely accepted as having impacts upon terrestrial wildlife. "Roads cut across landscape features and divide wildlife habitats. Consequently, they are one of the main obstacles to the movement of land vertebrates (Yanes *et al.* 1995). The implications of movement barriers to wildlife populations are considerable. Barriers tend to create metapopulations (subpopulations) where a road divides a large continuous population into smaller, partially isolated local populations (Forman and Alexander 1998). Small populations fluctuate in size more widely and have a higher probability of extinction than do large populations (van der Zande *et al.* 1980). In addition, disruption of population dispersal (Mansergh and Scotts 1989) and recolonisation (Mader 1984; Andrews 1990) may result from the barrier-effect of roads.

Roads also result in vehicle collisions with wildlife (road-kill) and can represent a significant source of mortality for declining populations of some wildlife species (Harris and Gallagher 1989; Saunders 1990; Sheridan 1991; Scott *et al.* 1999).

It is widely accepted that terrestrial fauna (in particular koala) mortality associated with vehicle strike on roadways intersecting or proximate to habitat represents a serious through to the ongoing viability of populations (Dique et al, 2003; NPWS, 2003; McAlpine et al, 2007; EPA, 2006). Vehicle strikes are heightened where arterial and other roads bisect bushland, remnant bushland or urban habitat areas, resulting in high mortality of resident koalas, or limited success of dispersing animals that must cross roads to reach suitable habitat and mates (Dique *et al*. 2003 in EPA, 2007). NPWS (2003) note that habitat bisecting roadways are particularly likely to lead to increased vehicle strike where traffic volume is high, speeds exceed 60km/hr, where visibility of road edges is reduced and/or where lighting is absent.

Larger species or species with restricted distributions, or those regularly in contact with roads (e.g. migration paths or home ranges), are those most affected by road-kill (Bennett 1991; Forman and Alexander 1998) [in Taylor and Goldingay, 2003]". Morality rates can also

be particularly high for species which are slow moving (i.e. arboreal mammals), those which become distracted by vehicle lights (i.e. kangaroos) and those which require many individual movements to cross the roadway (i.e. small reptiles and amphibians).

In this instance whilst a new internal cul-de-sac is intended to be created this will be installed in the previously cleared area of the site which was formally utilized as a quarry and is now occupied principally by weeds and represents poor fauna habitat and likely a reduced area of native animal dispersal. Certainly the road will not fragment existing significant areas of fauna habitat or threaten the viability of any local or regional fauna corridors. Protection of Vegetation Communities 2-4 as recommended will ensure that the majority of fauna habitat is retained and potential terrestrial fauna dispersal options around the development envelope east-west are maintained.

7.7 PREDATION/DISRUPTION BY CATS AND DOGS

Pest/domestic animals (i.e. foxes, dogs and cats) are noted to be established within the locality. Mortality of fauna (especially koalas) as a result of dog attacks is considered to be a key conservation concern for koala management with some studies reporting that dog attacks account for between 5% and 40% of total recorded mortalities (McAlpine et al, 2007). Within the 'koala coast' of SEQLD an average of 300 koalas each year die as a result of dog attacks (EPA, 2006). Studies into dispersal patterns of koalas undertaken by Dique et al (2003) indicates that in addition to mortality the presence of dogs within or proximate to habitats is likely to disrupt behaviour and associated dispersal options which can lead to those impacts discussed in 7.5 above. The risk of predation can strongly alter the behaviour and activity of potential prey (Lima and Dill 1990). In assessing predation hazards, many species use remote cues of risk because of the dangers of direct encounters with predators, including avoidance of open areas (e.g. Banks et al. 1999) or changing the time that they forage (in Banks et al, 2003; 406). Wild dogs may also potentially carry diseases such as distemper and an array of parasites e.g. hydatids).

Cats also have direct impacts on native fauna through predation. 'They can kill vertebrates weighing as much as 3kg (Dickman 1996), but preferentially kill mammals weighing less than 220g and birds less than 200g. They also kill and eat reptiles, amphibians and invertebrates (Dickman 1996). Cats can also have indirect effects on native fauna by carrying and transmitting infectious diseases (DEH 2004). They are thought to have contributed to the extinction of many small to medium-sized mammals and ground-nesting birds in the arid zone, and to have seriously affected populations of bilby, mala and numbat (DEH 2004)'(DEWHA, 2008).

To mitigate the potential impact of domestic animals on resident fauna the following measures are recommended:

- Imposition of a 'dog and cat restriction' covenant as follows:
    - Dogs and cats on the new allotment shall not be permitted unrestrained in areas external to the designated development envelope

The above is considered a potentially significant benefit to the existing 'as of right' uses of the site.

7.8 ESTABLISHMENT OF WEEDS

Weed invasion occurs when unwanted or exotic plants become established in native bushland via natural dispersal vectors such as wind, water, insects, birds and other animals, however, humans are by far the most effective and efficient vector of plants (Coutts-Smith

and Downey, 2006; Randall, 2007 in TSSC, 2010). Humans may facilitate the direct introduction weeds by inappropriate garden dumping, via vehicles, imported agricultural products and stock rotation/movement. The potential impacts of weed invasion in Australia are well documented and summarized in TSSC (2010) including:

Genetic effects
Environmental weeds cause a decline in the number of genetically distinct sub-populations that make up a native species. It is reasonable to conclude that an associated reduction in the genetic diversity of the affected species is likely to result. The invasion of weeds may also affect the genetic diversity of native species through cross breeding or hybridisation, whereby foreign genes are introduced into local plant populations

Introduction of diseases
The introduction of weeds often results in the introduction of pathogens (fungi, nematodes, bacteria and viruses) that are associated with these plants in their natural range (ILDA, 2009).

Competition for resources
Competition between species is inevitable when more than one species occupy the same niche and have similar requirements for a limited resource (Cadotte, 2007). Weeds are known to compete with native plants for limited resources such as moisture, nutrients, sunlight, pollinators and space (Csurches and Edwards, 1998; Blood, 2001; Brunskill, 2002).

Prevention of recruitment
Growth of weeds can be sufficiently vigorous to reduce or prevent the establishment of native plant species (Csurches and Edwards, 1998)

Alteration of ecosystem processes
Invasive weeds are also capable of altering various ecosystem processes such as geomorphological processes, hydrological cycles, nutrient dynamics and disturbance regimes (Csurches and Edwards, 1998). Alterations to ecosystem processes can potentially influence many if not all species within a community (Vranjic et al., 2000).

Changes to abundance of indigenous fauna
Weeds that become invasive can both directly and indirectly change the abundance of indigenous fauna. Fauna such as the Richmond Birdwing Butterfly and *Petrogale persephone* (Proserpine Rock Wallaby) are directly impacted by escaped garden plants, Dutchman's Pipe (*Aristolochia elegans*) and Pink Periwinkle (*Catharanthus roseus*), respectively, both of which are attractive as a food source and yet toxic to them when consumed (Watts and Vidler, 2006). Indirectly, weeds impact indigenous fauna by altering the availability of suitable habitat, including food and shelter, and by creating habitats that harbour other pest species that can, in turn, have a detrimental effect.

As discussed in this report, weeds are abundant across the site with the potential for ongoing suppression of natural regeneration within treed areas. To minimise the and potential future impact of unmitigated continued spread of weed species it is considered appropriate that a weed management plan be prepared and implemented in association with the subdivision. It is considered that assistance and discussion with Council will be necessary to prepare a viable plan of management as the extent of weed growth is extensive and ongoing management of adjoining bushland would also be required to reduce the potential for re-establishment after initial treatment/management.

8.0 MEASURES TO AVOID AND MINIMISE ECOLOGICAL IMPACTS

8.1 PROTECTION & AVOIDANCE

In association with this assessment (and in agreement with previous recommendations by Aspect North, 2004) it is recommended that the development envelope for the subdivision be consolidated within the northern areas of the site previously quarried and cleared. Vegetation communities 2-4 are to be retained with separation buffers are recommended as follows:

- A minimum 20m separation buffer from new allotment boundaries is recommended to community 4 which is reflective of the Lowland Rainforest EEC

- A minimum 10m separation buffer from new allotment boundaries is recommended to communities 2 and 3 which are reflective of highly disturbed camphor laurel and mixed rainforest regrowth

  The purpose of these buffers is to provide physical separation between the retained treed areas and the fencelines of new allotments. Such a buffer will enable installation of a maintenance track around the back of the new properties for access to the retained areas (i.e. for ongoing weed management, monitoring etc) and to discourage dumping of garden refuse beyond new fencelines.

- Dwellings within future residential allotments are to be physically separated from the boundaries of retained vegetation communities such that no clearing of the retained communities is required by an approved Bushfire Management Plan or becomes 'exempt' clearing under NSW Rural Fire Service 10/50 code (refer note below)

NOTE:
To ensure vegetation communities 2-4 are retained in association with the recommendations of this report the consulting planner and bushfire consultant are to ensure that no dwellings or associated exempt structures are placed in a location on future allotments which would place the external retained vegetation within a vegetation clearing entitlement zone as considered by NSW Rural Fire Service 10/50 code which commenced on 1 October 2014. This includes locating dwellings and/or structures requiring bushfire protection to ensure that no native understorey, mid-storey or upper storey species (existing or from future natural regeneration or targeted revegetation) which form part of the retained communities (including endangered ecological communities) may be impacted by future 'exempt' clearing pursuant to the 10/50 code.

Understorey and canopy removal of weed species may occur as outlined elsewhere within this report but such areas must be allowed to regenerate with native species.

ECOLOGICAL RECOMMENDATIONS SUMMARY

- SITE BOUNDARY
- RETAINED HIGHLY DISTURBED CAMPHOR LAUREL +/- EARLY REGROWTH RAINFOREST +/- WEED SHRUBLAND. WEED MANAGEMENT AREA
- RETAINED PARTIAL EEC SUBTROPICAL RAINFOREST/CAMPHOR LAUREL FOREST.
- 20M ECOLOGICAL BUFFER TO RETAINED VEGETATION COMMUNITY 4 EEC
- 10M SEPARATION BUFFER TO RETAINED HIGHLY DISTURBED CAMPHOR LAUREL/EARLY REGROWTH RAINFOREST
- RAINFOREST TREE PLANTING AREAS

NOTES:
Vegetation maps have been compiled using Mapinfo geographic information system (GIS) software (Ver. 11.5). Information utilized has included:
Data including contours, site boundaries and 2009, 2012 & 2014 aerial photographs.
Tweed VMP (2004) vegetation community mapping metadata
Upper North East CRA Forest Ecosystem Layer metadata
NSW DEH Vegetation Information System Spatial Information Exchange (SIX)
Northern Comprehensive Regional Assessment Aerial Photograph Interpretation
VISmap 1108 Layer metadata
Rainforest Mapping for NENSW VIS ID3887
2004 Apsect North Vegetation Community Mapping & Descriptions

Ground truthing was performed as outlined (Section 3 of Report) with geo-referenced colour aerial photographs overlaid with contour plans, existing mapped vegetation boundaries and cadastre boundaries for the initial recognition of community boundaries in the field and adjustments noted as necessary. Communities (refer Section 3 of the report) were then transcribed directly into the GIS program utilizing the aerials, contours, geological information and existing mapped vegetation boundaries as a reference background.

Map Created: 22-1-2015
Scale = 1:1750 @ A3

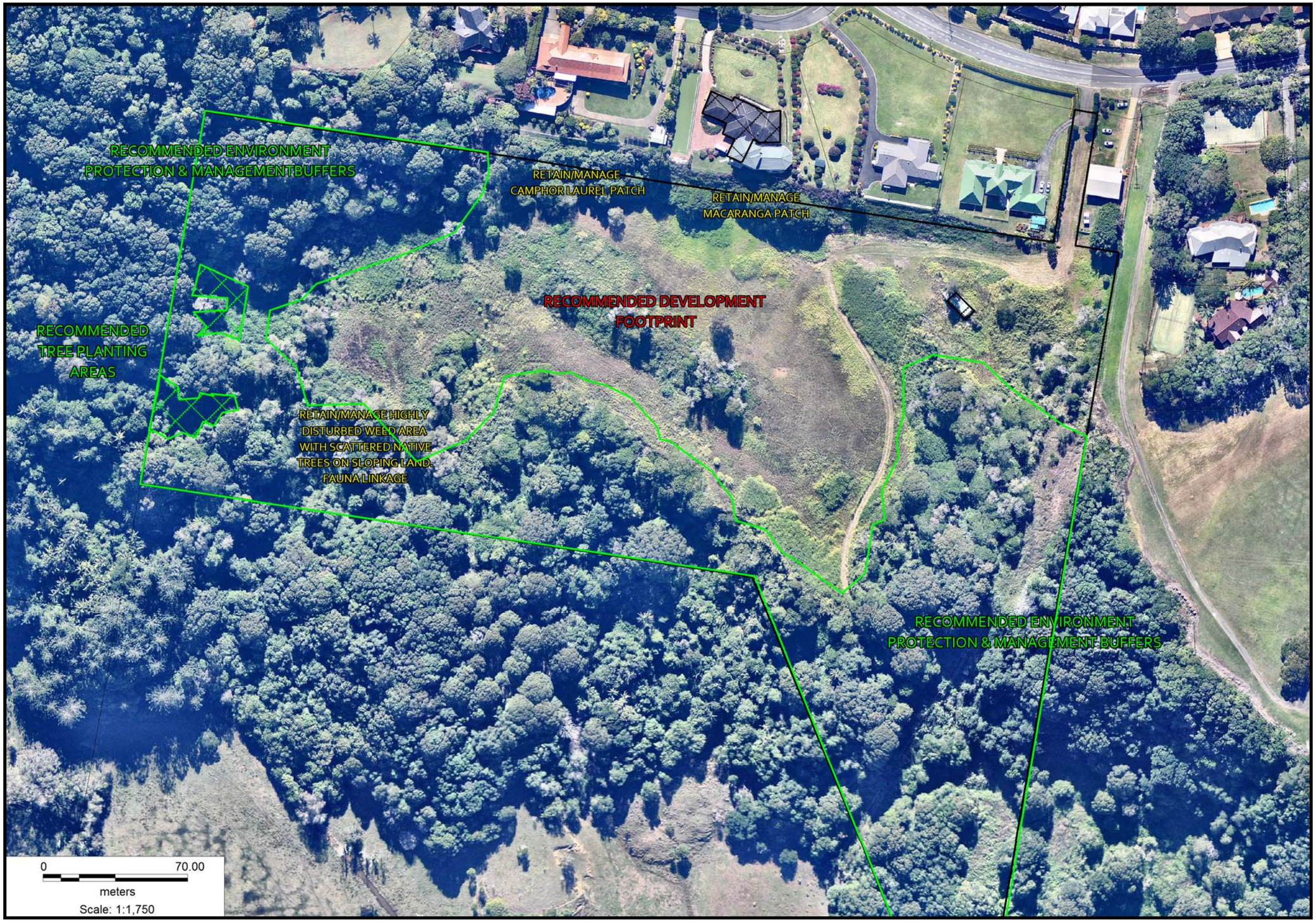


Figure 19: RECOMMENDED ENVIRONMENT PROTECTION AND MANAGEMENT BUFFERS

8.2 MITIGATION MEASURES

The following measures are proposed to mitigate potential impacts associated with site development:

8.2.1 IMPACT OF VEGETATION AND HABITAT CLEARING

Disturbance to areas of native and exotic vegetation as described in this report will be unavoidable to deliver the development as proposed. To ensure that clearing impacts do not occur outside of the designated development envelope it will be necessary to clearly identify and mark the boundaries of the clearing zone onsite prior to construction. Such boundaries are to be protected via high visibility fencing, sediment fencing and signage identifying that no construction activities (including temporary storage, stockpiling, vehicle movement etc) are permitted beyond.

Within the designated development envelope identification of areas to be cleared are to be pre-assessed by an experienced ecologist and wildlife spotter/catcher and a clearing phase fauna management plan prepared. A wildlife spotter catcher is to be utilized during all phases of clearing of the site to ensure safe dispersal and relocation/dispersal of native fauna. As areas of rank grassland which would be utilised by native rodents during regular foraging forays will be removed a load reduction trapping exercise prior to clearing of the development envelope has been recommended by Aspect North (2004). This exercise can be implemented quite simply by installing a silt fence at the outer edge of future council approved works/clearing zones and undertaking cage and elliot trapping over four nights prior to clearing. Captured individuals are to be placed within the habitat on the retained side of the silt fence to minimise potential re-entry to the clearance zone.

Salvageable habitat components such as hollow stems or ground logs shall also be stockpiled and randomly dispersed throughout the retained bushland external to the development envelope.

8.2.2 IMPACTS ASSOCIATED WITH EDGE EFFECTS & WEED MANAGEMENT

The following management initiatives are recommended in association with site development to progressively reduce the impact of 'edge effects' on the retained, interconnected vegetation:

- A weed management plan is to be prepared and implemented to progressively reduce the extensive weed infestations noted within the vegetation areas to be retained.

8.2.3 DOMESTIC ANIMAL MANAGEMENT

To mitigate the potential impact of domestic animals on resident fauna the following measures are proposed:

- Imposition of a 'dog and cat restriction' covenant as follows:
  - Dogs and cats on the allotment shall not be permitted unrestrained in areas external to the designated dwelling envelope

The above is considered a potentially significant benefit to the existing 'as of right' uses of the site.

8.2.4 TERRESTRIAL FAUNA DISPERSAL BARRIERS, BARRIER EFFECTS

As discussed in the previous sections the following measures are proposed to reduce the potential impact of the development envelope proposal on continued terrestrial fauna dispersal within the locality:

- Limiting clearing of habitat to Vegetation Community 1 being the highly modified cleared/grassland areas in the central north of the site
- Dogs and cats on the new allotments shall not be permitted unrestrained in habitat retention areas external to the designated development envelope

8.3 ENHANCEMENT & RESTORATION

The following actions are aimed at providing a level of enhancement to retained habitats and restoration of degraded areas of the site. These actions focus upon bush regeneration activities and restoring native vegetation biomass following construction:

8.3.1 REVEGETATION & RESTORATION OF DISTURBED AREAS

To compensate for the minor loss of small native trees from the development envelope it is recommended that ~1000m^2 of rainforest trees be planted within existing canopy gaps in the southwestern corner of the vegetation areas to be retained. Revegetation is to utilise endemic species of local provenance only and to be certified disease and pathogen free prior to introduction into areas proximate to endangered ecological communities and threatened flora populations.

8.3.2 WEED MANAGEMENT

A weed management plan is to be prepared and implemented to progressively reduce the extensive weed infestations noted within the vegetation areas to be retained and to allow for natural regeneration of native species which is currently being suppressed in numerous areas by uncontrolled exotic growth.

It is considered that assistance and discussion with Council will be necessary to prepare a viable plan of management as the extent of weed growth is extensive and ongoing management of adjoining bushland would also be required to reduce the potential for re-establishment after initial treatment/management.

8.4 RESIDUAL IMPACTS

Impacts that cannot or are not proposed to be mitigated (in the context of the development) are considered to be residual impacts. The following residual impacts will occur as a result of this development proposal:

- Loss/modification of ~4ha of Vegetation Community 1 (Cleared/modified grassland area];
- Loss of minor residual fauna habitat associated with the above;
- Loss of a small number of native trees (swamp oak, macaranga, blackwood) within the northern paddock providing potential foraging habitat for flying mammals and avifauna
- Intensifying an existing dispersal barrier to terrestrial fauna dispersal within the previously quarried area of the site.

It is considered that weed management works to promote natural regeneration and revegetation/restoration plantings as outlined in Sections 8.3.1 and 8.3.2 are suitable environmental compensation for these residual impacts.

9.0 ATTACHMENTS

ATTACHMENT 1: NPWS/OEH DATABASE RECORDS THREATENED FLORA & FAUNA (2015)

ATTACHMENT 2: ASPECT NORTH (2004) FLORA AND FAUNA ASSESSMENT

ATTACHMENT 1

NPWS/OEH DATABASE RECORDS THREATENED FLORA & FAUNA (2015)

Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions.

Location accuracy varies. Records of species listed under the Sensitive Species Data Policy are identified in the Sensitivity Class column (^ rounded to 0.1°; ^^ rounded to 0.01°).

Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Animals in selected area [North: -28.17 West: 153.47 East: 153.57 South: -28.27] returned a total of 1,243 records of 50 species.Report generated on 8/01/2015 10:05 AM

DatasetName	SightingKey	SpeciesCod	ClassName	FamilyName	SortOrd	ScientificName	Exotic	CommonName	NSWSta	CommS	Sensit	ProfileID	DateFirst	DateLast	Numb	Estima	SourceC	Observa	Latitude_GDA94	Longitude_GDA	Zone	Easting	Northing	Accuracy
OEH Data from Scien	SDMPl0099008	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	11/5/2005	11/5/2005	5	+	4	W	-28.25846017	153.5657124	56	555489	6874036	100
OEH Data from Scien	SDMPl0155708	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	3/3/2004	3/3/2004	1		4	W	-28.26020177	153.5658439	56	555501	6873843	100
OEH Data from Scien	SDMPl0213716	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	26/11/2006	26/11/2006	1		4	T	-28.25955887	153.5685013	56	555762	6873913	100
OEH Data from Scien	SDMPl0213803	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	27/11/2006	27/11/2006	1		4	T	-28.25982194	153.5660152	56	555518	6873885	100
OEH Data from Scien	SDMPl0218562	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	17/04/2007	17/04/2007	1		4	T	-28.17332596	153.5184997	56	550899	6883488	6
OEH Data from Scien	SDMPl0413254	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	7/2/2008	7/2/2008	2		4	W	-28.17269463	153.5190642	56	550954	6883558	20
OEH Data from Scien	SDMPl0413256	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	9/2/2008	9/2/2008	1		4	T	-28.17087504	153.5131439	56	550374	6883762	10
OEH Data from Scien	SDMPl0413257	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	10/2/2008	10/2/2008	1		4	T	-28.17087504	153.5131439	56	550374	6883762	10
OEH Data from Scien	SDMPl0413259	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	4/3/2008	4/3/2008	1		4	T	-28.17312574	153.5085358	56	549921	6883515	10
OEH Data from Scien	SDMPl0413261	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	5/3/2008	5/3/2008	1		4	W	-28.17312574	153.5085358	56	549921	6883515	20
OEH Data from Scien	SDMPl0413262	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	5/3/2008	5/3/2008	1		4	W	-28.17269463	153.5190642	56	550954	6883558	20
OEH Data from Scien	SDMPl0413263	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	6/3/2008	6/3/2008	1		4	W	-28.17269463	153.5190642	56	550954	6883558	20
OEH Data from Scien	SDMPl0413266	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	15/01/2008	15/01/2008	2		4	W	-28.17186499	153.5060029	56	549673	6883655	20
OEH Data from Scien	SDMPl0413267	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	15/01/2008	15/01/2008	2		4	W	-28.17169521	153.5130371	56	550363	6883671	20
OEH Data from Scien	SDMPl0413269	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	15/01/2008	15/01/2008	3		4	W	-28.17272519	153.5091462	56	549981	6883559	20
OEH Data from Scien	SDMPl0413272	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	15/01/2008	15/01/2008	10		4	W	-28.17187262	153.506659	56	549737	6883654	20
OEH Data from Scien	SDMPl0413273	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	15/04/2008	15/04/2008	1		4	W	-28.17169521	153.5130371	56	550363	6883671	20
OEH Data from Scien	SDMPl0413278	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	15/04/2008	15/04/2008	3		4	W	-28.17186499	153.5060029	56	549673	6883655	20
OEH Data from Scien	SDMPl0413279	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	15/04/2008	15/04/2008	4		4	W	-28.17272519	153.5091462	56	549981	6883559	20
OEH Data from Scien	SDMPl0413280	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	15/04/2008	15/04/2008	6		4	W	-28.17187262	153.506659	56	549737	6883654	20
OEH Data from Scien	SDMPl0413281	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	9/10/2008	9/10/2008	1		4	W	-28.17163612	153.5053315	56	549607	6883681	20
OEH Data from Scien	SDMPl0413282	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	9/10/2008	9/10/2008	1		4	W	-28.1716857	153.5067811	56	549749	6883675	20
OEH Data from Scien	SDMPl0413283	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	9/10/2008	9/10/2008	1		4	W	-28.17347478	153.5092377	56	549989	6883476	20
OEH Data from Scien	SDMPl0413285	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	9/10/2008	9/10/2008	3		4	W	-28.17164561	153.5129456	56	550354	6883677	20
OEH Data from Scien	SDMPl0413286	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	9/10/2008	9/10/2008	5		4	W	-28.17272519	153.5091462	56	549981	6883559	20
OEH Data from Scien	SIXRl0011706	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	10/3/2010	10/3/2010	1		4	T	-28.17203533	153.5074534	56	549815	6883636	5
OEH Data from Scien	SIXRl0011714	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	11/3/2010	11/3/2010	1		4	T	-28.17203533	153.5074534	56	549815	6883636	5
OEH Data from Scien	SIXRl0011807	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	12/1/2010	12/1/2010	2		4	W	-28.17159093	153.5128604	56	550346	6883683	5
OEH Data from Scien	SIXRl0011808	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	12/1/2010	12/1/2010	1		4	W	-28.17353565	153.5093858	56	550004	6883469	5
OEH Data from Scien	SIXRl0011809	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	12/1/2010	12/1/2010	3		4	W	-28.17116595	153.5154559	56	550601	6883729	5
OEH Data from Scien	SIXRl0011810	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	12/1/2010	12/1/2010	1		4	W	-28.17279648	153.5091073	56	549977	6883551	5
OEH Data from Scien	SIXRl0011811	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	12/1/2010	12/1/2010	2		4	W	-28.17195703	153.5066585	56	549737	6883645	5
OEH Data from Scien	SIXRl0011812	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	12/1/2010	12/1/2010	1		4	W	-28.17140268	153.5052196	56	549596	6883707	5
OEH Data from Scien	SIXRl0011814	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	3/2/2010	3/2/2010	2		4	W	-28.17354448	153.5094368	56	550009	6883468	5
OEH Data from Scien	SIXRl0011815	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	3/2/2010	3/2/2010	1		4	W	-28.17134479	153.515905	56	550645	6883709	5
OEH Data from Scien	SIXRl0011816	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	3/2/2010	3/2/2010	1		4	W	-28.17136265	153.515956	56	550650	6883707	5
OEH Data from Scien	SIXRl0011820	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	3/2/2010	3/2/2010	1		4	W	-28.17146565	153.505281	56	549602	6883700	5
OEH Data from Scien	SIXRl0011821	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	3/2/2010	3/2/2010	1		4	W	-28.17160078	153.5053529	56	549609	6883685	5
OEH Data from Scien	SIXRl0011823	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	29/04/2010	29/04/2010	1		4	W	-28.1716535	153.5130237	56	550362	6883676	5
OEH Data from Scien	SIXRl0011824	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	29/04/2010	29/04/2010	1		4	W	-28.17356254	153.5094369	56	550009	6883466	5
OEH Data from Scien	SIXRl0011825	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	29/04/2010	29/04/2010	1		4	W	-28.17205674	153.5065469	56	549726	6883634	5
OEH Data from Scien	SIXRl0011828	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	29/04/2010	29/04/2010	2		4	W	-28.17213828	153.5064658	56	549718	6883625	5
OEH Data from Scien	SIXRl0011829	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	29/04/2010	29/04/2010	2		4	W	-28.17205674	153.5065469	56	549726	6883634	5
OEH Data from Scien	SIXRl0011830	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	29/04/2010	29/04/2010	2		4	W	-28.17169981	153.5054247	56	549616	6883674	5
OEH Data from Scien	SIXRl0011832	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	4/8/2010	4/8/2010	2		4	W	-28.17147373	153.5128191	56	550342	6883696	5
OEH Data from Scien	SIXRl0011833	3137	Amphibia	Myobatrachidae	89	Crinia tinnula		Wallum Froglet	V,P			10183	4/8/2010	4/8/2010	2		4	W	-28.17350826	153.5094672	56	550012	6883472	5

OEH Data from Scien SIXRI0011836	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	4/8/2010	4/8/2010	1	4	W	-28.17294982	153.5091385	56	549980	6883534	5
OEH Data from Scien SIXRI0011837	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	4/8/2010	4/8/2010	1	4	W	-28.17190272	153.506699	56	549741	6883651	5
OEH Data from Scien SIXRI0011838	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	4/8/2010	4/8/2010	1	4	W	-28.1717314	153.5066472	56	549736	6883670	5
OEH Data from Scien SIXRI0011839	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	4/8/2010	4/8/2010	5	4	W	-28.17177165	153.5055269	56	549626	6883666	5
OEH Data from Scien SIXRI0011840	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	20/10/2010	20/10/2010	10	4	W	-28.17147373	153.5128191	56	550342	6883696	5
OEH Data from Scien SIXRI0011841	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	20/10/2010	20/10/2010	5	4	W	-28.17347253	153.5093651	56	550002	6883476	5
OEH Data from Scien SIXRI0011842	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	20/10/2010	20/10/2010	30	4	W	-28.17146352	153.5155388	56	550609	6883696	5
OEH Data from Scien SIXRI0011847	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	20/10/2010	20/10/2010	5	4	W	-28.17267943	153.5090252	56	549969	6883564	5
OEH Data from Scien SIXRI0011848	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	20/10/2010	20/10/2010	1	4	W	-28.17204768	153.5065571	56	549727	6883635	5
OEH Data from Scien SIXRI0011849	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	20/10/2010	20/10/2010	10	4	W	-28.17164592	153.5053531	56	549609	6883680	5
OEH Data from Scien SJJSI0057694	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	16/02/2009	16/02/2009	1	4	W	-28.17136713	153.5159515	56	550650	6883707	5
OEH Data from Scien SJJSI0057697	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	16/02/2009	16/02/2009	2	4	W	-28.17386199	153.5055452	56	549627	6883434	5
OEH Data from Scien SJJSI0057699	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	16/02/2009	16/02/2009	3	4	W	-28.17186308	153.5067048	56	549742	6883655	5
OEH Data from Scien SJJSI0057700	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	16/02/2009	16/02/2009	5	4	W	-28.17354917	153.5094208	56	550007	6883467	5
OEH Data from Scien SJJSI0057702	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	16/02/2009	16/02/2009	6	4	W	-28.1716056	153.5053468	56	549608	6883684	5
OEH Data from Scien SJJSI0057703	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	16/02/2009	16/02/2009	6	4	W	-28.17300939	153.509314	56	549997	6883527	5
OEH Data from Scien SJJSI0057706	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	14/04/2009	14/04/2009	1	4	W	-28.17354917	153.5094208	56	550007	6883467	5
OEH Data from Scien SJJSI0057707	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	14/04/2009	14/04/2009	2	4	W	-28.17186308	153.5067048	56	549742	6883655	5
OEH Data from Scien SJJSI0057708	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	14/04/2009	14/04/2009	2	4	W	-28.17300939	153.509314	56	549997	6883527	5
OEH Data from Scien SJJSI0057709	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	14/04/2009	14/04/2009	3	4	W	-28.17272899	153.5138458	56	550442	6883557	5
OEH Data from Scien SJJSI0057711	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	27/07/2009	27/07/2009	1	4	W	-28.17186308	153.5067048	56	549742	6883655	5
OEH Data from Scien SJJSI0057712	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	27/07/2009	27/07/2009	1	4	W	-28.17300939	153.509314	56	549997	6883527	5
OEH Data from Scien SJJSI0057713	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	27/07/2009	27/07/2009	1	4	W	-28.17354917	153.5094208	56	550007	6883467	5
OEH Data from Scien SJJSI0057714	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	27/07/2009	27/07/2009	1	4	W	-28.17136713	153.5159515	56	550650	6883707	5
OEH Data from Scien SJJSI0057717	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	27/07/2009	27/07/2009	3	4	W	-28.1716056	153.5053468	56	549608	6883684	5
OEH Data from Scien SJJSI0057718	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	20/10/2009	20/10/2009	1	4	W	-28.17136713	153.5159515	56	550650	6883707	5
OEH Default Sightinç SJAL02032700	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	10/1/2000	14/02/2001		4	T	-28.17393508	153.5077733	56	549846	6883425	100
OEH Default Sightinç SYXM0110171G	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	12/4/1998	21/04/1998	6	4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Default Sightinç SYXM0110180S	3137	Amphibia	Myobatrachidae	89	Crinia tinnula	Wallum Froglet	V,P		10183	3/11/1998	3/11/1998	4	4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Data from Scien SDMPI0413292	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	15/01/2008	15/01/2008	2	4	W	-28.17169521	153.5130371	56	550363	6883671	20
OEH Data from Scien SDMPI0413293	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	15/01/2008	15/01/2008	3	4	W	-28.17187262	153.506659	56	549737	6883654	20
OEH Data from Scien SDMPI0413294	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	15/01/2008	15/01/2008	5	4	W	-28.17186499	153.5060029	56	549673	6883655	20
OEH Data from Scien SDMPI0413295	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	15/01/2008	15/01/2008	8	4	W	-28.17272519	153.5091462	56	549981	6883559	20
OEH Data from Scien SDMPI0413297	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	9/10/2008	9/10/2008	1	4	W	-28.17163612	153.5053315	56	549607	6883681	20
OEH Data from Scien SDMPI0413298	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	9/10/2008	9/10/2008	1	4	W	-28.17347478	153.5092377	56	549989	6883476	20
OEH Data from Scien SDMPI0413299	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	9/10/2008	9/10/2008	1	4	W	-28.17164561	153.5129456	56	550354	6883677	20
OEH Data from Scien SDMPI0413301	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	9/10/2008	9/10/2008	5	4	W	-28.17272519	153.5091462	56	549981	6883559	20
OEH Data from Scien SIXRI0011789	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	12/1/2010	12/1/2010	2	4	W	-28.17353565	153.5093858	56	550004	6883469	5
OEH Data from Scien SIXRI0011791	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	12/1/2010	12/1/2010	1	4	W	-28.17195703	153.5066585	56	549737	6883645	5
OEH Data from Scien SIXRI0011793	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	3/2/2010	3/2/2010	1	4	W	-28.17276049	153.5090765	56	549974	6883555	5
OEH Data from Scien SIXRI0011794	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	3/2/2010	3/2/2010	1	4	W	-28.1730033	153.5093222	56	549998	6883528	5
OEH Data from Scien SIXRI0011795	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	3/2/2010	3/2/2010	5	4	W	-28.17185755	153.506709	56	549742	6883656	5
OEH Data from Scien SIXRI0011799	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	4/8/2010	4/8/2010	1	4	W	-28.1735083	153.509457	56	550011	6883472	5
OEH Data from Scien SIXRI0011800	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	20/10/2010	20/10/2010	5	4	W	-28.17347253	153.5093651	56	550002	6883476	5
OEH Data from Scien SIXRI0011801	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	20/10/2010	20/10/2010	1	4	W	-28.17116595	153.5154559	56	550601	6883729	5
OEH Data from Scien SIXRI0011802	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	20/10/2010	20/10/2010	2	4	W	-28.171246	153.5157721	56	550632	6883720	5
OEH Data from Scien SIXRI0011805	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	20/10/2010	20/10/2010	4	4	W	-28.17204768	153.5065571	56	549727	6883635	5
OEH Data from Scien SJJSI0057719	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	16/02/2009	16/02/2009	2	4	W	-28.17186308	153.5067048	56	549742	6883655	5
OEH Data from Scien SJJSI0057720	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	16/02/2009	16/02/2009	2	4	W	-28.17136713	153.5159515	56	550650	6883707	5
OEH Data from Scien SJJSI0057723	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	16/02/2009	16/02/2009	5	4	W	-28.1716056	153.5053468	56	549608	6883684	5
OEH Data from Scien SJJSI0057725	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	16/02/2009	16/02/2009	6	4	W	-28.17300939	153.509314	56	549997	6883527	5

OEH Data from Scien	SJJSl0057726	3202	Amphibia	Hylidae	267	Litoria olongburensis	Olongburra Frog	V,P	V	10489	16/02/2009	16/02/2009	8		4	W	-28.17354917	153.5094208	56	550007	6883467	5
OEH Default Sighting	SAJG12120500	2004	Reptilia	Cheloniidae	321	Caretta caretta	Loggerhead Turtle	E1,P	E	10146	26/11/2012 15	26/11/2012 16:	1		5	K	-28.19081394	153.5622027	56	555180	6881532	10
OEH Default Sighting	SDLC01042000	2004	Reptilia	Cheloniidae	321	Caretta caretta	Loggerhead Turtle	E1,P	E	10146	23/12/2000	23/12/2000	1	X	4	K	-28.18040926	153.5583228	56	554804	6882686	100
OEH Default Sighting	SLLT07022600	2004	Reptilia	Cheloniidae	321	Caretta caretta	Loggerhead Turtle	E1,P	E	10146	25/03/2003	25/03/2003	1	X	4	K	-28.17201844	153.5550909	56	554491	6883617	100
OEH Default Sighting	SLLT07022602	2004	Reptilia	Cheloniidae	321	Caretta caretta	Loggerhead Turtle	E1,P	E	10146	16/04/2004	16/04/2004	1	X	4	K	-28.1759001	153.5572807	56	554704	6883186	100
OEH Default Sighting	SLLT09022301	2004	Reptilia	Cheloniidae	321	Caretta caretta	Loggerhead Turtle	E1,P	E	10146	30/06/2004	30/06/2004	1	X	5	K	-28.19559976	153.5675102	56	555698	6880999	200
OEH Default Sighting	SLLT09022400	2004	Reptilia	Cheloniidae	321	Caretta caretta	Loggerhead Turtle	E1,P	E	10146	12/12/2008	12/12/2008	1	X	5	K	-28.17409147	153.5580863	56	554784	6883386	10
OEH Default Sighting	SLLT09031901	2004	Reptilia	Cheloniidae	321	Caretta caretta	Loggerhead Turtle	E1,P	E	10146	2/2/1998	2/2/1998	1	+	6	E	-28.21015924	153.5676485	56	555704	6879386	100
OEH Default Sighting	SLLT09031907	2004	Reptilia	Cheloniidae	321	Caretta caretta	Loggerhead Turtle	E1,P	E	10146	1/8/1999	30/09/1999			4	K	-28.20925448	153.5681532	56	555754	6879486	100
OEH Default Sighting	SLLT09022302	2007	Reptilia	Cheloniidae	322	Chelonia mydas	Green Turtle	V,P	V	10901	18/01/2006	18/01/2006	1		4	K	-28.17668462	153.5572259	56	554699	6883100	100
OEH Default Sighting	SLLT09031906	2007	Reptilia	Cheloniidae	322	Chelonia mydas	Green Turtle	V,P	V	10901	23/12/1999	23/12/1999	1	X	4	K	-28.20925448	153.5681532	56	555754	6879486	100
OEH Default Sighting	SLLT11040400	2007	Reptilia	Cheloniidae	322	Chelonia mydas	Green Turtle	V,P	V	10901	26/03/2011 05	26/03/2011 09	70	E	4	E	-28.23022956	153.5666866	56	555600	6877163	10
OEH Default Sighting	SPLT00020107	2007	Reptilia	Cheloniidae	322	Chelonia mydas	Green Turtle	V,P	V	10901	4/1/2000	4/1/2000	1	X	4	K	-28.18407728	153.5440791	56	553404	6882286	100
OEH Data from Scien	SDMPl0221106	199	Aves	Anseranatidae	1497	Anseranas semipalmata	Magpie Goose	V,P		10056	13/12/2006	13/12/2006	1	X	4	O	-28.19286119	153.4913091	56	548221	6881335	10
OEH Data from Scien	SDMPl0405683	199	Aves	Anseranatidae	1497	Anseranas semipalmata	Magpie Goose	V,P		10056	24/11/2008	28/11/2008	1	E	4	O	-28.19209636	153.4873724	56	547835	6881422	500
Tweed Estuary Water	SPJGl0056499	199	Aves	Anseranatidae	1497	Anseranas semipalmata	Magpie Goose	V,P		10056	27/10/2000	29/10/2000	3		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Water	SPJGl0056500	199	Aves	Anseranatidae	1497	Anseranas semipalmata	Magpie Goose	V,P		10056	24/06/1999	26/06/1999	6		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Water	SPJGl0056501	199	Aves	Anseranatidae	1497	Anseranas semipalmata	Magpie Goose	V,P		10056	31/03/1998	2/4/1998	11		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Water	SPJGl0056502	199	Aves	Anseranatidae	1497	Anseranas semipalmata	Magpie Goose	V,P		10056	2/2/2002	4/2/2002	13		4	O	-28.21125593	153.5187411	56	550905	6879286	100
OEH Data from Scien	SEMMl0066771	25	Aves	Columbidae	1601	Ptilinopus magnificus	Wompoo Fruit-Dove	V,P		10707	20/06/2009	26/06/2009			4	O	-28.20411264	153.4872962	56	547822	6880091	20
OEH Data from Scien	SIXRl0119633	25	Aves	Columbidae	1601	Ptilinopus magnificus	Wompoo Fruit-Dove	V,P		10707	21/06/2013	2/7/2013			4	O	-28.22190578	153.4883968	56	547922	6878119	100
OEH Default Sighting	SJJSl0106610	25	Aves	Columbidae	1601	Ptilinopus magnificus	Wompoo Fruit-Dove	V,P		10707	10/10/2012	10/10/2012	2		4	OW	-28.24808703	153.5072625	56	549761	6875211	5
NRAC Upper North E.	SPXEl0006963	21	Aves	Columbidae	1602	Ptilinopus regina	Rose-crowned Fruit-Dov	V,P		10708	1/11/1994	11/11/1994			4	O	-28.19576689	153.5553459	56	554504	6880986	100
NRAC Upper North E.	SPXEl0007334	21	Aves	Columbidae	1602	Ptilinopus regina	Rose-crowned Fruit-Dov	V,P		10708	########	########			4	O	-28.19576689	153.5553459	56	554504	6880986	100
OEH Data from Scien	SEMMl0066772	21	Aves	Columbidae	1602	Ptilinopus regina	Rose-crowned Fruit-Dov	V,P		10708	20/06/2009	26/06/2009			4	O	-28.20411264	153.4872962	56	547822	6880091	20
OEH Data from Scien	SIXRl0119634	21	Aves	Columbidae	1602	Ptilinopus regina	Rose-crowned Fruit-Dov	V,P		10708	21/06/2013	2/7/2013			4	O	-28.22190578	153.4883968	56	547922	6878119	100
OEH Default Sighting	2004-NR	21	Aves	Columbidae	1602	Ptilinopus regina	Rose-crowned Fruit-Dov	V,P		10708	1/4/1987	31/05/1987			4	O	-28.18514692	153.5002771	56	549105	6882186	100
OEH Default Sighting	38493-035	21	Aves	Columbidae	1602	Ptilinopus regina	Rose-crowned Fruit-Dov	V,P		10708	28/12/1991	28/12/1991	1		4	O	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting	SJJT0309170N	21	Aves	Columbidae	1602	Ptilinopus regina	Rose-crowned Fruit-Dov	V,P		10708	2/7/2002	2/7/2002	1		4	O	-28.24149154	153.5174092	56	550760	6875937	100
OEH Default Sighting	SPXE9605020C	72	Aves	Procellariidae	1674	Ardenna carneipes	Flesh-footed Shearwate	V,P	J,K	10896	16/02/1996	24/02/1996	100	+	4	O	-28.21507439	153.5510536	56	554073	6878849	1000
Australian Bird & Bat	ABBBS1677999	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	21/05/2013	21/05/2013			4	O	-28.18702071	153.5113391	56	550189	6881974	100
NRAC Upper North E.	SPXEl0015408	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	15/11/1994	15/11/1994	1		4	O	-28.20769484	153.505477	56	549605	6879686	1000
NRAC Upper North E.	SPXEl0015485	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	15/11/1994	15/11/1994	1		4	O	-28.23029487	153.4964105	56	548705	6877186	1000
NRAC Upper North E.	SPXEl0087988	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	11/10/1994	11/10/1994	2		4	O	-28.20769484	153.505477	56	549605	6879686	1000
OEH Data from Scien	SDMPl0135127	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	10/9/1988	10/9/1988	1	X	4	O	-28.2554432	153.5301687	56	552004	6874386	100
OEH Data from Scien	SDMPl0135553	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/1/1998	31/12/1998	1	X	4	O	-28.20227888	153.5054515	56	549605	6880286	100
OEH Data from Scien	SDMPl0135554	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	6/5/2006	6/5/2006	1	X	4	O	-28.20227888	153.5054515	56	549605	6880286	100
OEH Data from Scien	SDMPl0135555	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	5/10/2005	5/10/2005	1	X	4	O	-28.20227888	153.5054515	56	549605	6880286	100
OEH Data from Scien	SDMPl0135558	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	25/05/2004	25/05/2004	2	X	4	O	-28.20839994	153.5564302	56	554604	6879586	100
OEH Data from Scien	SDMPl0135559	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	28/07/2005	28/07/2005	1	X	4	O	-28.19052535	153.5104904	56	550105	6881586	100
OEH Data from Scien	SDMPl0135560	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	12/6/2005	12/6/2005	1	X	4	O	-28.19307127	153.5522754	56	554204	6881286	100
OEH Data from Scien	SDMPl0135561	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	20/08/1997	31/08/1997	2	X	4	O	-28.18878346	153.4931623	56	548405	6881786	100
OEH Data from Scien	SDMPl0135562	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/3/2003	31/03/2003	2	X	4	O	-28.18878346	153.4931623	56	548405	6881786	100
OEH Data from Scien	SDMPl0135563	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	21/07/2004	21/07/2004	2	X	4	O	-28.18878346	153.4931623	56	548405	6881786	100
OEH Data from Scien	SDMPl0135565	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/1/1984	31/12/1985	2	X	4	O	-28.26641603	153.4924996	56	548305	6873186	100
OEH Data from Scien	SDMPl0135570	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/10/2004	13/10/2004	1	X	4	O	-28.20619199	153.5305062	56	552062	6879842	100
OEH Data from Scien	SDMPl0135571	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	29/07/2004	29/07/2004	2	X	4	O	-28.20619199	153.5305062	56	552062	6879842	100
OEH Data from Scien	SDMPl0135575	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	11/6/2006	11/6/2006	1	X	4	O	-28.21477198	153.488013	56	547888	6878909	100
OEH Data from Scien	SDMPl0135576	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/7/2006	1/7/2006	1	X	4	O	-28.21477198	153.488013	56	547888	6878909	100
OEH Data from Scien	SDMPl0135584	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	18/01/2006	18/01/2006	1	X	4	O	-28.20229759	153.5003569	56	549105	6880286	100
OEH Data from Scien	SDMPl0135586	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/1/2000	31/12/2002	1	X	4	O	-28.21123654	153.5238361	56	551405	6879286	100

OEH Data from Scien	SDMPl0135590	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	25/10/2004	25/10/2004	2	X	4	O	-28.18396639	153.4852262	56	547628	6882323	100
OEH Data from Scien	SDMPl0135591	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	3/3/2005	3/3/2005	1	X	4	O	-28.22939221	153.4964063	56	548705	6877286	100
OEH Data from Scien	SDMPl0135596	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/1/1980	31/12/1985	3	X	4	O	-28.17252436	153.4961437	56	548705	6883586	2000
OEH Data from Scien	SDMPl0135597	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/1/1980	31/12/1985	3	X	4	O	-28.20680343	153.5024158	56	549305	6879786	3000
OEH Data from Scien	SDMPl0135598	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/1/1985	31/12/1989	2	X	4	O	-28.26641603	153.4924996	56	548305	6873186	100
OEH Data from Scien	SDMPl0135600	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	19/10/2005	19/10/2005	1	X	4	O	-28.24819812	153.5362492	56	552604	6875186	100
OEH Data from Scien	SDMPl0135686	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/6/2005	30/06/2005	1	X	4	O	-28.19400656	153.5441294	56	553404	6881186	100
OEH Data from Scien	SDMPl0135692	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	29/06/2006	29/06/2006	1	X	4	O	-28.20229759	153.5003569	56	549105	6880286	100
OEH Data from Scien	SDMPl0135693	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	31/07/2005	31/07/2005	2	X	4	O	-28.20049599	153.4993296	56	549005	6880486	100
OEH Data from Scien	SDMPl0135694	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	29/07/2006	30/07/2006	2	X	4	O	-28.19065711	153.473813	56	546505	6881586	100
OEH Data from Scien	SDMPl0135695	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	10/6/2006	14/06/2006	1	X	4	O	-28.1915633	153.4727981	56	546405	6881486	100
OEH Data from Scien	SDMPl0135696	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	8/5/2006	8/5/2006	1	X	4	O	-28.1915633	153.4727981	56	546405	6881486	100
OEH Data from Scien	SDMPl0135697	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	11/4/2006	11/4/2006	2	X	4	O	-28.19246245	153.4738209	56	546505	6881386	100
OEH Data from Scien	SDMPl0135698	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	14/04/2006	14/04/2006	2	X	4	O	-28.19246245	153.4738209	56	546505	6881386	100
OEH Data from Scien	SDMPl0135699	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	16/06/2006	16/06/2006	1	X	4	O	-28.1933616	153.4748438	56	546605	6881286	100
OEH Data from Scien	SDMPl0136577	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	22/09/2006	22/09/2006	2	X	4	O	-28.2085824	153.5095572	56	550005	6879586	100
OEH Data from Scien	SDMPl0221107	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	25/08/2007	25/08/2007	1	X	4	O	-28.26003193	153.5609803	56	555025	6873864	100
OEH Default Sighting	2000-NR	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	1/4/1987	31/05/1987			4	O	-28.18514692	153.5002771	56	549105	6882186	100
OEH Default Sighting	HO001221	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	15/08/1988	15/08/1988			4	O	-28.21648204	153.5666628	56	555604	6878686	1000
Tweed Estuary Water	SPJGl0055303	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	29/10/1997	31/10/1997	1		4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0055304	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	29/10/1997	31/10/1997	1		4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0055305	183	Aves	Ciconiidae	1793	Ephippiorhynchus asiaticus	Black-necked Stork	E1,P		10275	31/03/2000	2/4/2000	1		4	O	-28.20453553	153.5054621	56	549605	6880036	100
OEH Default Sighting	1681-NR	196	Aves	Ardeidae	1819	Ixobrychus flavicollis	Black Bittern	V,P		10441	28/08/1979	6/9/1979			4	O	-28.19219312	153.5461579	56	553604	6881386	100
Tweed Estuary Water	SPJGl0056861	225	Aves	Accipitridae	1857	Hieraaetus morphnoides	Little Eagle	V,P		20131	2/2/2002	4/2/2002	1		4	O	-28.17882824	153.5002477	56	549105	6882886	100
Tweed Estuary Water	SPJGl0056862	225	Aves	Accipitridae	1857	Hieraaetus morphnoides	Little Eagle	V,P		20131	31/03/2000	2/4/2000	1		4	O	-28.19092473	153.5242466	56	551455	6881536	100
Australian Bird & Bat	ABBBS0323975	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/1/1993	31/12/1993			4	K	-28.24	153.55	56	553958	6876089	100
Australian Bird & Bat	ABBBS0323983	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	9/10/1999	9/10/1999			4	O	-28.18	153.53	56	552025	6882744	100
Australian Bird & Bat	ABBBS0323985	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/2000	22/06/2000			4	O	-28.19	153.54	56	553001	6881632	100
Australian Bird & Bat	ABBBS0323986	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/01/2001	23/01/2001			4	O	-28.19	153.53	56	552020	6881636	100
Australian Bird & Bat	ABBBS0323987	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	25/04/2001	25/04/2001			4	O	-28.19	153.54	56	553001	6881632	100
Australian Bird & Bat	ABBBS0324011	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	11/8/2005	11/8/2005			4	O	-28.19	153.51	56	550057	6881645	100
Australian Bird & Bat	ABBBS0324012	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/01/1994	22/01/1994			4	K	-28.25	153.53	56	551991	6874990	100
Australian Bird & Bat	ABBBS0324029	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	10/9/1998	10/9/1998			4	T	-28.2	153.54	56	552996	6880524	100
Australian Bird & Bat	ABBBS0324052	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	10/9/1998	10/9/1998			4	T	-28.2	153.54	56	552996	6880524	100
Australian Bird & Bat	ABBBS0324072	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	10/9/1998	10/9/1998			4	T	-28.2	153.54	56	552996	6880524	100
Australian Bird & Bat	ABBBS0324077	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/06/2001	27/06/2001			4	O	-28.19	153.53	56	552020	6881636	100
Australian Bird & Bat	ABBBS0324095	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/8/2000	1/8/2000			4	O	-28.19	153.54	56	553001	6881632	100
Australian Bird & Bat	ABBBS0324096	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/04/2001	20/04/2001			4	O	-28.19	153.53	56	552020	6881636	100
Australian Bird & Bat	ABBBS0324097	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/06/2001	27/06/2001			4	O	-28.19	153.53	56	552020	6881636	100
Australian Bird & Bat	ABBBS0324098	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	7/9/2001	7/9/2001			4	O	-28.19	153.53	56	552020	6881636	100
Australian Bird & Bat	ABBBS0324099	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/09/2001	19/09/2001			4	O	-28.19	153.53	56	552020	6881636	100
Australian Bird & Bat	ABBBS0324100	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/09/2001	20/09/2001			4	O	-28.19	153.53	56	552020	6881636	100
Australian Bird & Bat	ABBBS0324101	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	16/11/2001	16/11/2001			4	O	-28.19	153.53	56	552020	6881636	100
Australian Bird & Bat	ABBBS0324102	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	21/03/2003	21/03/2003			4	O	-28.19	153.52	56	551038	6881641	100
Australian Bird & Bat	ABBBS1631511	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	16/10/1990	16/10/1990			4	T	-28.24	153.55	56	553958	6876089	100
Australian Bird & Bat	ABBBS1631512	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	16/10/1990	16/10/1990			4	T	-28.24	153.55	56	553958	6876089	100
Australian Bird & Bat	ABBBS1631520	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	14/10/1992	14/10/1992			4	T	-28.24	153.55	56	553958	6876089	100
Australian Bird & Bat	ABBBS1631530	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	5/11/1993	5/11/1993			4	T	-28.24	153.55	56	553958	6876089	100
Australian Bird & Bat	ABBBS1631580	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	5/11/1993	5/11/1993			4	T	-28.24	153.55	56	553958	6876089	100
NRAC Upper North E.	SPJGl0223657	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/11/1994	3/11/1994	1		4	O	-28.19	153.48	56	547112	6881657	100
NRAC Upper North E.	SPXEl0005400	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/11/1994	2/11/1994	1		4	O	-28.19	153.48	56	547112	6881657	100

NRAC Upper North E.	SPXEI0005495	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/11/1994	3/11/1994	3	4	O	-28.19	153.48	56	547112	6881657	100
NRAC Upper North E.	SPXEI0005513	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/11/1994	3/11/1994	1	4	O	-28.19	153.52	56	551038	6881641	100
NRAC Upper North E.	SPXEI0006657	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	11/10/1994	11/10/1994	2	4	O	-28.17	153.56	56	554974	6883839	1000
NRAC Upper North E.	SPXEI0006929	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/11/1994	5/11/1994		4	O	-28.19	153.55	56	553983	6881628	100
NRAC Upper North E.	SPXEI0006964	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/11/1994	11/11/1994		4	O	-28.2	153.56	56	554959	6880515	100
NRAC Upper North E.	SPXEI0007016	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/11/1994	5/11/1994		4	O	-28.2	153.55	56	553978	6880520	100
NRAC Upper North E.	SPXEI0007074	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/10/1994	5/11/1994		4	O	-28.19	153.54	56	553001	6881632	100
NRAC Upper North E.	SPXEI0007271	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	########	########		4	O	-28.19	153.55	56	553983	6881628	100
NRAC Upper North E.	SPXEI0007337	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	########	########		4	O	-28.2	153.56	56	554959	6880515	100
NRAC Upper North E.	SPXEI0015224	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/11/1994	15/11/1994	1	4	O	-28.18	153.55	56	553988	6882735	1000
NRAC Upper North E.	SPXEI0015253	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/11/1994	15/11/1994	3	4	O	-28.19	153.54	56	553001	6881632	1000
NRAC Upper North E.	SPXEI0015297	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/11/1994	15/11/1994	1	4	O	-28.19	153.51	56	550057	6881645	1000
NRAC Upper North E.	SPXEI0015405	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/11/1994	15/11/1994	1	4	O	-28.21	153.51	56	550047	6879429	1000
NRAC Upper North E.	SPXEI0015427	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/11/1994	15/11/1994	1	4	O	-28.21	153.5	56	549066	6879433	1000
NRAC Upper North E.	SPXEI0015439	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/11/1994	15/11/1994	2	4	O	-28.22	153.52	56	551024	6878317	1000
NRAC Upper North E.	SPXEI0015480	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/11/1994	15/11/1994	1	4	O	-28.23	153.5	56	549057	6877218	1000
NRAC Upper North E.	SPXEI0015546	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/11/1994	15/11/1994	1	4	O	-28.21	153.56	56	554954	6879408	1000
NRAC Upper North E.	SPXEI0015576	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/11/1994	15/11/1994	1	4	O	-28.23	153.55	56	553963	6877196	1000
NRAC Upper North E.	SPXEI0015590	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/11/1994	15/11/1994	3	4	O	-28.25	153.52	56	551010	6874994	1000
NRAC Upper North E.	SPXEI0087691	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	11/10/1994	11/10/1994	2	4	O	-28.19	153.54	56	553001	6881632	1000
NRAC Upper North E.	SPXEI0087748	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	11/10/1994	11/10/1994	2	4	O	-28.19	153.51	56	550057	6881645	1000
NRAC Upper North E.	SPXEI0087889	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	11/10/1994	11/10/1994	1	4	O	-28.18	153.5	56	549080	6882757	1000
NRAC Upper North E.	SPXEI0088028	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	11/10/1994	11/10/1994	2	4	O	-28.21	153.5	56	549066	6879433	1000
NRAC Upper North E.	SPXEI0088118	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	11/10/1994	11/10/1994	1	4	O	-28.23	153.5	56	549057	6877218	1000
NRAC Upper North E.	SPXEI0088264	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	11/10/1994	11/10/1994	1	4	O	-28.23	153.55	56	553963	6877196	1000
NRAC Upper North E.	SPXEI0088300	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	11/10/1994	11/10/1994	3	4	O	-28.24	153.54	56	552976	6876093	1000
OEH Data from Scien	SDMPI0272782	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/05/2005	28/05/2005		4	O	-28.19	153.5	56	549075	6881649	1000
OEH Data from Scien	SDMPI0366997	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	10/7/2008	2/9/2008		4	O	-28.21	153.55	56	553973	6879412	20
OEH Data from Scien	SIXRI0119599	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	21/06/2013	2/7/2013		4	O	-28.22	153.49	56	548080	6878329	100
OEH Data from Scien	SIXRI0550049	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	14/10/2013	15/10/2013		4	O	-28.25	153.56	56	554934	6874976	10
OEH Data from Scien	SSLSI0036628	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	14/01/2003	8/6/2003	2	4	O	-28.17	153.51	56	550066	6883860	500
OEH Data from Scien	SSLSI0037413	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	18/01/2003	20/01/2003	2	4	O	-28.19	153.52	56	551038	6881641	100
OEH Data from Scien	SSLSI0037431	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	18/01/2003	20/01/2003	1	4	O	-28.18	153.5	56	549080	6882757	100
OEH Data from Scien	SSLSI0037450	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	18/01/2003	20/01/2003	2	4	O	-28.21	153.5	56	549066	6879433	100
OEH Data from Scien	SSLSI0037467	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	18/01/2003	20/01/2003	1	4	O	-28.2	153.5	56	549071	6880541	100
OEH Default Sighting	65000046	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/7/1990	2/7/1990	2	4	O	-28.24	153.55	56	553958	6876089	10
OEH Default Sighting	65000047	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/7/1990	2/7/1990	2	4	O	-28.18	153.5	56	549080	6882757	10
OEH Default Sighting	65000048	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/7/1990	2/7/1990	2	4	O	-28.19	153.48	56	547112	6881657	10
OEH Default Sighting	65000077	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/7/1990	2/7/1990	2	4	O	-28.21	153.53	56	552010	6879421	100
OEH Default Sighting	65000078	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/7/1990	2/7/1990	4	4	O	-28.2	153.55	56	553978	6880520	10
OEH Default Sighting	65000080	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/7/1990	2/7/1990	2	4	O	-28.19	153.52	56	551038	6881641	10
OEH Default Sighting	65000081	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/7/1990	2/7/1990	2	4	O	-28.2	153.53	56	552015	6880529	10
OEH Default Sighting	112837-035	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/12/1994	27/12/1994	1	4	O	-28.19	153.55	56	553983	6881628	1000
OEH Default Sighting	112862-035	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/12/1994	27/12/1994	3	4	O	-28.19	153.55	56	553983	6881628	1000
OEH Default Sighting	1991-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/4/1987	30/04/1987		4	M	-28.2	153.56	56	554959	6880515	100
OEH Default Sighting	1-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/11/1990	3/11/1990	2	4	O	-28.21	153.5	56	549066	6879433	100
OEH Default Sighting	2001-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/4/1987	31/05/1987		4	O	-28.19	153.5	56	549075	6881649	100
OEH Default Sighting	2-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	9/3/1990	15/12/1995		4	O	-28.17	153.49	56	548103	6883869	100
OEH Default Sighting	31036-035	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	4/10/1991	4/10/1991	1	4	O	-28.19	153.55	56	553983	6881628	1000
OEH Default Sighting	3553-LI	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	7/8/1990	7/8/1990	3	4	O	-28.19	153.55	56	553983	6881628	100
OEH Default Sighting	38485-035	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/12/1991	28/12/1991	1	4	O	-28.19	153.55	56	553983	6881628	1000

OEH Default Sighting 3-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	9/3/1990	15/12/1995		4	O	-28.2	153.55	56	553978	6880520	100
OEH Default Sighting 4-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	9/3/1990	15/12/1995		4	O	-28.19	153.49	56	548094	6881653	100
OEH Default Sighting 50379-035	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	21/12/1992	21/12/1992	1	4	O	-28.19	153.55	56	553983	6881628	1000
OEH Default Sighting 50421-035	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	21/12/1992	21/12/1992	1	4	O	-28.19	153.55	56	553983	6881628	1000
OEH Default Sighting 5-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	9/3/1990	15/12/1995		4	O	-28.18	153.5	56	549080	6882757	100
OEH Default Sighting 60364-HO	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/09/1995	15/09/1995	1	4	O	-28.18	153.5	56	549080	6882757	100
OEH Default Sighting 6210-AGIS	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	8/9/1991	8/9/1991	1	2	K	-28.24	153.55	56	553958	6876089	100
OEH Default Sighting 62601-HO	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/12/1995	31/12/1995	2	4	O	-28.24	153.55	56	553958	6876089	100
OEH Default Sighting 628-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/10/1981	15/10/1981	2	4	O	-28.21	153.52	56	551029	6879425	100
OEH Default Sighting 658-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	18/08/1989	18/08/1989		4	O	-28.2	153.54	56	552996	6880524	100
OEH Default Sighting 6-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	9/3/1990	15/12/1995		4	O	-28.24	153.55	56	553958	6876089	100
OEH Default Sighting 9503-NR	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	12/1/1989	22/06/1989		4	O	-28.2	153.56	56	554959	6880515	1000
OEH Default Sighting 95040-035	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/1/1989	31/12/1989		4	O	-28.22	153.55	56	553968	6878304	10000
OEH Default Sighting SASM0111270E	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	17/01/2000	17/01/2000	1	X	4	O	-28.26	153.56	56	554928	6873868	100
OEH Default Sighting SJAL01050806	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	16/04/1998	16/04/1998		4	O	-28.17	153.47	56	546139	6883876	100
OEH Default Sighting SJJT03051603	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	17/01/2000	17/01/2000	1	4	O	-28.26	153.56	56	554928	6873868	100
OEH Default Sighting SLLT11082200	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/08/2011	19/08/2011	1	X	4	E	-28.19	153.49	56	548094	6881653	10
OEH Default Sighting SLLT11082201	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/08/2011	19/08/2011	1	X	4	E	-28.17	153.49	56	548103	6883869	10
OEH Default Sighting SLLT11082202	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	9/8/2011	9/8/2011	1	X	4	E	-28.18	153.5	56	549080	6882757	10
OEH Default Sighting SPXC96112800	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/11/1996	24/11/1996	1	X	4	O	-28.18	153.55	56	553988	6882735	100
OEH Default Sighting SPXE0810304O	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	25/09/2008	25/09/2008	2	4	O	-28.22	153.56	56	554949	6878300	500
OEH Default Sighting SPXE96121216	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	5/10/1996	11/10/1996	2	4	O	-28.19	153.55	56	553983	6881628	1000
OEH Default Sighting SSNA97102208	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	15/09/1997	15/09/1997	1	4	O	-28.18	153.5	56	549080	6882757	100
OEH Default Sighting SVGI98110918	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/10/1998	1/10/1998	1	4	O	-28.19	153.55	56	553983	6881628	1000
Tweed Estuary Water SPJGI0057314	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	2	4	O	-28.2	153.56	56	554959	6880515	100
Tweed Estuary Water SPJGI0057315	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	3	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water SPJGI0057316	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water SPJGI0057317	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1998	2/4/1998	3	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water SPJGI0057318	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	2	4	O	-28.2	153.51	56	550052	6880537	100
Tweed Estuary Water SPJGI0057319	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	2	4	O	-28.2	153.51	56	550052	6880537	100
Tweed Estuary Water SPJGI0057320	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water SPJGI0057321	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water SPJGI0057322	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	1	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water SPJGI0057323	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1998	2/4/1998	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water SPJGI0057324	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water SPJGI0057325	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1998	2/4/1998	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water SPJGI0057326	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/1999	29/10/1999	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water SPJGI0057327	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	4	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water SPJGI0057328	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/2/1998	5/2/1998	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water SPJGI0057329	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1999	2/4/1999	3	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water SPJGI0057330	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2000	2/4/2000	1	4	O	-28.2	153.51	56	550052	6880537	100
Tweed Estuary Water SPJGI0057331	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water SPJGI0057332	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1999	2/4/1999	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water SPJGI0057333	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	1	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water SPJGI0057334	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water SPJGI0057335	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water SPJGI0057336	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/1999	29/10/1999	4	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water SPJGI0057337	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water SPJGI0057338	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	1	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water SPJGI0057339	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1998	2/4/1998	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water SPJGI0057340	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	1	4	O	-28.2	153.51	56	550052	6880537	100

Tweed Estuary Water	SPJGl0057341	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	1	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057342	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	1	4	O	-28.22	153.5	56	549061	6878325	100
Tweed Estuary Water	SPJGl0057343	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	2	4	O	-28.24	153.54	56	552976	6876093	100
Tweed Estuary Water	SPJGl0057344	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	4	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057345	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	2	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057346	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1999	2/4/1999	1	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057347	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	2	4	O	-28.2	153.56	56	554959	6880515	100
Tweed Estuary Water	SPJGl0057348	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	2	4	O	-28.2	153.56	56	554959	6880515	100
Tweed Estuary Water	SPJGl0057349	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	2	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057350	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/2/1998	5/2/1998	1	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057351	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057352	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057353	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	2	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057354	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1	4	O	-28.2	153.56	56	554959	6880515	100
Tweed Estuary Water	SPJGl0057355	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	1	4	O	-28.18	153.52	56	551043	6882748	100
Tweed Estuary Water	SPJGl0057356	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057357	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/1999	29/10/1999	1	4	O	-28.2	153.56	56	554959	6880515	100
Tweed Estuary Water	SPJGl0057358	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/1999	4/2/1999	1	4	O	-28.21	153.52	56	551029	6879425	100
Tweed Estuary Water	SPJGl0057359	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057360	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/1999	29/10/1999	2	4	O	-28.18	153.52	56	551043	6882748	100
Tweed Estuary Water	SPJGl0057361	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	1	4	O	-28.18	153.52	56	551043	6882748	100
Tweed Estuary Water	SPJGl0057362	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	1	4	O	-28.18	153.52	56	551043	6882748	100
Tweed Estuary Water	SPJGl0057363	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	1	4	O	-28.18	153.52	56	551043	6882748	100
Tweed Estuary Water	SPJGl0057364	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2000	2/4/2000	1	4	O	-28.18	153.52	56	551043	6882748	100
Tweed Estuary Water	SPJGl0057365	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	2	4	O	-28.18	153.52	56	551043	6882748	100
Tweed Estuary Water	SPJGl0057366	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	1	4	O	-28.21	153.52	56	551029	6879425	100
Tweed Estuary Water	SPJGl0057367	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	3	4	O	-28.18	153.52	56	551043	6882748	100
Tweed Estuary Water	SPJGl0057368	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/1999	26/06/1999	1	4	O	-28.2	153.56	56	554959	6880515	100
Tweed Estuary Water	SPJGl0057369	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	2	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057370	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	1	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057371	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	1	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057372	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/2002	4/2/2002	2	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057373	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	1	4	O	-28.18	153.52	56	551043	6882748	100
Tweed Estuary Water	SPJGl0057374	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	2	4	O	-28.24	153.54	56	552976	6876093	100
Tweed Estuary Water	SPJGl0057375	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	1	4	O	-28.18	153.52	56	551043	6882748	100
Tweed Estuary Water	SPJGl0057376	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/1999	29/10/1999	8	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057377	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057378	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	1	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057379	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	3	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057380	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057381	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057382	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	1	4	O	-28.22	153.52	56	551024	6878317	100
Tweed Estuary Water	SPJGl0057383	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057384	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	1	4	O	-28.21	153.52	56	551029	6879425	100
Tweed Estuary Water	SPJGl0057385	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	1	4	O	-28.23	153.5	56	549057	6877218	100
Tweed Estuary Water	SPJGl0057386	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1999	2/4/1999	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057387	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/2002	4/2/2002	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057388	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057389	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	3	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057390	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	1	4	O	-28.23	153.5	56	549057	6877218	100
Tweed Estuary Water	SPJGl0057391	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	2	4	O	-28.21	153.56	56	554954	6879408	100

Tweed Estuary Water	SPJGl0057392	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	1	4	O	-28.2	153.56	56	554959	6880515	100
Tweed Estuary Water	SPJGl0057393	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057394	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2000	2/4/2000	2	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057395	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/2002	4/2/2002	1	4	O	-28.23	153.5	56	549057	6877218	100
Tweed Estuary Water	SPJGl0057396	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/2002	4/2/2002	1	4	O	-28.18	153.51	56	550061	6882753	100
Tweed Estuary Water	SPJGl0057397	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/1999	26/06/1999	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057398	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	1	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057399	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	1	4	O	-28.18	153.51	56	550061	6882753	100
Tweed Estuary Water	SPJGl0057400	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057401	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	2	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057402	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	2	4	O	-28.23	153.5	56	549057	6877218	100
Tweed Estuary Water	SPJGl0057403	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	3	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057404	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057405	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057406	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1999	2/4/1999	1	4	O	-28.22	153.52	56	551024	6878317	100
Tweed Estuary Water	SPJGl0057407	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057408	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057409	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	4	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057410	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	1	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057411	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	1	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057412	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	5	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057413	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	2	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057414	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	3	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057415	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	1	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057416	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2000	2/4/2000	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057417	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	2	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057418	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	2	4	O	-28.18	153.51	56	550061	6882753	100
Tweed Estuary Water	SPJGl0057419	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057420	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057421	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	1	4	O	-28.18	153.56	56	554969	6882731	100
Tweed Estuary Water	SPJGl0057422	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	2	4	O	-28.2	153.51	56	550052	6880537	100
Tweed Estuary Water	SPJGl0057423	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	3	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057424	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/2002	4/2/2002	1	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057425	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1998	2/4/1998	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057426	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/2002	4/2/2002	1	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057427	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	1	4	O	-28.18	153.51	56	550061	6882753	100
Tweed Estuary Water	SPJGl0057428	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	1	4	O	-28.18	153.51	56	550061	6882753	100
Tweed Estuary Water	SPJGl0057429	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1998	2/4/1998	2	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057430	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	2	4	O	-28.23	153.5	56	549057	6877218	100
Tweed Estuary Water	SPJGl0057431	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/2/1998	5/2/1998	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057432	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	2	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057433	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	2	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057434	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	1	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057435	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2000	2/4/2000	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057436	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	1	4	O	-28.2	153.51	56	550052	6880537	100
Tweed Estuary Water	SPJGl0057437	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1999	2/4/1999	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057438	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057439	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057440	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2000	2/4/2000	2	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057441	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/1999	26/06/1999	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057442	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	2	4	O	-28.19	153.54	56	553001	6881632	100

Tweed Estuary Water	SPJGl0057443	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057444	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057445	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	1	4	O	-28.18	153.51	56	550061	6882753	100
Tweed Estuary Water	SPJGl0057446	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057447	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/2002	4/2/2002	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057448	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057449	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057450	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	3	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057451	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057452	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	2	4	O	-28.18	153.51	56	550061	6882753	100
Tweed Estuary Water	SPJGl0057453	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	28/10/2001	30/10/2001	2	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057454	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	1	4	O	-28.18	153.51	56	550061	6882753	100
Tweed Estuary Water	SPJGl0057455	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057456	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057457	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/1999	29/10/1999	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057458	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/2002	4/2/2002	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057459	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	2	4	O	-28.18	153.56	56	554969	6882731	100
Tweed Estuary Water	SPJGl0057460	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057461	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1999	2/4/1999	3	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057462	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057463	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/2/1998	5/2/1998	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057464	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057465	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	2	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057466	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	2	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057467	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	1	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057468	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/1999	4/2/1999	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057469	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2000	2/4/2000	1	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057470	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/1999	26/06/1999	2	4	O	-28.2	153.5	56	549071	6880541	100
Tweed Estuary Water	SPJGl0057471	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1998	2/4/1998	1	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057472	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	1	4	O	-28.2	153.56	56	554959	6880515	100
Tweed Estuary Water	SPJGl0057473	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057474	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/2/1998	5/2/1998	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057475	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057476	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/2/1998	5/2/1998	3	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057477	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057478	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/1999	4/2/1999	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057479	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	1	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057480	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	2	4	O	-28.24	153.54	56	552976	6876093	100
Tweed Estuary Water	SPJGl0057481	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	1	4	O	-28.18	153.51	56	550061	6882753	100
Tweed Estuary Water	SPJGl0057482	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057483	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	1	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057484	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057485	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/1999	29/10/1999	1	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057486	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/2/1998	5/2/1998	1	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057487	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	2	4	O	-28.22	153.5	56	549061	6878325	100
Tweed Estuary Water	SPJGl0057488	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	5	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057489	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1999	2/4/1999	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057490	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/1999	29/10/1999	4	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057491	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/1999	26/06/1999	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057492	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/2/1998	5/2/1998	1	4	O	-28.2	153.51	56	550052	6880537	100
Tweed Estuary Water	SPJGl0057493	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/1999	26/06/1999	1	4	O	-28.18	153.5	56	549080	6882757	100

Tweed Estuary Water	SPJGl0057494	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	2	4	O	-28.24	153.54	56	552976	6876093	100
Tweed Estuary Water	SPJGl0057495	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	1	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057496	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/1999	26/06/1999	1	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057497	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	1	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057498	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057499	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057500	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	1	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057501	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	3	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057502	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	2	4	O	-28.18	153.51	56	550061	6882753	100
Tweed Estuary Water	SPJGl0057503	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/1999	26/06/1999	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057504	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057505	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057506	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057507	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/2/1998	5/2/1998	1	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057508	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	22/06/1998	24/06/1998	2	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057509	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	1	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057510	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	1	4	O	-28.22	153.52	56	551024	6878317	100
Tweed Estuary Water	SPJGl0057511	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057512	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/1999	26/06/1999	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057513	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1998	2/4/1998	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057514	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	1	4	O	-28.2	153.5	56	549071	6880541	100
Tweed Estuary Water	SPJGl0057515	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1999	2/4/1999	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057516	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	2	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057517	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	19/06/2001	21/06/2001	2	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057518	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1998	2/4/1998	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057519	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/1999	29/10/1999	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057520	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057521	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/1999	4/2/1999	1	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057522	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	23/03/1997	25/03/1997	2	4	O	-28.2	153.51	56	550052	6880537	100
Tweed Estuary Water	SPJGl0057523	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	2	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057524	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	3	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057525	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	24/06/2000	26/06/2000	2	4	O	-28.18	153.5	56	549080	6882757	100
Tweed Estuary Water	SPJGl0057526	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	3	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057527	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	2	4	O	-28.21	153.56	56	554954	6879408	100
Tweed Estuary Water	SPJGl0057528	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057529	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	3/2/1998	5/2/1998	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057530	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/1998	2/4/1998	2	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057531	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1998	31/10/1998	1	4	O	-28.22	153.52	56	551024	6878317	100
Tweed Estuary Water	SPJGl0057532	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	27/10/2000	29/10/2000	2	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057533	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	3	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057534	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/01/2001	15/02/2001	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057535	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/1999	4/2/1999	2	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057536	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/1999	4/2/1999	1	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057537	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	20/06/1997	22/06/1997	3	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057538	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	2/2/1999	4/2/1999	3	4	O	-28.23	153.55	56	553963	6877196	100
Tweed Estuary Water	SPJGl0057539	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	3	4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Water	SPJGl0057540	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	2	4	O	-28.19	153.54	56	553001	6881632	100
Tweed Estuary Water	SPJGl0057541	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1	4	O	-28.18	153.55	56	553988	6882735	100
Tweed Estuary Water	SPJGl0057542	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2001	2/4/2001	2	4	O	-28.22	153.52	56	551024	6878317	100
Tweed Estuary Water	SPJGl0057543	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	1	4	O	-28.21	153.5	56	549066	6879433	100
Tweed Estuary Water	SPJGl0057544	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	29/10/1997	31/10/1997	1	4	O	-28.23	153.55	56	553963	6877196	100

Tweed Estuary Wate	SPJGl0057545	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	31/03/2000	2/4/2000	2		4	O	-28.19	153.52	56	551038	6881641	100
Tweed Estuary Wate	SPJGl0057546	8739	Aves	Accipitridae	1861	Pandion cristatus	Eastern Osprey	V,P,3	3^^	10585	1/2/2000	3/2/2000	1		4	O	-28.21	153.5	56	549066	6879433	100
NRAC Upper North E	SPXEl0005503	53	Aves	Rallidae	1882	Amaurornis moluccana	Pale-vented Bush-hen	V,P		10042	3/11/1994	3/11/1994	1		4	W	-28.19056665	153.4992834	56	549005	6881586	100
OEH Data from Scien	SDMPl0155649	53	Aves	Rallidae	1882	Amaurornis moluccana	Pale-vented Bush-hen	V,P		10042	3/3/2004	3/3/2004	1		5	W	-28.2609516	153.5656949	56	555486	6873760	100
OEH Data from Scien	SDMPl0187481	53	Aves	Rallidae	1882	Amaurornis moluccana	Pale-vented Bush-hen	V,P		10042	24/11/2006	24/11/2006	1		4	W	-28.26072457	153.5638383	56	555304	6873786	100
OEH Data from Scien	SDMPl0213652	53	Aves	Rallidae	1882	Amaurornis moluccana	Pale-vented Bush-hen	V,P		10042	25/11/2006	25/11/2006	1	+	4	W	-28.2637447	153.5625696	56	555178	6873452	100
OEH Data from Scien	SDMPl0213720	53	Aves	Rallidae	1882	Amaurornis moluccana	Pale-vented Bush-hen	V,P		10042	26/11/2006	26/11/2006	1		4	W	-28.26079696	153.5659796	56	555514	6873777	100
OEH Data from Scien	SDMPl0213755	53	Aves	Rallidae	1882	Amaurornis moluccana	Pale-vented Bush-hen	V,P		10042	26/11/2006	26/11/2006	1		4	W	-28.26194735	153.5628252	56	555204	6873651	100
OEH Data from Scien	SDMPl0272784	53	Aves	Rallidae	1882	Amaurornis moluccana	Pale-vented Bush-hen	V,P		10042	20/05/2005	28/05/2005			4	W	-28.18514693	153.5002771	56	549105	6882186	1000
OEH Data from Scien	SSLSl0036635	53	Aves	Rallidae	1882	Amaurornis moluccana	Pale-vented Bush-hen	V,P		10042	14/01/2003	8/6/2003	1		4	W	-28.17427048	153.5122468	56	550285	6883386	500
OEH Data from Scien	SDMPl0187484	174	Aves	Burhinidae	1922	Burhinus grallarius	Bush Stone-curlew	E1,P		10113	28/08/2006	28/08/2006	2		4	W	-28.25889392	153.5699455	56	555904	6873986	100
OEH Default Sightinç	SGFM0706060C	174	Aves	Burhinidae	1922	Burhinus grallarius	Bush Stone-curlew	E1,P		10113	13/03/2006	19/03/2006	1		4	O	-28.20298814	153.5553832	56	554504	6880186	1000
OEH Default Sightinç	SIXRl0017891	174	Aves	Burhinidae	1922	Burhinus grallarius	Bush Stone-curlew	E1,P		10113	########	########	5	E	4	O	-28.185974	153.501899	56	549263	6882094	30
OEH Default Sightinç	SIXRl0017892	174	Aves	Burhinidae	1922	Burhinus grallarius	Bush Stone-curlew	E1,P		10113	########	8/8/2012 6:30			4	OW	-28.185974	153.501899	56	549263	6882094	30
OEH Default Sightinç	SIXRl0017893	174	Aves	Burhinidae	1922	Burhinus grallarius	Bush Stone-curlew	E1,P		10113	########	9/8/2012 6:25			4	OW	-28.188811	153.500655	56	549140	6881780	30
OEH Default Sightinç	SIXRl0017894	174	Aves	Burhinidae	1922	Burhinus grallarius	Bush Stone-curlew	E1,P		10113	########	########	4	E	4	O	-28.188811	153.500655	56	549140	6881780	30
OEH Data from Scien	SDMPl0568383	175	Aves	Burhinidae	1923	Esacus magnirostris	Beach Stone-curlew	E4A,P		10280	9/9/2010	9/9/2010	1	X	4	O	-28.1760724	153.5502222	56	554012	6883170	10
Tweed Estuary Wate	SPJGl0054674	175	Aves	Burhinidae	1923	Esacus magnirostris	Beach Stone-curlew	E4A,P		10280	23/03/1997	25/03/1997	1		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0054675	175	Aves	Burhinidae	1923	Esacus magnirostris	Beach Stone-curlew	E4A,P		10280	28/10/2001	30/10/2001	1		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0054676	175	Aves	Burhinidae	1923	Esacus magnirostris	Beach Stone-curlew	E4A,P		10280	31/01/2001	15/02/2001	1		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0054677	175	Aves	Burhinidae	1923	Esacus magnirostris	Beach Stone-curlew	E4A,P		10280	24/06/2000	26/06/2000	4		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054678	175	Aves	Burhinidae	1923	Esacus magnirostris	Beach Stone-curlew	E4A,P		10280	24/06/2000	26/06/2000	2		4	O	-28.18282976	153.5165664	56	550705	6882436	100
Tweed Estuary Wate	SPJGl0054679	175	Aves	Burhinidae	1923	Esacus magnirostris	Beach Stone-curlew	E4A,P		10280	27/10/1999	29/10/1999	1		4	O	-28.17683158	153.5501547	56	554004	6883086	100
NRAC Upper North E	SPJGl0171182	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	11/10/1994	11/10/1994	2		4	O	-28.21018862	153.5605155	56	555004	6879386	1000
NRAC Upper North E	SPXEl0088200	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	11/10/1994	11/10/1994	2		4	O	-28.21018862	153.5605155	56	555004	6879386	1000
OEH Data from Scien	SSLSl0037369	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	18/01/2003	20/01/2003	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
OEH Data from Scien	SSLSl0037385	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	18/01/2003	20/01/2003	2		4	O	-28.2110892	153.5610298	56	555054	6879286	100
OEH Default Sightinç	SPXC96112801	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	24/11/1996	24/11/1996	1	X	4	O	-28.17818557	153.5501616	56	554004	6882936	100
Tweed Estuary Wate	SPJGl0053063	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	24/06/1999	26/06/1999	1		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0053064	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	3/2/1998	5/2/1998	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053065	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	31/01/2001	15/02/2001	2		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0053066	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	29/10/1997	31/10/1997	1		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053067	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	31/03/2001	2/4/2001	2		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0053068	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	27/10/1999	29/10/1999	2		4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Wate	SPJGl0053069	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	24/06/2000	26/06/2000	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053070	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	2/2/2002	4/2/2002	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053071	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	2/2/2002	4/2/2002	3		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0053072	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	31/01/2001	15/02/2001	3		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053073	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	2/2/2002	4/2/2002	4		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0053074	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	28/10/2001	30/10/2001	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053075	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	23/03/1997	25/03/1997	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053076	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	1/2/2000	3/2/2000	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053077	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	31/03/1999	2/4/1999	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053078	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	31/03/1998	2/4/1998	2		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0053079	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	2/2/1999	4/2/1999	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053080	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	29/10/1998	31/10/1998	1		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0053081	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	2/2/1999	4/2/1999	1		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0053083	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	31/03/1999	2/4/1999	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053084	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	24/06/2000	26/06/2000	2		4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Wate	SPJGl0053085	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	31/03/2001	2/4/2001	2		4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate	SPJGl0053086	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P		10385	29/10/1998	31/10/1998	1		4	O	-28.21108919	153.5610298	56	555054	6879286	100

Tweed Estuary Water	SPJGl0053087	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	31/03/1998	2/4/1998	3	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053088	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	31/01/2001	15/02/2001	2	4	O	-28.19530313	153.5584001	56	554804	6881036	100
Tweed Estuary Water	SPJGl0053089	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	1/2/2000	3/2/2000	2	4	O	-28.19530313	153.5584001	56	554804	6881036	100
Tweed Estuary Water	SPJGl0053090	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	29/10/1997	31/10/1997	1	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053091	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	31/03/1998	2/4/1998	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0053092	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	27/10/2000	29/10/2000	2	4	O	-28.19530313	153.5584001	56	554804	6881036	100
Tweed Estuary Water	SPJGl0053093	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	3/2/1998	5/2/1998	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053094	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	24/06/1999	26/06/1999	1	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053095	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	20/06/1997	22/06/1997	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053096	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	19/06/2001	21/06/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053097	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	31/03/1998	2/4/1998	1	4	O	-28.19530313	153.5584001	56	554804	6881036	100
Tweed Estuary Water	SPJGl0053098	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	22/06/1998	24/06/1998	1	4	O	-28.19530313	153.5584001	56	554804	6881036	100
Tweed Estuary Water	SPJGl0053099	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	31/03/2001	2/4/2001	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053100	131	Aves	Haematopodidae	1925	Haematopus fuliginosus	Sooty Oystercatcher	V,P	10385	31/03/2001	2/4/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Australian Bird & Bat	ABBBS1661176	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	25/11/2013	25/11/2013		4	O	-28.22785044	153.5574487	56	554695	6877431	100
NRAC Upper North E.	SPXEl0005399	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/11/1994	2/11/1994	2	4	O	-28.19490922	153.5441339	56	553404	6881086	100
NRAC Upper North E.	SPXEl0007117	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/10/1994	5/11/1994		4	O	-28.18861474	153.5379892	56	552805	6881786	100
NRAC Upper North E.	SPXEl0015202	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	15/11/1994	15/11/1994	2	4	O	-28.17818148	153.5511803	56	554104	6882936	1000
NRAC Upper North E.	SPXEl0015404	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	15/11/1994	15/11/1994	3	4	O	-28.20769484	153.505477	56	549605	6879686	1000
NRAC Upper North E.	SPXEl0015507	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	15/11/1994	15/11/1994	1	4	O	-28.20840408	153.5554113	56	554504	6879586	1000
NRAC Upper North E.	SPXEl0015561	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	15/11/1994	15/11/1994	1	4	O	-28.23099919	153.5483937	56	553804	6877086	1000
NRAC Upper North E.	SPXEl0015880	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	15/11/1994	15/11/1994	2	4	O	-28.17139093	153.5562387	56	554604	6883686	1000
NRAC Upper North E.	SPXEl0088201	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	11/10/1994	11/10/1994	1	4	O	-28.21018862	153.5605155	56	555004	6879386	1000
OEH Data from Scien	SPJGl0110701	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	5/8/2003	5/8/2003	2	4	O	-28.18320076	153.5374528	56	552755	6882386	50
OEH Data from Scien	SSLSl0036647	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	14/01/2003	8/6/2003		4	O	-28.17427048	153.5122468	56	550285	6883386	500
OEH Data from Scien	SSLSl0037359	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	18/01/2003	20/01/2003	2	4	O	-28.17950867	153.5578088	56	554754	6882786	100
OEH Data from Scien	SSLSl0037368	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	18/01/2003	20/01/2003	3	4	O	-28.17683158	153.5501547	56	554004	6883086	100
OEH Data from Scien	SSLSl0037384	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	18/01/2003	20/01/2003	1	4	O	-28.2110892	153.5610298	56	555054	6879286	100
OEH Data from Scien	SSLSl0037401	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	18/01/2003	20/01/2003	2	4	O	-28.18862273	153.5359517	56	552605	6881786	100
OEH Data from Scien	SSLSl0037452	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	18/01/2003	20/01/2003	2	4	O	-28.21131673	153.5024369	56	549305	6879286	100
OEH Default Sighting	31040-035	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	4/10/1991	4/10/1991	1	4	O	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting	3555-LI	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	7/8/1990	7/8/1990	2	4	O	-28.19127006	153.5512474	56	554104	6881486	100
OEH Default Sighting	38451-035	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	28/12/1991	28/12/1991	1	4	O	-28.18677716	153.5461304	56	553604	6881986	1000
OEH Default Sighting	96648-035	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	1/5/1988	31/12/1988		4	O	-28.21672143	153.5055195	56	549605	6878686	1000
OEH Default Sighting	SPXE9612121B	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	5/10/1996	11/10/1996	4	4	O	-28.19127415	153.5502285	56	554004	6881486	1000
Tweed Estuary Water	SPJGl0052901	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/2000	29/10/2000	1	4	O	-28.17950867	153.5578088	56	554754	6882786	100
Tweed Estuary Water	SPJGl0052902	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	24/06/1999	26/06/1999	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052903	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	23/03/1997	25/03/1997	1	4	O	-28.17950867	153.5578088	56	554754	6882786	100
Tweed Estuary Water	SPJGl0052904	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/1999	4/2/1999	2	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0052905	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/1999	4/2/1999	2	4	O	-28.17950867	153.5578088	56	554754	6882786	100
Tweed Estuary Water	SPJGl0052906	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	29/10/1997	31/10/1997	2	4	O	-28.17950867	153.5578088	56	554754	6882786	100
Tweed Estuary Water	SPJGl0052907	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	3/2/1998	5/2/1998	2	4	O	-28.17950867	153.5578088	56	554754	6882786	100
Tweed Estuary Water	SPJGl0052908	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	20/06/1997	22/06/1997	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0052909	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	23/03/1997	25/03/1997	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052910	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	1/2/2000	3/2/2000	1	4	O	-28.17950867	153.5578088	56	554754	6882786	100
Tweed Estuary Water	SPJGl0052911	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/1999	4/2/1999	1	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052912	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/2002	4/2/2002	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052913	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	22/06/1998	24/06/1998	2	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052914	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	28/10/2001	30/10/2001	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052915	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/2002	4/2/2002	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052916	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	3/2/1998	5/2/1998	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100

Tweed Estuary Water	SPJGl0052917	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/2002	4/2/2002	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052918	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1999	2/4/1999	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052919	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	19/06/2001	21/06/2001	2	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0052920	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	19/06/2001	21/06/2001	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052921	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	28/10/2001	30/10/2001	4	4	O	-28.21131673	153.5024369	56	549305	6879286	100
Tweed Estuary Water	SPJGl0052922	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/01/2001	15/02/2001	4	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0052923	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1998	2/4/1998	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052924	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/2000	2/4/2000	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052925	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	1/2/2000	3/2/2000	10	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052926	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/01/2001	15/02/2001	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052927	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/2000	2/4/2000	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052928	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/2000	29/10/2000	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052929	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/2000	29/10/2000	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052930	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	29/10/1997	31/10/1997	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052931	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/1999	29/10/1999	1	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0052932	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	3/2/1998	5/2/1998	1	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052933	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	28/10/2001	30/10/2001	1	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0052934	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	22/06/1998	24/06/1998	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0052935	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	24/06/1999	26/06/1999	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0052936	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	22/06/1998	24/06/1998	2	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0052937	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	20/06/1997	22/06/1997	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052938	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	19/06/2001	21/06/2001	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0052939	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/2002	4/2/2002	3	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052940	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	22/06/1998	24/06/1998	2	4	O	-28.21938563	153.5172517	56	550755	6878386	100
Tweed Estuary Water	SPJGl0052941	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	1/2/2000	3/2/2000	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052942	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	24/06/1999	26/06/1999	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0052943	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/01/2001	15/02/2001	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0052944	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1999	2/4/1999	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052945	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	23/03/1997	25/03/1997	1	4	O	-28.20202689	153.5696434	56	555904	6880286	100
Tweed Estuary Water	SPJGl0052946	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	20/06/1997	22/06/1997	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052947	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	19/06/2001	21/06/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052948	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	28/10/2001	30/10/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052949	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/1999	29/10/1999	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052950	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	24/06/1999	26/06/1999	2	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052951	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1999	2/4/1999	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052952	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/1999	4/2/1999	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0052953	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	24/06/1999	26/06/1999	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052954	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	23/03/1997	25/03/1997	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052955	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/1999	29/10/1999	3	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052956	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	29/10/1997	31/10/1997	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052957	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	1/2/2000	3/2/2000	4	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052958	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/2000	2/4/2000	2	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052959	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	28/10/2001	30/10/2001	1	4	O	-28.21131673	153.5024369	56	549305	6879286	100
Tweed Estuary Water	SPJGl0052960	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	28/10/2001	30/10/2001	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052961	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/2000	2/4/2000	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0052962	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	20/06/1997	22/06/1997	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052963	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	29/10/1998	31/10/1998	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052964	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	22/06/1998	24/06/1998	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052965	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	29/10/1997	31/10/1997	1	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0052966	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/1999	29/10/1999	7	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0052967	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1998	2/4/1998	3	4	O	-28.17683158	153.5501547	56	554004	6883086	100

Tweed Estuary Water	SPJGl0052968	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	3/2/1998	5/2/1998	3	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0052969	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/1999	29/10/1999	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0052970	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1998	2/4/1998	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0052971	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1998	2/4/1998	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0052972	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/2002	4/2/2002	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052973	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/01/2001	15/02/2001	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052974	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	1/2/2000	3/2/2000	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0052975	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	29/10/1998	31/10/1998	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052976	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/2002	4/2/2002	3	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052977	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1999	2/4/1999	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0052978	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/2001	2/4/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052979	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/2000	29/10/2000	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052980	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/1999	4/2/1999	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052981	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/2002	4/2/2002	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0052982	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/1999	29/10/1999	3	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052983	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/01/2001	15/02/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052984	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	20/06/1997	22/06/1997	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052985	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/2001	2/4/2001	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0052986	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/2000	29/10/2000	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0052987	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/2000	29/10/2000	1	4	O	-28.21131673	153.5024369	56	549305	6879286	100
Tweed Estuary Water	SPJGl0052988	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	23/03/1997	25/03/1997	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052989	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	29/10/1997	31/10/1997	1	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0052990	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	2/2/1999	4/2/1999	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0052991	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	22/06/1998	24/06/1998	1	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052992	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1998	2/4/1998	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052993	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	19/06/2001	21/06/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052994	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	3/2/1998	5/2/1998	1	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052995	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	1/2/2000	3/2/2000	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052996	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/1999	29/10/1999	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0052997	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	24/06/2000	26/06/2000	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052998	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	22/06/1998	24/06/1998	2	4	O	-28.22874663	153.547363	56	553704	6877336	100
Tweed Estuary Water	SPJGl0052999	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/2000	2/4/2000	1	4	O	-28.20930259	153.5564349	56	554604	6879486	100
Tweed Estuary Water	SPJGl0053000	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/1999	29/10/1999	1	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053001	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	19/06/2001	21/06/2001	3	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053002	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	23/03/1997	25/03/1997	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0053003	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	3/2/1998	5/2/1998	3	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0053004	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1998	2/4/1998	2	4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Water	SPJGl0053005	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	28/10/2001	30/10/2001	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0053006	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	24/06/2000	26/06/2000	2	4	O	-28.22874663	153.547363	56	553704	6877336	100
Tweed Estuary Water	SPJGl0053007	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1998	2/4/1998	1	4	O	-28.19530313	153.5584001	56	554804	6881036	100
Tweed Estuary Water	SPJGl0053008	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/01/2001	15/02/2001	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0053009	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1999	2/4/1999	4	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0053010	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	27/10/2000	29/10/2000	2	4	O	-28.20930259	153.5564349	56	554604	6879486	100
Tweed Estuary Water	SPJGl0053011	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	29/10/1997	31/10/1997	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0053012	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	19/06/2001	21/06/2001	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0053013	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1999	2/4/1999	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053014	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	29/10/1998	31/10/1998	3	4	O	-28.21131673	153.5024369	56	549305	6879286	100
Tweed Estuary Water	SPJGl0053015	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	20/06/1997	22/06/1997	2	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0053016	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/03/1998	2/4/1998	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053017	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	20/06/1997	22/06/1997	2	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0053018	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P	10386	31/01/2001	15/02/2001	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100

Tweed Estuary Water	SPJGl0053019	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	31/01/2001	15/02/2001	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053020	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	2/2/1999	4/2/1999	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0053021	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	31/01/2001	15/02/2001	1	4	O	-28.20930259	153.5564349	56	554604	6879486	100
Tweed Estuary Water	SPJGl0053022	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/1999	26/06/1999	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0053023	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	27/10/2000	29/10/2000	1	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053024	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	22/06/1998	24/06/1998	1	4	O	-28.21938563	153.5172517	56	550755	6878386	100
Tweed Estuary Water	SPJGl0053025	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	29/10/1998	31/10/1998	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053026	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	31/03/2001	2/4/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053027	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/2000	26/06/2000	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053028	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	27/10/1999	29/10/1999	3	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053029	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	20/06/1997	22/06/1997	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053030	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	22/06/1998	24/06/1998	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0053031	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/1999	26/06/1999	4	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0053032	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	3/2/1998	5/2/1998	2	4	O	-28.22874663	153.547363	56	553704	6877336	100
Tweed Estuary Water	SPJGl0053033	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/2000	26/06/2000	2	4	O	-28.22874663	153.547363	56	553704	6877336	100
Tweed Estuary Water	SPJGl0053034	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/1999	26/06/1999	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0053035	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	28/10/2001	30/10/2001	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053036	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/2000	26/06/2000	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053037	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/2000	26/06/2000	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0053038	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	31/01/2001	15/02/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053039	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	23/03/1997	25/03/1997	2	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0053040	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	31/03/2001	2/4/2001	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0053041	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	27/10/2000	29/10/2000	3	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0053042	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	29/10/1998	31/10/1998	1	4	O	-28.18330401	153.5104561	56	550105	6882386	100
Tweed Estuary Water	SPJGl0053043	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	3/2/1998	5/2/1998	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0053044	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	1/2/2000	3/2/2000	1	4	O	-28.20930259	153.5564349	56	554604	6879486	100
Tweed Estuary Water	SPJGl0053045	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	28/10/2001	30/10/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053046	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	1/2/2000	3/2/2000	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0053047	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	31/03/2000	2/4/2000	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0053048	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	31/03/1998	2/4/1998	1	4	O	-28.19530313	153.5584001	56	554804	6881036	100
Tweed Estuary Water	SPJGl0053049	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	20/06/1997	22/06/1997	2	4	O	-28.22874663	153.547363	56	553704	6877336	100
Tweed Estuary Water	SPJGl0053050	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	27/10/1999	29/10/1999	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0053051	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	29/10/1998	31/10/1998	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0053052	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	31/03/2000	2/4/2000	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053053	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	22/06/1998	24/06/1998	2	4	O	-28.21131673	153.5024369	56	549305	6879286	100
Tweed Estuary Water	SPJGl0053054	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	23/03/1997	25/03/1997	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053055	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/1999	26/06/1999	2	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053056	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	31/03/1998	2/4/1998	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0053057	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	1/2/2000	3/2/2000	1	4	O	-28.19355725	153.5436177	56	553354	6881236	100
Tweed Estuary Water	SPJGl0053058	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	29/10/1997	31/10/1997	3	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053059	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/1999	26/06/1999	2	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0053060	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/2000	26/06/2000	2	4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Water	SPJGl0053061	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	24/06/2000	26/06/2000	2	4	O	-28.21131673	153.5024369	56	549305	6879286	100
Tweed Estuary Water	SPJGl0053062	130	Aves	Haematopodidae	1926	Haematopus longirostris	Pied Oystercatcher	E1,P		10386	31/03/2000	2/4/2000	1	4	O	-28.18862272	153.5359517	56	552605	6881786	100
NRAC Upper North E	SPXEl0015221	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	15/11/1994	15/11/1994	1	4	O	-28.17818148	153.5511803	56	554104	6882936	1000
OEH Default Sighting	2944-LI	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	13/12/1990	13/12/1990	1	4	O	-28.17773424	153.5501593	56	554004	6882986	100
OEH Default Sighting	2983-LI	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	25/01/1991	25/01/1991	1	4	O	-28.17773424	153.5501593	56	554004	6882986	100
OEH Default Sighting	3028-LI	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	2/2/1991	2/2/1991	2	4	O	-28.17139506	153.5552201	56	554504	6883686	100
Tweed Estuary Water	SPJGl0053282	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	31/01/2001	15/02/2001	2	4	O	-28.19092473	153.5242466	56	551455	6881536	100
Tweed Estuary Water	SPJGl0053283	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	23/03/1997	25/03/1997	1	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0053284	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	23/03/1997	25/03/1997	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100

Tweed Estuary Wate	SPJGl0053285	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	31/01/2001	15/02/2001	6		4	O	-28.20930259	153.5564349	56	554604	6879486	100
Tweed Estuary Wate	SPJGl0053286	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	31/01/2001	15/02/2001	2		4	O	-28.21131673	153.5024369	56	549305	6879286	100
Tweed Estuary Wate	SPJGl0053287	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	31/01/2001	15/02/2001	11		4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Wate	SPJGl0053288	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	31/01/2001	15/02/2001	2		4	O	-28.18862272	153.5359517	56	552605	6881786	100
Tweed Estuary Wate	SPJGl0053289	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	31/01/2001	15/02/2001	16		4	O	-28.17882824	153.5002477	56	549105	6882886	100
Tweed Estuary Wate	SPJGl0053290	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	31/01/2001	15/02/2001	56		4	O	-28.21938563	153.5172517	56	550755	6878386	100
Tweed Estuary Wate	SPJGl0053291	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	31/01/2001	15/02/2001	14		4	O	-28.22874663	153.547363	56	553704	6877336	100
Tweed Estuary Wate	SPJGl0053292	141	Aves	Charadriidae	1940	Charadrius leschenaultii	Greater Sand-plover	V,P	C,J,K	10161	31/01/2001	15/02/2001	4		4	O	-28.177888	153.5104304	56	550105	6882986	100
NRAC Upper North E	SPXEl0015222	139	Aves	Charadriidae	1941	Charadrius mongolus	Lesser Sand-plover	V,P	C,J,K	10162	15/11/1994	15/11/1994	1		4	O	-28.17818148	153.5511803	56	554104	6882936	1000
OEH Default Sighting	2942-LI	139	Aves	Charadriidae	1941	Charadrius mongolus	Lesser Sand-plover	V,P	C,J,K	10162	13/12/1990	13/12/1990	4		4	O	-28.17773424	153.5501593	56	554004	6882986	100
OEH Default Sighting	2967-LI	139	Aves	Charadriidae	1941	Charadrius mongolus	Lesser Sand-plover	V,P	C,J,K	10162	24/01/1991	24/01/1991	2		4	O	-28.17773424	153.5501593	56	554004	6882986	100
OEH Default Sighting	2981-LI	139	Aves	Charadriidae	1941	Charadrius mongolus	Lesser Sand-plover	V,P	C,J,K	10162	25/01/1991	25/01/1991	4		4	O	-28.17773424	153.5501593	56	554004	6882986	100
OEH Default Sighting	2996-LI	139	Aves	Charadriidae	1941	Charadrius mongolus	Lesser Sand-plover	V,P	C,J,K	10162	25/01/1991	25/01/1991	3		4	O	-28.17773424	153.5501593	56	554004	6882986	100
OEH Default Sighting	3027-LI	139	Aves	Charadriidae	1941	Charadrius mongolus	Lesser Sand-plover	V,P	C,J,K	10162	2/2/1991	2/2/1991	4		4	O	-28.17139506	153.5552201	56	554504	6883686	100
OEH Default Sighting	3051-LI	139	Aves	Charadriidae	1941	Charadrius mongolus	Lesser Sand-plover	V,P	C,J,K	10162	20/02/1991	20/02/1991	2		4	O	-28.21109128	153.5605203	56	555004	6879286	100
OEH Default Sighting	3072-LI	139	Aves	Charadriidae	1941	Charadrius mongolus	Lesser Sand-plover	V,P	C,J,K	10162	21/03/1991	21/03/1991	3		4	O	-28.21109128	153.5605203	56	555004	6879286	100
OEH Default Sighting	3078-LI	139	Aves	Charadriidae	1941	Charadrius mongolus	Lesser Sand-plover	V,P	C,J,K	10162	21/03/1991	21/03/1991	24		4	O	-28.21109128	153.5605203	56	555004	6879286	100
OEH Default Sighting	3081-LI	139	Aves	Charadriidae	1941	Charadrius mongolus	Lesser Sand-plover	V,P	C,J,K	10162	17/04/1991	17/04/1991	1		4	O	-28.21109128	153.5605203	56	555004	6879286	100
OEH Data from Scien	SDMPl0221108	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	13/12/2006	13/12/2006	2	X	4	O	-28.19954455	153.4904852	56	548137	6880595	10
OEH Data from Scien	SDMPl0405684	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	24/11/2008	28/11/2008	1	E	4	O	-28.19209636	153.4873724	56	547835	6881422	500
Tweed Estuary Wate	SPJGl0054658	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	31/01/2001	15/02/2001	5		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054659	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	31/03/2000	2/4/2000	10		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054660	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	29/10/1997	31/10/1997	1		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054661	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	3/2/1998	5/2/1998	1		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054662	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	22/06/1998	24/06/1998	1		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054663	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	27/10/2000	29/10/2000	4		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054664	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	2/2/1999	4/2/1999	2		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054665	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	19/06/2001	21/06/2001	8		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054666	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	1/2/2000	3/2/2000	2		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054667	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	31/03/2001	2/4/2001	6		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054668	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	29/10/1998	31/10/1998	1		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054669	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	2/2/2002	4/2/2002	5		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054670	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	28/10/2001	30/10/2001	2		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054671	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	27/10/1999	29/10/1999	2		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054672	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	24/06/1999	26/06/1999	5		4	O	-28.21125593	153.5187411	56	550905	6879286	100
Tweed Estuary Wate	SPJGl0054673	171	Aves	Jacanidae	1959	Irediparra gallinacea	Comb-crested Jacana	V,P		10435	31/03/1999	2/4/1999	9		4	O	-28.21125593	153.5187411	56	550905	6879286	100
NRAC Upper North E	SPJGl0218077	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	15/11/1994	15/11/1994	9		4	O	-28.17879824	153.5083973	56	549905	6882886	1000
NRAC Upper North E	SPXEl0015215	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	15/11/1994	15/11/1994	16		4	O	-28.17818148	153.5511803	56	554104	6882936	1000
NRAC Upper North E	SPXEl0015319	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	15/11/1994	15/11/1994	10		4	O	-28.17879824	153.5083973	56	549905	6882886	1000
NRAC Upper North E	SPXEl0015351	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	15/11/1994	15/11/1994	7		4	O	-28.17973091	153.5002519	56	549105	6882786	1000
NRAC Upper North E	SPXEl0087815	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	11/10/1994	11/10/1994	15		4	O	-28.17879824	153.5083973	56	549905	6882886	1000
NRAC Upper North E	SPXEl0087883	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	11/10/1994	11/10/1994	3		4	O	-28.17973091	153.5002519	56	549105	6882786	1000
OEH Data from Scien	SSLSl0036646	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	14/01/2003	8/6/2003			4	O	-28.17427048	153.5122468	56	550285	6883386	500
OEH Data from Scien	SSLSl0037424	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	18/01/2003	20/01/2003	1		4	O	-28.17787658	153.5134865	56	550405	6882986	100
OEH Default Sighting	2937-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	12/12/1990	12/12/1990	2		4	O	-28.21109128	153.5605203	56	555004	6879286	100
OEH Default Sighting	2963-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	24/01/1991	24/01/1991	3		4	O	-28.20929014	153.5594919	56	554904	6879486	100
OEH Default Sighting	2990-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	25/01/1991	25/01/1991	6		4	O	-28.17773424	153.5501593	56	554004	6882986	100
OEH Default Sighting	3010-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	1/2/1991	1/2/1991	1		4	O	-28.17773424	153.5501593	56	554004	6882986	100
OEH Default Sighting	3067-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	20/03/1991	20/03/1991	3		4	O	-28.21109128	153.5605203	56	555004	6879286	100
OEH Default Sighting	3219-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	13/12/1990	13/12/1990	2		4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sighting	3224-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	14/12/1990	14/12/1990	18		4	O	-28.1805884	153.5124807	56	550305	6882686	100

OEH Default Sightinç 3234-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	24/01/1991	24/01/1991	16	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3243-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	25/01/1991	25/01/1991	19	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3252-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	1/2/1991	1/2/1991	17	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3259-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	1/2/1991	1/2/1991	14	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3272-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	2/2/1991	2/2/1991	15	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3277-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	2/2/1991	2/2/1991	14	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3288-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	2/2/1991	2/2/1991	4	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3295-LI	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	20/02/1991	20/02/1991	4	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 38457-035	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	28/12/1991	28/12/1991	1	4	O	-28.18677716	153.5461304	56	553604	6881986	1000
OEH Default Sightinç 38490-035	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	28/12/1991	28/12/1991	1	4	O	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sightinç SPXE9612121H	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	5/10/1996	11/10/1996	1	4	O	-28.19127415	153.5502285	56	554004	6881486	1000
Tweed Estuary Wate SPJGl0054601	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	2/2/2002	4/2/2002	3	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate SPJGl0054602	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	29/10/1998	31/10/1998	1	4	O	-28.18330401	153.5104561	56	550105	6882386	100
Tweed Estuary Wate SPJGl0054603	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	27/10/1999	29/10/1999	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate SPJGl0054604	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	3/2/1998	5/2/1998	9	4	O	-28.18330401	153.5104561	56	550105	6882386	100
Tweed Estuary Wate SPJGl0054605	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	31/03/1998	2/4/1998	2	4	O	-28.18330401	153.5104561	56	550105	6882386	100
Tweed Estuary Wate SPJGl0054606	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	29/10/1997	31/10/1997	3	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Wate SPJGl0054607	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	29/10/1997	31/10/1997	9	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate SPJGl0054608	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	27/10/2000	29/10/2000	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate SPJGl0054609	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	29/10/1997	31/10/1997	1	4	O	-28.18330401	153.5104561	56	550105	6882386	100
Tweed Estuary Wate SPJGl0054610	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	1/2/2000	3/2/2000	1	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate SPJGl0054611	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	29/10/1997	31/10/1997	2	4	O	-28.20929014	153.5594919	56	554904	6879486	100
Tweed Estuary Wate SPJGl0054612	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	29/10/1997	31/10/1997	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate SPJGl0054613	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	27/10/1999	29/10/1999	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Wate SPJGl0054614	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	3/2/1998	5/2/1998	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Wate SPJGl0054615	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	29/10/1997	31/10/1997	2	4	O	-28.17882824	153.5002477	56	549105	6882886	100
Tweed Estuary Wate SPJGl0054616	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	3/2/1998	5/2/1998	6	4	O	-28.177888	153.5104304	56	550105	6882986	100
Tweed Estuary Wate SPJGl0054617	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	3/2/1998	5/2/1998	8	4	O	-28.18330401	153.5104561	56	550105	6882386	100
Tweed Estuary Wate SPJGl0054618	161	Aves	Scolopacidae	1971	Calidris ferruginea	Curlew Sandpiper	E1,P	C,J,K	20166	28/10/2001	30/10/2001	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
NRAC Upper North E. SPXEl0015499	165	Aves	Scolopacidae	1979	Calidris tenuirostris	Great Knot	V,P	C,J,K	10128	15/11/1994	15/11/1994	5	4	O	-28.20840408	153.5554113	56	554504	6879586	1000
NRAC Upper North E. SPXEl0015539	165	Aves	Scolopacidae	1979	Calidris tenuirostris	Great Knot	V,P	C,J,K	10128	15/11/1994	15/11/1994	3	4	O	-28.21018862	153.5605155	56	555004	6879386	1000
NRAC Upper North E. SPXEl0088228	165	Aves	Scolopacidae	1979	Calidris tenuirostris	Great Knot	V,P	C,J,K	10128	11/10/1994	11/10/1994	1	4	O	-28.21018862	153.5605155	56	555004	6879386	1000
OEH Default Sightinç 10832-AGIS	165	Aves	Scolopacidae	1979	Calidris tenuirostris	Great Knot	V,P	C,J,K	10128	28/02/1983	28/02/1983	1	4	O	-28.19038374	153.5471675	56	553704	6881586	100
OEH Default Sightinç 2994-LI	152	Aves	Scolopacidae	1992	Limosa limosa	Black-tailed Godwit	V,P	C,J,K	10479	25/01/1991	25/01/1991	2	4	O	-28.21109128	153.5605203	56	555004	6879286	100
OEH Default Sightinç 3085-LI	152	Aves	Scolopacidae	1992	Limosa limosa	Black-tailed Godwit	V,P	C,J,K	10479	17/04/1991	17/04/1991	3	4	O	-28.21109128	153.5605203	56	555004	6879286	100
OEH Default Sightinç 3246-LI	152	Aves	Scolopacidae	1992	Limosa limosa	Black-tailed Godwit	V,P	C,J,K	10479	25/01/1991	25/01/1991	4	4	O	-28.20659048	153.5574398	56	554704	6879786	100
Tweed Estuary Wate SPJGl0054091	152	Aves	Scolopacidae	1992	Limosa limosa	Black-tailed Godwit	V,P	C,J,K	10479	29/10/1998	31/10/1998	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
NRAC Upper North E. SPXEl0015373	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	15/11/1994	15/11/1994	1	4	O	-28.19864173	153.5125668	56	550305	6880686	1000
NRAC Upper North E. SPXEl0015397	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	15/11/1994	15/11/1994	1	4	O	-28.20769484	153.505477	56	549605	6879686	1000
NRAC Upper North E. SPXEl0088052	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	11/10/1994	11/10/1994	1	4	O	-28.21221189	153.5044792	56	549505	6879186	1000
OEH Default Sightinç 3060-LI	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	12/3/1991	12/3/1991	1	4	O	-28.21109128	153.5605203	56	555004	6879286	100
OEH Default Sightinç 3232-LI	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	24/01/1991	24/01/1991	1	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3242-LI	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	25/01/1991	25/01/1991	1	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3250-LI	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	1/2/1991	1/2/1991	2	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3270-LI	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	2/2/1991	2/2/1991	2	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3276-LI	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	2/2/1991	2/2/1991	1	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3286-LI	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	2/2/1991	2/2/1991	2	4	O	-28.1805884	153.5124807	56	550305	6882686	100
OEH Default Sightinç 3293-LI	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	20/02/1991	20/02/1991	2	4	O	-28.1805884	153.5124807	56	550305	6882686	100
Tweed Estuary Wate SPJGl0054582	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	23/03/1997	25/03/1997	1	4	O	-28.20929014	153.5594919	56	554904	6879486	100
Tweed Estuary Wate SPJGl0054583	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	27/10/1999	29/10/1999	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Wate SPJGl0054584	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	2/2/1999	4/2/1999	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100

Tweed Estuary Water	SPJGl0054585	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	23/03/1997	25/03/1997	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054586	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	31/03/2000	2/4/2000	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054587	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	31/03/1998	2/4/1998	3	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054588	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	31/03/1999	2/4/1999	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054589	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	29/10/1997	31/10/1997	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054590	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	23/03/1997	25/03/1997	3	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0054591	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	27/10/1999	29/10/1999	1	4	O	-28.21131673	153.5024369	56	549305	6879286	100
Tweed Estuary Water	SPJGl0054592	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	27/10/2000	29/10/2000	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054593	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	31/03/1998	2/4/1998	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054594	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	3/2/1998	5/2/1998	1	4	O	-28.20048854	153.5013674	56	549205	6880486	100
Tweed Estuary Water	SPJGl0054595	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	31/03/2000	2/4/2000	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054596	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	1/2/2000	3/2/2000	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054597	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	3/2/1998	5/2/1998	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054598	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	31/03/1999	2/4/1999	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054599	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	3/2/1998	5/2/1998	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0054600	160	Aves	Scolopacidae	2014	Xenus cinereus	Terek Sandpiper	V,P	C,J,K	10843	23/03/1997	25/03/1997	2	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Australian Bird & Bat	ABBBS0148191	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	5/3/2001	5/3/2001		4	O	-28.21368824	153.5560586	56	554565	6879001	100
Australian Bird & Bat	ABBBS0150348	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	15/03/2002	15/03/2002		4	O	-28.1984106	153.5343922	56	552447	6880703	100
Australian Bird & Bat	ABBBS0151161	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	6/3/2001	6/3/2001		4	O	-28.21368824	153.5560586	56	554565	6879001	100
Australian Bird & Bat	ABBBS0151162	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	11/2/2002	11/2/2002		4	O	-28.1984106	153.5343922	56	552447	6880703	100
NRAC Upper North E.	SPJGl0171188	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	15/11/1994	15/11/1994	8	4	O	-28.21018862	153.5605155	56	555004	6879386	1000
NRAC Upper North E.	SPJGl0192212	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	11/10/1994	11/10/1994	61	4	O	-28.17139093	153.5562387	56	554604	6883686	1000
NRAC Upper North E.	SPXEl0005523	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	4/11/1994	4/11/1994	250	4	O	-28.21109128	153.5605203	56	555004	6879286	100
NRAC Upper North E.	SPXEl0006056	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	11/10/1994	11/10/1994	61	4	O	-28.17139093	153.5562387	56	554604	6883686	1000
NRAC Upper North E.	SPXEl0015516	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	15/11/1994	15/11/1994	11	4	O	-28.21018862	153.5605155	56	555004	6879386	1000
NRAC Upper North E.	SPXEl0015875	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	15/11/1994	15/11/1994	3	4	O	-28.17139093	153.5562387	56	554604	6883686	1000
NRAC Upper North E.	SPXEl0088160	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	11/10/1994	11/10/1994	1	4	O	-28.20840408	153.5554113	56	554504	6879586	1000
NRAC Upper North E.	SPXEl0088195	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	11/10/1994	11/10/1994	1	4	O	-28.21018862	153.5605155	56	555004	6879386	1000
OEH Default Sighting	65000247	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	26/09/1991	26/09/1991	7	4	O	-28.21290492	153.5584917	56	554804	6879086	10
OEH Default Sighting	110157-035	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	15/02/1984	15/02/1984	4	4	O	-28.18942336	153.561426	56	555104	6881686	1000
OEH Default Sighting	SPXE9605020N	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	16/02/1996	24/02/1996	10 +	4	O	-28.21507439	153.5510536	56	554073	6878849	1000
Tweed Estuary Water	SPJGl0052451	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	31/01/2001	15/02/2001	1	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052453	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	2/2/1999	4/2/1999	13	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052455	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	2/2/2002	4/2/2002	3	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052456	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	1/2/2000	3/2/2000	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052457	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	2/2/2002	4/2/2002	4	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052458	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	31/03/2001	2/4/2001	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052459	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	23/03/1997	25/03/1997	1	4	O	-28.20929014	153.5594919	56	554904	6879486	100
Tweed Estuary Water	SPJGl0052460	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	2/2/2002	4/2/2002	2	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052461	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	31/03/2000	2/4/2000	2	4	O	-28.17950867	153.5578088	56	554754	6882786	100
Tweed Estuary Water	SPJGl0052462	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	31/03/2001	2/4/2001	17	4	O	-28.17683158	153.5501547	56	554004	6883086	100
Tweed Estuary Water	SPJGl0052463	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	31/03/2000	2/4/2000	2	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052464	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	31/03/2000	2/4/2000	3	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052465	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	23/03/1997	25/03/1997	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052466	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	2/2/1999	4/2/1999	1	4	O	-28.19530313	153.5584001	56	554804	6881036	100
Tweed Estuary Water	SPJGl0052467	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	2/2/1999	4/2/1999	1	4	O	-28.20453553	153.5054621	56	549605	6880036	100
Tweed Estuary Water	SPJGl0052468	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	23/03/1997	25/03/1997	1	4	O	-28.20930259	153.5564349	56	554604	6879486	100
Tweed Estuary Water	SPJGl0052469	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	31/03/1999	2/4/1999	1	4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Water	SPJGl0052470	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	2/2/1999	4/2/1999	1	4	O	-28.17882824	153.5002477	56	549105	6882886	100
Tweed Estuary Water	SPJGl0052471	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	2/2/1999	4/2/1999	4	4	O	-28.20930259	153.5564349	56	554604	6879486	100
Tweed Estuary Water	SPJGl0052472	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K	10769	29/10/1997	31/10/1997	10	4	O	-28.21108919	153.5610298	56	555054	6879286	100

Tweed Estuary Wate	SPJGl0052473	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K		10769	23/03/1997	25/03/1997	3		4	O	-28.22874663	153.547363	56	553704	6877336	100
Tweed Estuary Wate	SPJGl0052474	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K		10769	31/03/2001	2/4/2001	20		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0052475	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K		10769	23/03/1997	25/03/1997	6		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0052476	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K		10769	31/03/1999	2/4/1999	2		4	O	-28.22874663	153.547363	56	553704	6877336	100
Tweed Estuary Wate	SPJGl0052477	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K		10769	2/2/1999	4/2/1999	16		4	O	-28.21108919	153.5610298	56	555054	6879286	100
Tweed Estuary Wate	SPJGl0052478	117	Aves	Laridae	2085	Sternula albifrons	Little Tern	E1,P	C,J,K		10769	3/2/1998	5/2/1998	1		4	O	-28.20930259	153.5564349	56	554604	6879486	100
OEH Data from Scien	SSLSl0036663	265	Aves	Cacatuidae	2121	Calyptorhynchus lathami	Glossy Black-Cockatoo	V,P,2		2^	10140	14/01/2003	8/6/2003			4	O	-28.2	153.5	56	549071	6880541	500
OEH Data from Scien	SDMPl0272807	260	Aves	Psittacidae	2157	Glossopsitta pusilla	Little Lorikeet	V,P			20111	20/05/2005	28/05/2005			4	O	-28.18514693	153.5002771	56	549105	6882186	1000
OEH Data from Scien	SDMPl0405716	260	Aves	Psittacidae	2157	Glossopsitta pusilla	Little Lorikeet	V,P			20111	24/11/2008	28/11/2008	1	E	4	O	-28.19209636	153.4873724	56	547835	6881422	500
OEH Data from Scien	SSLSl0036669	260	Aves	Psittacidae	2157	Glossopsitta pusilla	Little Lorikeet	V,P			20111	14/01/2003	8/6/2003			4	O	-28.17427048	153.5122468	56	550285	6883386	500
OEH Default Sighting	2585-LI	246	Aves	Strigidae	2296	Ninox connivens	Barking Owl	V,P,3		3^^	10561	10/3/1992	10/3/1992	2		4	O	-28.22	153.55	56	553968	6878304	100
Bird lists and historic	SPJGl0235638	252	Aves	Tytonidae	2315	Tyto longimembris	Eastern Grass Owl	V,P,3		3^^	10819	21/09/1986	21/09/1986	1		4	O	-28.25	153.53	56	551991	6874990	100
OEH Default Sighting	99743-035	252	Aves	Tytonidae	2315	Tyto longimembris	Eastern Grass Owl	V,P,3		3^^	10819	21/09/1986	21/09/1986	1		4	R	-28.24	153.55	56	553958	6876089	10000
OEH Default Sighting	SJXK00052907	252	Aves	Tytonidae	2315	Tyto longimembris	Eastern Grass Owl	V,P,3		3^^	10819	1/2/1995	28/02/1995	1		4	W	-28.21	153.52	56	551029	6879425	1000
Bird lists and historic	SPXEl0174856	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	17/10/1980	17/10/1980	2		4	O	-28.19667367	153.5543317	56	554404	6880886	100
NRAC Upper North E.	SPJGl0170564	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	15/11/1994	15/11/1994	1		4	O	-28.23099919	153.5483937	56	553804	6877086	1000
NRAC Upper North E.	SPXEl0005320	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	31/10/1994	31/10/1994	4		4	W	-28.19488069	153.5512659	56	554104	6881086	100
NRAC Upper North E.	SPXEl0005322	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	31/10/1994	31/10/1994	2		4	O	-28.1939657	153.5543178	56	554404	6881186	100
NRAC Upper North E.	SPXEl0005521	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	4/11/1994	4/11/1994	1		4	W	-28.18770003	153.5410411	56	553104	6881886	100
NRAC Upper North E.	SPXEl0005527	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	4/11/1994	4/11/1994	1		4	W	-28.19663205	153.5645203	56	555404	6880886	100
NRAC Upper North E.	SPXEl0007013	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	1/11/1994	5/11/1994			4	O	-28.19938988	153.5523079	56	554204	6880586	100
NRAC Upper North E.	SPXEl0007083	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	31/10/1994	5/11/1994			4	O	-28.18861474	153.5379892	56	552805	6881786	100
NRAC Upper North E.	SPXEl0007266	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	########	########			4	O	-28.19487659	153.5522847	56	554204	6881086	100
NRAC Upper North E.	SPXEl0007319	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	########	########			4	O	-28.19576689	153.5553459	56	554504	6880986	100
NRAC Upper North E.	SPXEl0007790	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	31/10/1994	5/11/1994			4	O	-28.19578745	153.5502517	56	554004	6880986	100
NRAC Upper North E.	SPXEl0015244	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	15/11/1994	15/11/1994	8		4	W	-28.19490922	153.5441339	56	553404	6881086	1000
NRAC Upper North E.	SPXEl0015305	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	15/11/1994	15/11/1994	1		4	O	-28.18511692	153.5084272	56	549905	6882186	1000
NRAC Upper North E.	SPXEl0015369	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	15/11/1994	15/11/1994	1		4	O	-28.19864173	153.5125668	56	550305	6880686	1000
NRAC Upper North E.	SPXEl0015447	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	15/11/1994	15/11/1994	2		4	O	-28.21937598	153.5197994	56	551005	6878386	1000
NRAC Upper North E.	SPXEl0015551	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	15/11/1994	15/11/1994	1		4	O	-28.23099919	153.5483937	56	553804	6877086	1000
NRAC Upper North E.	SPXEl0087679	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	11/10/1994	11/10/1994	6		4	O	-28.19490922	153.5441339	56	553404	6881086	1000
NRAC Upper North E.	SPXEl0087813	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	11/10/1994	11/10/1994	2		4	O	-28.17879824	153.5083973	56	549905	6882886	1000
NRAC Upper North E.	SPXEl0088252	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	11/10/1994	11/10/1994	1		4	O	-28.23099919	153.5483937	56	553804	6877086	1000
OEH Data from Scien	SDMPl0272818	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	20/05/2005	28/05/2005			4	O	-28.18514693	153.5002771	56	549105	6882186	1000
OEH Data from Scien	SDMPl0367037	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	10/7/2008	2/9/2008			4	O	-28.20925453	153.5505581	56	554028	6879494	20
OEH Data from Scien	SDMPl0405730	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	24/11/2008	28/11/2008	1	E	4	O	-28.19209636	153.4873724	56	547835	6881422	500
OEH Data from Scien	SEMMl0066898	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	20/06/2009	26/06/2009			4	O	-28.24271134	153.5448975	56	553456	6875790	20
OEH Data from Scien	SIXRl0119602	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	21/06/2013	2/7/2013			4	O	-28.22190578	153.4883968	56	547922	6878119	100
OEH Data from Scien	SPJGl0110670	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	22/05/2003	22/05/2003			4	W	-28.1758532	153.5114394	56	550205	6883211	100
OEH Data from Scien	SSLSl0036686	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	14/01/2003	8/6/2003	5		4	O	-28.17427044	153.512257	56	550286	6883386	500
OEH Default Sighting	104326-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	28/02/1983	28/02/1983			4	O	-28.1833564	153.4961937	56	548705	6882386	100
OEH Default Sighting	107437-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	31/08/1982	11/9/1982	6		4	O	-28.1714319	153.5460525	56	553605	6883686	10000
OEH Default Sighting	109253-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	27/08/1981	27/08/1981	4		4	O	-28.19219312	153.5461579	56	553604	6881386	100
OEH Default Sighting	109254-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	15/10/1981	15/10/1981	4		4	O	-28.19945467	153.5360057	56	552605	6880586	100
OEH Default Sighting	112822-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	27/12/1994	27/12/1994	1		4	W	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting	112843-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	27/12/1994	27/12/1994	3		4	W	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting	112870-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	27/12/1994	27/12/1994	5		4	W	-28.18677716	153.5461304	56	553604	6881986	1000
OEH Default Sighting	112871-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	27/12/1994	27/12/1994	1		4	O	-28.18677716	153.5461304	56	553604	6881986	1000
OEH Default Sighting	1994-NR	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	1/4/1987	30/04/1987			4	M	-28.19753891	153.5635062	56	555304	6880786	100
OEH Default Sighting	31026-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	13/02/1990	13/02/1990			4	O	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting	31051-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P			10810	4/10/1991	4/10/1991	1		4	O	-28.19397393	153.5522801	56	554204	6881186	1000

OEH Default Sighting 31052-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	4/10/1991	4/10/1991	8		4	W	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting 31186-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	4/10/1991	4/10/1991	2		4	W	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting 38463-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	28/12/1991	28/12/1991	5		4	O	-28.18677716	153.5461304	56	553604	6881986	1000
OEH Default Sighting 38496-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	28/12/1991	28/12/1991	3		4	W	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting 38515-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	28/12/1991	28/12/1991	1		4	O	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting 50375-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	21/12/1992	21/12/1992	5		4	O	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting 50415-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	21/12/1992	21/12/1992	3		4	W	-28.18677716	153.5461304	56	553604	6881986	1000
OEH Default Sighting 62908-HO	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	26/12/1995	26/12/1995	1		4	O	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting 62909-HO	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	26/12/1995	26/12/1995	3		4	W	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting 62936-HO	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	26/12/1995	26/12/1995	2		4	O	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting 62937-HO	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	26/12/1995	26/12/1995	3		4	W	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting 85038-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	5/1/1994	5/1/1994	1		4	O	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting 85065-035	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	5/1/1994	5/1/1994	3		4	O	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting SDME0912313J	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	7/11/2009	7/11/2009	2	+	4	OW	-28.20435626	153.5148154	56	550523	6880052	500
OEH Default Sighting SDMP9701101Y	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	27/12/1996	27/12/1996	1		4	O	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting SPXE9612121Z	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	5/10/1996	11/10/1996	24	+	4	O	-28.19127415	153.5502285	56	554004	6881486	1000
OEH Default Sighting SPXE9701170E	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	27/12/1996	27/12/1996	2		4	O	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting SPXE9701170F	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	27/12/1996	27/12/1996	6	+	4	W	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting SPXE9803035T	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	29/12/1997	29/12/1997	2	+	4	W	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting SPXE9803037Y	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	29/12/1997	29/12/1997	2	+	4	O	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting SPXE9803037Z	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	29/12/1997	29/12/1997	1	+	4	W	-28.19397393	153.5522801	56	554204	6881186	1000
OEH Default Sighting SVGI98110922	327	Aves	Alcedinidae	2340	Todiramphus chloris	Collared Kingfisher	V,P	10810	1/10/1998	1/10/1998	4	+	4	O	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Data from Scien SEMMI0066765	8127	Aves	Climacteridae	2378	Climacteris picumnus victori	Brown Treecreeper (eas	V,P	10171	20/06/2009	26/06/2009			4	O	-28.20411264	153.4872962	56	547822	6880091	20
NRAC Upper North E. SPXEI0005514	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	3/11/1994	3/11/1994	1		4	O	-28.18770003	153.5410411	56	553104	6881886	100
NRAC Upper North E. SPXEI0005516	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	4/11/1994	4/11/1994	2		4	O	-28.18770003	153.5410411	56	553104	6881886	100
NRAC Upper North E. SPXEI0015265	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	15/11/1994	15/11/1994	1		4	O	-28.19048312	153.5216973	56	551205	6881586	1000
NRAC Upper North E. SPXEI0015332	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	15/11/1994	15/11/1994	1		4	O	-28.17879824	153.5083973	56	549905	6882886	1000
NRAC Upper North E. SPXEI0015344	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	15/11/1994	15/11/1994	1		4	O	-28.17973091	153.5002519	56	549105	6882786	1000
NRAC Upper North E. SPXEI0015393	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	15/11/1994	15/11/1994	2		4	O	-28.20769484	153.505477	56	549605	6879686	1000
NRAC Upper North E. SPXEI0015422	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	15/11/1994	15/11/1994	6		4	O	-28.21221189	153.5044792	56	549505	6879186	1000
NRAC Upper North E. SPXEI0087676	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	11/10/1994	11/10/1994	2		4	O	-28.19490922	153.5441339	56	553404	6881086	1000
NRAC Upper North E. SPXEI0087929	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	11/10/1994	11/10/1994	1		4	O	-28.17207671	153.495123	56	548605	6883636	1000
NRAC Upper North E. SPXEI0087951	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	11/10/1994	11/10/1994	2		4	O	-28.19864173	153.5125668	56	550305	6880686	1000
NRAC Upper North E. SPXEI0088047	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	11/10/1994	11/10/1994	5		4	O	-28.21221189	153.5044792	56	549505	6879186	1000
OEH Data from Scien SDMPI0272837	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	20/05/2005	28/05/2005			4	O	-28.18514693	153.5002771	56	549105	6882186	1000
OEH Data from Scien SPJGI0110671	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	22/05/2003	22/05/2003			4	O	-28.1758532	153.5114394	56	550205	6883211	100
OEH Data from Scien SSLSI0036705	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	14/01/2003	8/6/2003	4		4	O	-28.17427044	153.512257	56	550286	6883386	500
OEH Default Sighting 103269-035	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	21/10/1984	21/10/1984			4	O	-28.21672143	153.5055195	56	549605	6878686	1000
OEH Default Sighting 104451-035	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	28/02/1983	28/02/1983			4	O	-28.1833564	153.4961937	56	548705	6882386	100
OEH Default Sighting 10828-AGIS	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	28/02/1983	28/02/1983	3		4	O	-28.19038374	153.5471675	56	553704	6881586	100
OEH Default Sighting 4227-LI	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	15/11/1990	15/11/1990	1		4	O	-28.19311601	153.5410683	56	553104	6881286	100
OEH Default Sighting 9501-NR	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	12/1/1989	22/06/1989			4	O	-28.19753471	153.5645251	56	555404	6880786	1000
OEH Default Sighting 9502-NR	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	12/1/1989	22/06/1989			4	O	-28.19753471	153.5645251	56	555404	6880786	1000
OEH Default Sighting 9722-NR	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	12/1/1989	21/06/1989			4	O	-28.19753471	153.5645251	56	555404	6880786	1000
OEH Default Sighting SDME0912313N	610	Aves	Meliphagidae	2662	Lichenostomus fasciogularis	Mangrove Honeyeater	V,P	10477	7/11/2009	7/11/2009	1		4	O	-28.20435626	153.5148154	56	550523	6880052	500
OEH Data from Scien SDMPI0272844	549	Aves	Neosittidae	2827	Daphoenositta chrysoptera	Varied Sittella	V,P	20135	20/05/2005	28/05/2005			4	O	-28.18514693	153.5002771	56	549105	6882186	1000
OEH Data from Scien SDMPI0405749	549	Aves	Neosittidae	2827	Daphoenositta chrysoptera	Varied Sittella	V,P	20135	24/11/2008	28/11/2008	1	E	4	O	-28.19209636	153.4873724	56	547835	6881422	500
OEH Data from Scien SEMMI0066804	549	Aves	Neosittidae	2827	Daphoenositta chrysoptera	Varied Sittella	V,P	20135	20/06/2009	26/06/2009			4	O	-28.20411264	153.4872962	56	547822	6880091	20
OEH Data from Scien SSLSI0036715	549	Aves	Neosittidae	2827	Daphoenositta chrysoptera	Varied Sittella	V,P	20135	14/01/2003	8/6/2003			4	O	-28.17427044	153.512257	56	550286	6883386	500
OEH Default Sighting 2007-NR	428	Aves	Campephagidae	2828	Coracina lineata	Barred Cuckoo-shrike	V,P	10176	1/4/1987	31/05/1987			4	O	-28.18514692	153.5002771	56	549105	6882186	100
OEH Default Sighting 2228-NR	428	Aves	Campephagidae	2828	Coracina lineata	Barred Cuckoo-shrike	V,P	10176	31/12/1957	31/12/1987			4	O	-28.18604587	153.5013	56	549205	6882086	100

OEH Default Sightinç	31018-035	376	Aves	Monarchidae	3025	Carterornis leucotis	White-eared Monarch	V,P		10540	13/02/1990	13/02/1990	1	4	O	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sightinç	SJJSl0106608	376	Aves	Monarchidae	3025	Carterornis leucotis	White-eared Monarch	V,P		10540	3/10/2012	3/10/2012	1	4	OW	-28.24614707	153.5118915	56	550216	6875424	5
OEH Default Sightinç	SJJSl0106609	376	Aves	Monarchidae	3025	Carterornis leucotis	White-eared Monarch	V,P		10540	10/10/2012	10/10/2012	2	4	OW	-28.24595827	153.5092708	56	549959	6875446	5
Dan Lunney's Commı	WS-00489	1008	Mammalia	Dasyuridae	3339	Dasyurus maculatus	Spotted-tailed Quoll	V,P	E	10207	1/7/2004	30/06/2006		4	O	-28.21444522	153.4743756	56	546549	6878951	10000
Dan Lunney's Commı	WS-07741	1008	Mammalia	Dasyuridae	3339	Dasyurus maculatus	Spotted-tailed Quoll	V,P	E	10207	1/7/2004	30/06/2006		4	O	-28.24863626	153.4924343	56	548306	6875156	10000
Dan Lunney's Commı	WS-31746	1008	Mammalia	Dasyuridae	3339	Dasyurus maculatus	Spotted-tailed Quoll	V,P	E	10207	1/1/1980	30/06/2004		4	O	-28.2478336	153.4802893	56	547115	6875250	10000
Dan Lunney's Commı	WS-43111	1008	Mammalia	Dasyuridae	3339	Dasyurus maculatus	Spotted-tailed Quoll	V,P	E	10207	1/1/1980	30/06/2006		4	O	-28.26113678	153.4912204	56	548181	6873772	10000
OEH Data from Scien	SDMPl0272741	1045	Mammalia	Dasyuridae	3352	Planigale maculata	Common Planigale	V,P		10635	9/2/2005	18/02/2005	1	4	T	-28.1725055	153.5086731	56	549935	6883583	100
OEH Data from Scien	SDMPl0413195	1045	Mammalia	Dasyuridae	3352	Planigale maculata	Common Planigale	V,P		10635	8/1/2008	8/1/2008	1	4	Y	-28.17268509	153.5198577	56	551032	6883559	10
OEH Data from Scien	SIXRl0011686	1045	Mammalia	Dasyuridae	3352	Planigale maculata	Common Planigale	V,P		10635	25/09/2012	25/09/2012		4	T	-28.17438315	153.5072302	56	549792	6883376	10
OEH Data from Scien	SIXRl0011697	1045	Mammalia	Dasyuridae	3352	Planigale maculata	Common Planigale	V,P		10635	10/3/2010	10/3/2010	1	4	T	-28.17266591	153.5198332	56	551030	6883561	5
OEH Data from Scien	SIXRl0011719	1045	Mammalia	Dasyuridae	3352	Planigale maculata	Common Planigale	V,P		10635	17/03/2010	17/03/2010	1	4	T	-28.17170765	153.5032957	56	549407	6883674	5
OEH Data from Scien	SJJSl0057540	1045	Mammalia	Dasyuridae	3352	Planigale maculata	Common Planigale	V,P		10635	26/03/2009	26/03/2009	1	4	T	-28.17213965	153.5074067	56	549810	6883624	5
OEH Default Sightinç	SJAL02032706	1045	Mammalia	Dasyuridae	3352	Planigale maculata	Common Planigale	V,P		10635	10/1/2000	14/02/2001	6 >	4	T	-28.17393508	153.5077733	56	549846	6883425	100
OEH Default Sightinç	SYXM01101715	1045	Mammalia	Dasyuridae	3352	Planigale maculata	Common Planigale	V,P		10635	1/4/1998	1/4/1998	1	4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Default Sightinç	SYXM0110171E	1045	Mammalia	Dasyuridae	3352	Planigale maculata	Common Planigale	V,P		10635	6/4/1998	6/4/1998	1	4	T	-28.24356159	153.5668059	56	555604	6875686	100
Bird lists and historica	SPXEl0174857	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	17/10/1980	17/10/1980	1	4	O	-28.19667367	153.5543317	56	554404	6880886	100
Bird lists and historica	SPXEl0174858	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	2/7/1981	2/7/1981	2	4	O	-28.19667367	153.5543317	56	554404	6880886	100
Bird lists and historica	SPXEl0174859	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	27/06/1980	27/06/1980	1	4	O	-28.19667367	153.5543317	56	554404	6880886	100
Bird lists and historica	SPXEl0174860	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	15/10/1981	15/10/1981	1	4	O	-28.19667367	153.5543317	56	554404	6880886	100
Dan Lunney's Commı	WS-00493	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006	1	4	O	-28.21801433	153.4767551	56	546781	6878555	10000
Dan Lunney's Commı	WS-07864	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.25934379	153.4948137	56	548535	6873969	10000
Dan Lunney's Commı	WS-08113	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.19866777	153.5638182	56	555335	6880661	10000
Dan Lunney's Commı	WS-11155	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2006		4	O	-28.18216844	153.4963011	56	548716	6882518	10000
Dan Lunney's Commı	WS-12696	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.24853417	153.5589998	56	554836	6875139	10000
Dan Lunney's Commı	WS-18623	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2004	1	4	O	-28.26663958	153.5688746	56	555795	6873129	10000
Dan Lunney's Commı	WS-19531	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2004		4	O	-28.26663958	153.5676535	56	555676	6873129	10000
Dan Lunney's Commı	WS-19882	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2004		4	O	-28.19287593	153.4843723	56	547540	6881337	10000
Dan Lunney's Commı	WS-24895	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2004		4	O	-28.18930699	153.5593567	56	554901	6881700	10000
Dan Lunney's Commı	WS-25204	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2006		4	O	-28.26544983	153.5664951	56	555563	6873262	10000
Dan Lunney's Commı	WS-28154	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2006		4	O	-28.19525563	153.5617362	56	555132	6881040	10000
Dan Lunney's Commı	WS-28257	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.26878076	153.4832139	56	547393	6872928	10000
Dan Lunney's Commı	WS-28379	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	R	-28.23570644	153.540321	56	553010	6876569	10000
Dan Lunney's Commı	WS-28382	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.18692727	153.4784551	56	546962	6881998	10000
Dan Lunney's Commı	WS-31556	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.23938679	153.5633327	56	555266	6876151	10000
Dan Lunney's Commı	WS-36312	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2004		4	O	-28.23823674	153.5503004	56	553988	6876284	10000
Dan Lunney's Commı	WS-36424	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2004		4	O	-28.1802967	153.503901	56	549462	6882722	10000
Dan Lunney's Commı	WS-36719	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.21674166	153.4960916	56	548679	6878688	10000
Dan Lunney's Commı	WS-37900	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	R	-28.26544977	153.5474594	56	553696	6873270	10000
Dan Lunney's Commı	WS-37903	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2004		4	R	-28.26782913	153.5438902	56	553344	6873008	10000
Dan Lunney's Commı	WS-38264	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006	1	4	O	-28.20239401	153.5605464	56	555012	6880250	10000
Dan Lunney's Commı	WS-38265	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006	2	4	O	-28.20239401	153.5617362	56	555128	6880249	10000
Dan Lunney's Commı	WS-39891	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.17503362	153.4768378	56	546808	6883316	10000
Dan Lunney's Commı	WS-40042	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2004		4	O	-28.2517675	153.4867831	56	547750	6874812	10000
Dan Lunney's Commı	WS-40947	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.23139338	153.4997865	56	549035	6877063	10000
Dan Lunney's Commı	WS-40951	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006	1	4	O	-28.20402988	153.5604628	56	555002	6880069	10000
Dan Lunney's Commı	WS-42520	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.22464175	153.495825	56	548650	6877813	10000
Dan Lunney's Commı	WS-42860	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2006		4	O	-28.24210099	153.4900307	56	548073	6875881	10000
Dan Lunney's Commı	WS-45142	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.19894377	153.5636398	56	555317	6880631	10000
Dan Lunney's Commı	WS-50161	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/2004	30/06/2006		4	O	-28.20275069	153.4885678	56	547947	6880241	10000
Dan Lunney's Commı	WS-50164	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1980	30/06/2004		4	O	-28.19561232	153.4873781	56	547834	6881032	10000

NRAC Upper North E. SPXEI0006227	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	########	########	1		4	O	-28.1966942	153.5492374	56	553904	6880886	100
NRAC Upper North E. SPXEI0007011	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/11/1994	5/11/1994			4	O	-28.19938988	153.5523079	56	554204	6880586	100
OEH Data from Scien SDMPI0272872	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	20/05/2005	28/05/2005			4	O	-28.18514693	153.5002771	56	549105	6882186	1000
OEH Data from Scien SDMPI0405776	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	24/11/2008	28/11/2008	1	E	4	O	-28.19209636	153.4873724	56	547835	6881422	500
OEH Data from Scien SIXRI0119711	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	21/06/2013	2/7/2013			4	F	-28.22190578	153.4883968	56	547922	6878119	100
OEH Default Sighting 31027-035	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	13/02/1990	13/02/1990	1		4	O	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting 60371-HO	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	15/09/1995	15/09/1995	1		4	Y	-28.17816848	153.4954974	56	548639	6882961	100
OEH Default Sighting 85044-035	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	5/1/1994	5/1/1994	1		4	O	-28.19578745	153.5502517	56	554004	6880986	1000
OEH Default Sighting 9504-NR	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1985	30/09/1991			4	M	-28.19759686	153.549242	56	553904	6880786	100
OEH Default Sighting KB171	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1986	31/12/1986			4	O	-28.19317161	153.5268047	56	551705	6881286	1000
OEH Default Sighting KB261	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	29/09/1986	29/09/1986			4	O	-28.23637806	153.5575946	56	554704	6876486	1000
OEH Default Sighting KB262	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	30/10/1986	30/10/1986			4	O	-28.23636975	153.5596331	56	554904	6876486	1000
OEH Default Sighting KB263	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/10/1986	1/10/1986			4	O	-28.23636975	153.5596331	56	554904	6876486	1000
OEH Default Sighting KB264	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1984	31/12/1984			4	O	-28.23726823	153.560657	56	555004	6876386	1000
OEH Default Sighting KB265	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/1986	1/7/1986			4	O	-28.23726405	153.5616763	56	555104	6876386	1000
OEH Default Sighting KB266	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	29/10/1986	29/10/1986			4	O	-28.20298401	153.5564022	56	554604	6880186	1000
OEH Default Sighting KB270	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1985	31/12/1985			4	O	-28.20298401	153.5564022	56	554604	6880186	1000
OEH Default Sighting KB271	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/9/1986	1/9/1986			4	O	-28.22469282	153.545304	56	553504	6877786	1000
OEH Default Sighting KB272	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	20/10/1986	20/10/1986			4	O	-28.22469282	153.545304	56	553504	6877786	1000
OEH Default Sighting KB273	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/1986	1/7/1986			4	O	-28.22469282	153.545304	56	553504	6877786	1000
OEH Default Sighting KB274	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/4/1986	1/4/1986			4	O	-28.24108946	153.5066536	56	549705	6875986	1000
OEH Default Sighting KB275	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1984	31/12/1984			4	O	-28.19851175	153.54619	56	553604	6880686	1000
OEH Default Sighting KB276	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	27/10/1986	27/10/1986			4	O	-28.26346175	153.556716	56	554604	6873486	1000
OEH Default Sighting KB277	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1982	31/12/1982			4	O	-28.25262996	153.5566597	56	554604	6874686	1000
OEH Default Sighting KB287	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	21/09/1986	21/09/1986			4	O	-28.18873514	153.5064066	56	549705	6881786	1000
OEH Default Sighting KB289	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/9/1986	1/9/1986			4	O	-28.18231203	153.5338827	56	552405	6882486	1000
OEH Default Sighting KB290	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/9/1985	1/9/1985			4	O	-28.18140937	153.5338782	56	552405	6882586	1000
OEH Default Sighting KB291	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1986	31/12/1986			4	O	-28.19312003	153.5400495	56	553004	6881286	1000
OEH Default Sighting KB292	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1986	31/12/1986			4	O	-28.19582399	153.5410819	56	553104	6880986	1000
OEH Default Sighting KB293	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/10/1986	1/10/1986			4	O	-28.20029664	153.5512937	56	554104	6880486	1000
OEH Default Sighting KB294	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1986	31/12/1986			4	O	-28.19494932	153.5339455	56	552405	6881086	1000
OEH Default Sighting KB295	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/1986	1/7/1986			4	O	-28.18964532	153.5043733	56	549505	6881686	1000
OEH Default Sighting KB296	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/10/1986	1/10/1986			4	O	-28.19590685	153.5196859	56	551005	6880986	1000
OEH Default Sighting KB297	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/10/1986	1/10/1986			4	O	-28.20675035	153.5166814	56	550705	6879786	1000
OEH Default Sighting KB308	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/7/1986	1/7/1986			4	O	-28.18865437	153.5278013	56	551805	6881786	1000
OEH Default Sighting KB95	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1986	31/12/1986			4	O	-28.20298401	153.5564022	56	554604	6880186	1000
OEH Default Sighting KB96	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1986	31/12/1986			4	O	-28.20394792	153.5411229	56	553104	6880086	1000
OEH Default Sighting SKAF03071000	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	6/2/2001	6/2/2001	1	+	4	P	-28.18242278	153.497259	56	548810	6882489	100
OEH Default Sighting SLLT02050600	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	19/02/2002	19/02/2002	1	X	4	Y	-28.17250582	153.5012369	56	549205	6883586	100
OEH Default Sighting SSNA97102202	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	8/9/1997	8/9/1997	2		4	O	-28.26935467	153.5658719	56	555499	6872829	100
OEH Default Sighting SYXM0110180A	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	17/09/1998	17/09/1998	3		4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Default Sighting SYXM0110180B	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	18/09/1998	18/09/1998	1		4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Default Sighting SYXM0110180C	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	29/09/1998	29/09/1998	2		4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Default Sighting SYXM0110180D	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	30/09/1998	30/09/1998	1		4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Default Sighting SYXM0110180E	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/10/1998	1/10/1998	2		4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Default Sighting WD12914	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	25/05/1968	25/05/1968	11		4	S	-28.2030653	153.5360237	56	552604	6880186	100
OEH Default Sighting WD24781	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	10/12/1968	10/12/1968	87		4	O	-28.2030653	153.5360237	56	552604	6880186	100
OEH Default Sighting WD39925	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1974	31/12/1974			4	O	-28.23461796	153.5463737	56	553604	6876686	1000
OEH Default Sighting WD39997	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/10/1975	28/10/1975			4	O	-28.24383849	153.4954538	56	548605	6875686	1000
OEH Default Sighting WD40592	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1976	28/01/1976	5		4	O	-28.22578526	153.4953704	56	548605	6877686	1000
OEH Default Sighting WD44598	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1976	31/12/1976	1		4	O	-28.24383849	153.4954538	56	548605	6875686	1000

OEH Default Sightinç WD48913	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	1/1/1975	31/12/1976			4	O	-28.20757858	153.5360462	56	552604	6879686	1000
OEH Default Sightinç WD51228	1162	Mammalia	Phascolarctidae	3422	Phascolarctos cinereus	Koala	V,P	V	10616	10/12/1968	10/12/1968	87		4	O	-28.2030653	153.5360237	56	552604	6880186	100
OEH Data from Scien SIXRI0011774	1290	Mammalia	Pteropodidae	3579	Nyctimene robinsoni	Eastern Tube-nosed Bat	V,P		10566	3/11/2010	3/11/2010	1		4	W	-28.17481667	153.5020833	56	549287	6883330	5
NRAC Upper North E. SPXEI0006232	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	########	########	2		4	W	-28.19669011	153.5502563	56	554004	6880886	100
NRAC Upper North E. SPXEI0007073	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	31/10/1994	5/11/1994			4	O	-28.18861474	153.5379892	56	552805	6881786	100
OEH Data from Scien SCAMI0003425	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	18/01/2008	18/01/2008	600	E	4	O	-28.1949817	153.5136803	56	550416	6881091	100
OEH Data from Scien SCAMI0003477	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	23/02/2008	23/02/2008	480	E	4	O	-28.1949817	153.5136803	56	550416	6881091	100
OEH Data from Scien SCAMI0003555	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	21/03/2008	21/03/2008	720	E	4	O	-28.1949817	153.5136803	56	550416	6881091	100
OEH Data from Scien SCAMI0003616	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	18/04/2008	18/04/2008	1202	E	4	O	-28.1949817	153.5136803	56	550416	6881091	100
OEH Data from Scien SCAMI0003684	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	18/07/2008	18/07/2008			4	O	-28.1949817	153.5136803	56	550416	6881091	100
OEH Data from Scien SCAMI0003733	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	18/08/2008	18/08/2008	4500	E	4	O	-28.1949817	153.5136803	56	550416	6881091	100
OEH Data from Scien SCAMI0003783	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	19/09/2008	19/09/2008		E	4	O	-28.1949817	153.5136803	56	550416	6881091	100
OEH Data from Scien SCAMI0003834	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	6/12/2008	6/12/2008			4	O	-28.1949817	153.5136803	56	550416	6881091	100
OEH Data from Scien SCAMI0003904	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	22/10/2008	22/10/2008		E	4	O	-28.1949817	153.5136803	56	550416	6881091	100
OEH Data from Scien SDMPI0098856	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	9/5/2005	9/5/2005			4	O	-28.2587939	153.5569772	56	554632	6874003	100
OEH Data from Scien SDMPI0098897	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	9/5/2005	9/5/2005			4	O	-28.2581057	153.5508262	56	554029	6874082	100
OEH Data from Scien SDMPI0099056	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	12/5/2005	12/5/2005			4	W	-28.25851167	153.5531221	56	554254	6874036	100
OEH Data from Scien SDMPI0213518	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	22/11/2006	22/11/2006	1		4	W	-28.25920252	153.5673678	56	555651	6873953	100
OEH Data from Scien SDMPI0213635	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	25/11/2006	25/11/2006	2		4	O	-28.26055786	153.5626752	56	555190	6873805	100
OEH Data from Scien SDMPI0213795	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	26/11/2006	26/11/2006	1		4	O	-28.25954429	153.5633019	56	555252	6873917	100
OEH Data from Scien SDMPI0272880	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	20/05/2005	28/05/2005			4	O	-28.18514693	153.5002771	56	549105	6882186	1000
OEH Data from Scien SDMPI0367081	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	10/7/2008	2/9/2008			4	O	-28.20925453	153.5505581	56	554028	6879494	20
OEH Data from Scien SDMPI0367374	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	12/9/2008	9/10/2008			4	O	-28.24446227	153.5495056	56	553907	6875594	20
OEH Data from Scien SDMPI0405783	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	24/11/2008	28/11/2008	1	E	4	O	-28.19209636	153.4873724	56	547835	6881422	500
OEH Data from Scien SDMPI0568459	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	8/5/2010	10/5/2010	7		4	O	-28.19884054	153.529013	56	551919	6880657	500
OEH Data from Scien SEMMI0066848	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	20/06/2009	26/06/2009			4	O	-28.20411264	153.4872962	56	547822	6880091	20
OEH Data from Scien SEMMI0066920	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	20/06/2009	26/06/2009			4	O	-28.24271134	153.5448975	56	553456	6875790	20
OEH Data from Scien SIXRI0119713	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	21/06/2013	2/7/2013			4	O	-28.22190578	153.4883968	56	547922	6878119	100
OEH Data from Scien SPJGI0032864	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	7/4/2001	7/4/2001	1000	E	4	E	-28.18978002	153.5166711	56	550712	6881666	100
OEH Data from Scien SPJGI0032934	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	1/4/2001	1/4/2001	1000	E	4	E	-28.23100937	153.5458457	56	553554	6877086	100
OEH Default Sightinç 2625-LI	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	2/10/1992	2/10/1992			4	O	-28.23100734	153.5463553	56	553604	6877086	100
OEH Default Sightinç 2626-LI	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	2/10/1992	2/10/1992			4	O	-28.20676567	153.5126055	56	550305	6879786	100
OEH Default Sightinç SYXM0110171L	1280	Mammalia	Pteropodidae	3590	Pteropus poliocephalus	Grey-headed Flying-fox	V,P	V	10697	26/05/1998	26/05/1998	1		4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Data from Scien SDMPI0187575	1294	Mammalia	Pteropodidae	3593	Syconycteris australis	Common Blossom-bat	V,P		10785	3/5/2006	3/5/2006	1		4	T	-28.24673141	153.5642743	56	555354	6875336	100
OEH Default Sightinç 9495-NR	1294	Mammalia	Pteropodidae	3593	Syconycteris australis	Common Blossom-bat	V,P		10785	22/06/1989	22/06/1989	1		4	O	-28.19753471	153.5645251	56	555404	6880786	1000
OEH Default Sightinç 9716-NR	1294	Mammalia	Pteropodidae	3593	Syconycteris australis	Common Blossom-bat	V,P		10785	12/1/1989	21/06/1989			4	O	-28.19753471	153.5645251	56	555404	6880786	1000
OEH Default Sightinç SYXM0110171J	1294	Mammalia	Pteropodidae	3593	Syconycteris australis	Common Blossom-bat	V,P		10785	25/05/1998	25/05/1998	1		4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Default Sightinç SYXM0110171K	1294	Mammalia	Pteropodidae	3593	Syconycteris australis	Common Blossom-bat	V,P		10785	26/05/1998	26/05/1998	2		4	T	-28.24356159	153.5668059	56	555604	6875686	100
OEH Data from Scien SDMPI0098866	1321	Mammalia	Emballonuridae	3615	Saccolaimus flaviventris	Yellow-bellied Sheathta	V,P		10741	9/5/2005	9/5/2005			4	W	-28.2587939	153.5569772	56	554632	6874003	100
OEH Data from Scien SDMPI0098967	1321	Mammalia	Emballonuridae	3615	Saccolaimus flaviventris	Yellow-bellied Sheathta	V,P		10741	10/5/2005	10/5/2005			4	W	-28.25469106	153.5536937	56	554312	6874459	100
OEH Data from Scien SDMPI0367067	1321	Mammalia	Emballonuridae	3615	Saccolaimus flaviventris	Yellow-bellied Sheathta	V,P		10741	10/7/2008	2/9/2008			4	U	-28.20925453	153.5505581	56	554028	6879494	20
OEH Default Sightinç SJAL01050805	1321	Mammalia	Emballonuridae	3615	Saccolaimus flaviventris	Yellow-bellied Sheathta	V,P		10741	16/04/1998	16/04/1998			4	M	-28.17080184	153.4727068	56	546405	6883786	100
NRAC Upper North E. SPXEI0045426	1330	Mammalia	Molossidae	3629	Mormopterus beccarii	Beccari's Freetail-bat	V,P		10543	########	########			5	U	-28.19576689	153.5553459	56	554504	6880986	100
OEH Data from Scien SDMPI0041129	1330	Mammalia	Molossidae	3629	Mormopterus beccarii	Beccari's Freetail-bat	V,P		10543	23/09/2002	23/09/2002			4	W	-28.21198139	153.563582	56	555304	6879186	100
OEH Data from Scien SDMPI0367071	1330	Mammalia	Molossidae	3629	Mormopterus beccarii	Beccari's Freetail-bat	V,P		10543	10/7/2008	2/9/2008			4	U	-28.20925453	153.5505581	56	554028	6879494	20
OEH Data from Scien SIXRI0011739	1330	Mammalia	Molossidae	3629	Mormopterus beccarii	Beccari's Freetail-bat	V,P		10543	4/11/2010	4/11/2010	1		4	U	-28.17218333	153.5168833	56	550741	6883616	5
OEH Data from Scien SIXRI0011752	1330	Mammalia	Molossidae	3629	Mormopterus beccarii	Beccari's Freetail-bat	V,P		10543	1/11/2010	1/11/2010	7		4	U	-28.17086667	153.5159333	56	550648	6883762	5
OEH Data from Scien SIXRI0011762	1330	Mammalia	Molossidae	3629	Mormopterus beccarii	Beccari's Freetail-bat	V,P		10543	3/11/2010	3/11/2010	1		4	U	-28.17653333	153.5028833	56	549364	6883140	5
OEH Data from Scien SIXRI0011768	1330	Mammalia	Molossidae	3629	Mormopterus beccarii	Beccari's Freetail-bat	V,P		10543	2/11/2010	2/11/2010	2		4	U	-28.17245	153.5016167	56	549242	6883592	5
OEH Data from Scien SIXRI0011781	1330	Mammalia	Molossidae	3629	Mormopterus beccarii	Beccari's Freetail-bat	V,P		10543	3/11/2010	3/11/2010	4		4	U	-28.17271667	153.5024	56	549319	6883563	5
OEH Data from Scien SIXRI0011786	1330	Mammalia	Molossidae	3629	Mormopterus beccarii	Beccari's Freetail-bat	V,P		10543	4/11/2010	4/11/2010	14		4	U	-28.17293333	153.5181333	56	550863	6883532	5

OEH Data from Scien SIXRI0550067	1330	Mammalia	Molossidae	3629	Mormopterus beccarii	Beccari's Freetail-bat	V,P	10543	14/10/2013	15/10/2013		4	U	-28.25513696	153.5626111	56	555187	6874406	390
OEH Data from Scien SIXRI0550079	1329	Mammalia	Molossidae	3631	Mormopterus norfolkensis	Eastern Freetail-bat	V,P	10544	14/10/2013	15/10/2013		4	U	-28.25513696	153.5626111	56	555187	6874406	390
OEH Data from Scien SDMPI0367083	1354	Mammalia	Vespertilionidae	3644	Chalinolobus nigrogriseus	Hoary Wattled Bat	V,P	10158	10/7/2008	2/9/2008		4	U	-28.20925453	153.5505581	56	554028	6879494	20
OEH Data from Scien SDMPI0272883	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	20/05/2005	28/05/2005		4	H	-28.18514693	153.5002771	56	549105	6882186	1000
OEH Data from Scien SDMPI0367084	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	10/7/2008	2/9/2008		4	U	-28.20925453	153.5505581	56	554028	6879494	20
OEH Data from Scien SDMPI0405784	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	24/11/2008	28/11/2008	1	4	O	-28.19209636	153.4873724	56	547835	6881422	500
OEH Data from Scien SDMPI0568464	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	8/5/2010	10/5/2010	22	4	T	-28.19884054	153.529013	56	551919	6880657	500
OEH Data from Scien SEMMI00066850	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	20/06/2009	26/06/2009		4	U	-28.20411264	153.4872962	56	547822	6880091	20
OEH Data from Scien SIXRI0011723	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	2/11/2010	2/11/2010	8	4	T	-28.17244499	153.5016184	56	549242	6883593	5
OEH Data from Scien SIXRI0011724	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	2/11/2010	2/11/2010	3	4	T	-28.17244499	153.5016184	56	549242	6883593	5
OEH Data from Scien SIXRI0011725	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	2/11/2010	2/11/2010	14	4	T	-28.17244499	153.5016184	56	549242	6883593	5
OEH Data from Scien SIXRI0011727	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	2/11/2010	2/11/2010	1	4	T	-28.1757338	153.5032535	56	549401	6883228	5
OEH Data from Scien SIXRI0011728	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	2/11/2010	2/11/2010	1	4	T	-28.17570406	153.5039766	56	549472	6883231	5
OEH Data from Scien SIXRI0011729	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	3/11/2010	3/11/2010	10	4	T	-28.17421475	153.501484	56	549228	6883397	5
OEH Data from Scien SIXRI0011730	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	3/11/2010	3/11/2010	4	4	T	-28.17421475	153.501484	56	549228	6883397	5
OEH Data from Scien SIXRI0011733	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	3/11/2010	3/11/2010	2	4	T	-28.17433151	153.5041026	56	549485	6883383	5
OEH Data from Scien SIXRI0011735	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	3/11/2010	3/11/2010	5	4	T	-28.17272194	153.5024041	56	549319	6883562	5
OEH Data from Scien SIXRI0011736	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	3/11/2010	3/11/2010	3	4	T	-28.17272194	153.5024041	56	549319	6883562	5
OEH Data from Scien SIXRI0011737	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	3/11/2010	3/11/2010	2	4	T	-28.17272194	153.5024041	56	549319	6883562	5
OEH Data from Scien SIXRI0011738	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	4/11/2010	4/11/2010	1	4	T	-28.17148127	153.5156204	56	550617	6883694	5
OEH Data from Scien SIXRI0011750	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	1/11/2010	1/11/2010	12	4	U	-28.17086667	153.5159333	56	550648	6883762	5
OEH Data from Scien SIXRI0011754	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	1/11/2010	1/11/2010	4	4	U	-28.17351667	153.5084	56	549907	6883472	5
OEH Data from Scien SIXRI0011755	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	1/11/2010	1/11/2010	1	4	U	-28.17688333	153.5039833	56	549472	6883100	5
OEH Data from Scien SIXRI0011757	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	1/11/2010	1/11/2010	1	4	U	-28.17331667	153.5025	56	549328	6883496	5
OEH Data from Scien SIXRI0011759	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	1/11/2010	1/11/2010	1	4	U	-28.17653333	153.5028833	56	549364	6883140	5
OEH Data from Scien SIXRI0011760	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	2/11/2010	2/11/2010	12	4	U	-28.17653333	153.5028833	56	549364	6883140	5
OEH Data from Scien SIXRI0011761	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	3/11/2010	3/11/2010	5	4	U	-28.17653333	153.5028833	56	549364	6883140	5
OEH Data from Scien SIXRI0011766	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	2/11/2010	2/11/2010	4	4	U	-28.17245	153.5016167	56	549242	6883592	5
OEH Data from Scien SIXRI0011767	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	2/11/2010	2/11/2010	290	4	U	-28.17245	153.5016167	56	549242	6883592	5
OEH Data from Scien SIXRI0011772	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	3/11/2010	3/11/2010	2	4	U	-28.17421667	153.5014833	56	549228	6883397	5
OEH Data from Scien SIXRI0011773	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	3/11/2010	3/11/2010	1	4	U	-28.17433333	153.5041	56	549485	6883383	5
OEH Data from Scien SIXRI0011775	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	3/11/2010	3/11/2010	120	4	U	-28.17271667	153.5024	56	549319	6883563	5
OEH Data from Scien SIXRI0011784	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	4/11/2010	4/11/2010	2	4	U	-28.17293333	153.5181333	56	550863	6883532	5
OEH Data from Scien SIXRI0011787	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	4/11/2010	4/11/2010	5	4	U	-28.17148333	153.5156167	56	550617	6883694	5
OEH Data from Scien SIXRI0119716	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	21/06/2013	2/7/2013		4	U	-28.22190578	153.4883968	56	547922	6878119	100
OEH Data from Scien SIXRI0550078	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	14/10/2013	15/10/2013		4	U	-28.25513696	153.5626111	56	555187	6874406	390
OEH Default Sighting SJAL01050804	1346	Mammalia	Vespertilionidae	3650	Miniopterus australis	Little Bentwing-bat	V,P	10533	16/04/1998	16/04/1998		4	M	-28.17080184	153.4727068	56	546405	6883786	100
OEH Data from Scien SDMPI0272884	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	20/05/2005	28/05/2005		4	U	-28.18514693	153.5002771	56	549105	6882186	1000
OEH Data from Scien SDMPI0367085	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	10/7/2008	2/9/2008		4	U	-28.20925453	153.5505581	56	554028	6879494	20
OEH Data from Scien SDMPI0568465	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	8/5/2010	10/5/2010	1	4	U	-28.19884054	153.529013	56	551919	6880657	500
OEH Data from Scien SEMMI00066851	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	20/06/2009	26/06/2009		4	U	-28.20411264	153.4872962	56	547822	6880091	20
OEH Data from Scien SIXRI0011740	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	4/11/2010	4/11/2010	1	4	U	-28.17105	153.516	56	550654	6883742	5
OEH Data from Scien SIXRI0011741	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	1/11/2010	1/11/2010	4	4	U	-28.17013333	153.5184667	56	550897	6883842	5
OEH Data from Scien SIXRI0011751	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	1/11/2010	1/11/2010	1	4	U	-28.17086667	153.5159333	56	550648	6883762	5
OEH Data from Scien SIXRI0011776	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	3/11/2010	3/11/2010	2	4	U	-28.17271667	153.5024	56	549319	6883563	5
OEH Data from Scien SIXRI0011785	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	4/11/2010	4/11/2010	1	4	U	-28.17293333	153.5181333	56	550863	6883532	5
OEH Data from Scien SIXRI0119717	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	21/06/2013	2/7/2013		4	U	-28.22190578	153.4883968	56	547922	6878119	100
OEH Data from Scien SIXRI0550071	1834	Mammalia	Vespertilionidae	3652	Miniopterus schreibersii oce	Eastern Bentwing-bat	V,P	10534	14/10/2013	15/10/2013		4	U	-28.25513696	153.5626111	56	555187	6874406	390
OEH Data from Scien SDMPI0213545	1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P	10549	23/11/2006	23/11/2006	3	4	T	-28.26079696	153.5659796	56	555514	6873777	100
OEH Data from Scien SDMPI0213546	1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P	10549	23/11/2006	23/11/2006	1	4	T	-28.26079696	153.5659796	56	555514	6873777	100
OEH Data from Scien SDMPI0272885	1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P	10549	20/05/2005	28/05/2005		4	H	-28.18514693	153.5002771	56	549105	6882186	1000

OEH Data from Scien	SDMPl03670 86		1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P			10549	10/7/2008	2/9/2008		4	U	-28.20925453	153.5505581	56	554028	6879494	20
OEH Data from Scien	SEMMl00668 52		1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P			10549	20/06/2009	26/06/2009		4	U	-28.20411264	153.4872962	56	547822	6880091	20
OEH Data from Scien	SEMMl00669 22		1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P			10549	20/06/2009	26/06/2009		4	U	-28.24271134	153.5448975	56	553456	6875790	20
OEH Data from Scien	SIXRl0011780		1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P			10549	3/11/2010	3/11/2010	1	4	U	-28.17271667	153.5024	56	549319	6883563	5
OEH Data from Scien	SIXRl0119718		1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P			10549	21/06/2013	2/7/2013		4	U	-28.22190578	153.4883968	56	547922	6878119	100
OEH Data from Scien	SIXRl0550075		1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P			10549	14/10/2013	15/10/2013		4	U	-28.25465422	153.5634435	56	555269	6874459	10
OEH Data from Scien	SIXRl0550076		1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P			10549	14/10/2013	15/10/2013		4	U	-28.25341192	153.5615225	56	555081	6874598	10
OEH Data from Scien	SIXRl0550077		1357	Mammalia	Vespertilionidae	3657	Myotis macropus	Southern Myotis	V,P			10549	14/10/2013	15/10/2013		4	U	-28.25208516	153.5658582	56	555507	6874743	10
OEH Data from Scien	SDMPl0272886		1336	Mammalia	Vespertilionidae	3661	Nyctophilus bifax	Eastern Long-eared Bat	V,P			10567	20/05/2005	28/05/2005		4	H	-28.18514693	153.5002771	56	549105	6882186	1000
OEH Data from Scien	SDMPl0405785		1336	Mammalia	Vespertilionidae	3661	Nyctophilus bifax	Eastern Long-eared Bat	V,P			10567	24/11/2008	28/11/2008	1	E	4	O	-28.19209636	153.4873724	56	547835	6881422	500
OEH Data from Scien	SIXRl0011731		1336	Mammalia	Vespertilionidae	3661	Nyctophilus bifax	Eastern Long-eared Bat	V,P			10567	3/11/2010	3/11/2010	1		4	T	-28.17421475	153.501484	56	549228	6883397	5
OEH Data from Scien	SIXRl0011732		1336	Mammalia	Vespertilionidae	3661	Nyctophilus bifax	Eastern Long-eared Bat	V,P			10567	3/11/2010	3/11/2010	1		4	T	-28.17421475	153.501484	56	549228	6883397	5
OEH Default Sighting	SJAL0203270E		1336	Mammalia	Vespertilionidae	3661	Nyctophilus bifax	Eastern Long-eared Bat	V,P			10567	24/01/2001	24/01/2001		4	T	-28.17682701	153.5189315	56	550940	6883100	100
OEH Data from Scien	SDMPl0187606	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	24/11/2006	25/11/2006	3	4	Y	-28.26072457	153.5638383	56	555304	6873786	100
OEH Data from Scien	SDMPl0213661	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	25/11/2006	25/11/2006	3	4	Y	-28.2637447	153.5625696	56	555178	6873452	100
OEH Data from Scien	SDMPl0213770	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	26/11/2006	26/11/2006	1	4	Y	-28.26157802	153.5626397	56	555186	6873692	100
OEH Data from Scien	SDMPl0213771	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	26/11/2006	26/11/2006	1	4	Y	-28.26147075	153.5623843	56	555161	6873704	100
OEH Data from Scien	SDMPl0213772	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	26/11/2006	26/11/2006	1	4	Y	-28.26152445	153.5624967	56	555172	6873698	100
OEH Data from Scien	SDMPl0213773	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	26/11/2006	26/11/2006	1	4	Y	-28.26163322	153.5623851	56	555161	6873686	100
OEH Data from Scien	SDMPl0213774	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	26/11/2006	26/11/2006	1	4	Y	-28.26198236	153.5630904	56	555230	6873647	100
OEH Data from Scien	SDMPl0213775	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	26/11/2006	26/11/2006	1	4	Y	-28.26159368	153.5632209	56	555243	6873690	100
OEH Default Sighting	SAXB0302200S	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	16/12/2002	16/12/2002	0	E	4	O	-28.26161467	153.5625074	56	555173	6873688	100
OEH Default Sighting	SAXB0302200T	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	16/12/2002	16/12/2002			4	O	-28.26146105	153.5625474	56	555177	6873705	100
OEH Default Sighting	SAXB99042801	I002		Gastropoda	Camaenidae	4297	Thersites mitchellae	Mitchell's Rainforest Sna	E1	CE		10801	8/11/1998	8/11/1998	1	X	4	O	-28.21835795	153.5493482	56	553904	6878486	100

Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions.

Location accuracy varies. Records of species listed under the Sensitive Species Data Policy are identified in the Sensitivity Class column (^ rounded to 0.1Â°; ^^ rounded to 0.01Â°).

Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Plants in selected area [North: -28.17 West: 153.47 East: 153.57 South: -28.27] returned a total of 336 records of 28 species.Report generated on 8/01/2015 10:32 AM

DatasetName	SightingKey	SpeciesCode	FamilyName	SortOrder	ScientificName	Exotic	CommonName	NSWStatus	CommSta	ProfileID	DateFirst	DateLast	SourceCode	Observa	Zone	Easting	Northing	Accuracy
CCAFNCVEG V	SPJGI3179973	2564	Ebenaceae	8162	Diospyros mabacea		Red-fruited Ebo	E1,P	E	10227	10/11/2006	10/11/2006	4	J	56	550009	6875359	100
CCAFNCVEG V	SPJGI3945244	2564	Ebenaceae	8162	Diospyros mabacea		Red-fruited Ebo	E1,P	E	10227	10/11/2006	10/11/2006	4	J	56	550009	6875359	100
OEH Data from	SDMPI0355262	2564	Ebenaceae	8162	Diospyros mabacea		Red-fruited Ebo	E1,P	E	10227	10/11/2006	10/11/2006	4	L	56	550010	6875357	10
Royal Botanic (	NSW274847	2564	Ebenaceae	8162	Diospyros mabacea		Red-fruited Ebo	E1,P	E	10227	13/05/1957	13/05/1957	1	L	56	549145	6873331	1000
CCAFNCVEG V	SPJGI3179893	11888	Ebenaceae	8163	Diospyros major var. ebenus		Shiny-leaved E	E1,P		10228	10/11/2006	10/11/2006	4	J	56	549966	6875461	100
CCAFNCVEG V	SPJGI3182284	11888	Ebenaceae	8163	Diospyros major var. ebenus		Shiny-leaved E	E1,P		10228	23/05/2006	23/05/2006	4	J	56	549368	6874795	100
CCAFNCVEG V	SPJGI3182690	11888	Ebenaceae	8163	Diospyros major var. ebenus		Shiny-leaved E	E1,P		10228	19/10/2006	19/10/2006	4	J	56	548283	6878291	100
OEH Data from	SDMPI0355248	11888	Ebenaceae	8163	Diospyros major var. ebenus		Shiny-leaved E	E1,P		10228	10/11/2006	10/11/2006	4	L	56	549967	6875459	10
OEH Data from	SDMPI0355337	11888	Ebenaceae	8163	Diospyros major var. ebenus		Shiny-leaved E	E1,P		10228	22/05/2006	22/05/2006	4	L	56	549369	6874793	10
OEH Data from	SDMPI0355361	11888	Ebenaceae	8163	Diospyros major var. ebenus		Shiny-leaved E	E1,P		10228	19/10/2006	19/10/2006	4	L	56	548284	6878289	10
CCAFNCVEG V	SPJGI3179961	9466	Euphorbiaceae	8424	Acalypha eremorum		Acalypha	E1,P		10029	10/11/2006	10/11/2006	4	J	56	549966	6875461	100
OEH Data from	SDMPI0355252	9466	Euphorbiaceae	8424	Acalypha eremorum		Acalypha	E1,P		10029	10/11/2006	10/11/2006	4	L	56	549967	6875459	10
CCAFNCVEG V	SPJGI3180200	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	3/11/2006	3/11/2006	4	J	56	551657	6876428	100
CCAFNCVEG V	SPJGI3183156	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	26/10/2006	26/10/2006	4	J	56	554356	6877782	100
OEH Data from	SDMPI0221085	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	13/12/2006	13/12/2006	4	L	56	547797	6881595	100
OEH Data from	SDMPI0355279	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	3/11/2006	3/11/2006	4	L	56	551657	6876426	10
OEH Data from	SDMPI0355388	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	26/10/2006	26/10/2006	4	L	56	554356	6877780	10
OEH Data from	SJJSI0011692	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	1/5/2005	31/05/2005	4	L	56	549292	6882104	20
OEH Default Si	1001	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	1/3/1986	1/3/1986	4	L	56	546158	6874680	1000
OEH Default Si	6211	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	1/10/1991	1/10/1991	4	L	56	549305	6882086	100
OEH Default Si	967	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	30/09/1980	30/09/1980	1	L	56	546600	6874689	1000
OEH Default Si	981	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	1/3/1986	1/3/1986	4	L	56	549305	6882086	100
OEH Default Si	986	9296	Fabaceae (Caesalpinioideae)	8594	Cassia brewsteri var. marksiana		Brush Cassia	E1,P		10150	1/3/1986	1/3/1986	4	L	56	546600	6874689	1000
OEH Data from	SADBI0000148	3032	Fabaceae (Faboideae)	9164	Sophora tomentosa		Silverbush	E1,P		10765	21/04/2008	21/04/2008	4	L	56	555630	6879759	4
CCAFNCVEG V	SPJGI3182538	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	19/10/2006	19/10/2006	4	J	56	548166	6878433	100
CCAFNCVEG V	SPJGI3182705	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	19/10/2006	19/10/2006	4	J	56	548283	6878291	100
OEH Data from	SDMPI0221088	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	13/12/2006	13/12/2006	4	L	56	547894	6881506	100
OEH Data from	SDMPI0355351	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	19/10/2006	19/10/2006	4	L	56	548167	6878431	10
OEH Data from	SDMPI0355360	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	19/10/2006	19/10/2006	4	L	56	548284	6878289	10
OEH Data from	SJJSI0011691	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	1/5/2005	31/05/2005	4	L	56	549338	6882141	20
OEH Default Si	535	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	1/3/1986	1/3/1986	4	L	56	549305	6882086	100
OEH Default Si	549	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	3/6/1977	3/6/1977	1	L	56	550100	6876692	1000
OEH Default Si	6287	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	1/10/1991	1/10/1991	4	L	56	548105	6876186	100
OEH Default Si	6300	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	1/10/1991	1/10/1991	4	L	56	549305	6882086	100
OEH Default Si	7948-HOR	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	1/9/1991	1/9/1991	4	L	56	549255	6880636	1000
Royal Botanic (	NSW713990	3711	Fabaceae (Mimosoideae)	9336	Acacia bakeri		Marblewood	V,P		10004	1/9/1982	30/09/1982	1	L	56	549168	6878870	1000
A_VAMP Vege	SPJGI4306485	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii		White Lace Flo	V,P		10062	29/09/2010	29/09/2010	4	J	56	555260	6877425	10
ALLFLOYD Ve	SPJGI3551160	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii		White Lace Flo	V,P		10062	1/3/1992	1/3/1992	4	J	56	554658	6880945	100
CCAFNCVEG V	SPJGI3179874	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii		White Lace Flo	V,P		10062	20/11/2006	20/11/2006	4	J	56	550591	6875473	100
CCAFNCVEG V	SPJGI3180070	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii		White Lace Flo	V,P		10062	20/11/2006	20/11/2006	4	J	56	550526	6875554	100
CCAFNCVEG V	SPJGI3180243	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii		White Lace Flo	V,P		10062	3/11/2006	3/11/2006	4	J	56	551657	6876428	100
CCAFNCVEG V	SPJGI3182435	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii		White Lace Flo	V,P		10062	28/11/2006	28/11/2006	4	J	56	554323	6880971	100
CCAFNCVEG V	SPJGI3182488	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii		White Lace Flo	V,P		10062	23/11/2006	23/11/2006	4	J	56	554329	6880853	100
CCAFNCVEG V	SPJGI3182835	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii		White Lace Flo	V,P		10062	23/11/2006	23/11/2006	4	J	56	552481	6882556	100
CCAFNCVEG V	SPJGI3183033	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii		White Lace Flo	V,P		10062	28/11/2006	28/11/2006	4	J	56	554815	6879456	100

CCAFNCVEG V	SPJGI3183079	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	22/10/2006	22/10/2006		4	J	56	555664	6880146	100
OEH Data from	SADBI0000147	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	21/04/2008	21/04/2008		4	L	56	555639	6879829	4
OEH Data from	SADBI0000150	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	2/5/2008	2/5/2008		4	L	56	555449	6880709	4
OEH Data from	SADBI0000153	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	6/4/2008	6/4/2008		4	L	56	548770	6881109	4
OEH Data from	SDMPI0221105	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	13/12/2006	13/12/2006		4	L	56	547904	6880656	100
OEH Data from	SDMPI0355247	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	20/11/2006	20/11/2006		4	L	56	550592	6875471	10
OEH Data from	SDMPI0355267	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	20/11/2006	20/11/2006		4	L	56	550527	6875552	10
OEH Data from	SDMPI0355281	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	3/11/2006	3/11/2006		4	L	56	551657	6876426	10
OEH Data from	SDMPI0355347	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	28/11/2006	28/11/2006		4	L	56	554323	6880969	10
OEH Data from	SDMPI0355349	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	28/11/2006	28/11/2006		4	L	56	554329	6880851	10
OEH Data from	SDMPI0355370	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	23/11/2006	23/11/2006		4	L	56	552482	6882554	10
OEH Data from	SDMPI0355380	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	28/11/2006	28/11/2006		4	L	56	554815	6879454	10
OEH Data from	SDMPI0355383	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	22/10/2006	22/10/2006		4	L	56	555664	6880144	10
OEH Default Si	SJJSI0096658	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	22/10/2009	22/10/2009		4	L	56	552141	6880204	7
OEH Default Si	SJJSI0096659	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	22/10/2009	22/10/2009		4	L	56	552275	6880201	7
OEH Default Si	SJJSI0096660	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	22/10/2009	22/10/2009		4	L	56	552279	6880195	7
OEH Default Si	SJJSI0096661	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	22/10/2009	22/10/2009		4	L	56	552280	6880196	7
OEH Default Si	SJJSI0096662	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	22/10/2009	22/10/2009		4	L	56	552279	6880193	7
OEH Default Si	SJJSI0096663	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	22/10/2009	22/10/2009		4	L	56	552275	6880191	7
OEH Default Si	SJJSI0096664	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	22/10/2009	22/10/2009		4	L	56	552275	6880192	7
OEH Default Si	SWXK13091002	7757	Fabaceae (Mimosoideae)	9638	Archidendron hendersonii	White Lace Flo	V,P		10062	10/7/2013	10/7/2013		4	O	56	555690	6880450	10
JBW Vegetatio	SPJGI2865452	3114	Flacourtiaceae	9679	Xylosma terrae-reginae	Queensland Xy	E1,P		10846	31/07/1972	31/07/1972		4	J	56	553104	6873888	100
Royal Botanic (	NSW633232	9471	Grammitidaceae	9915	Grammitis stenophylla	Narrow-leaf Fir	E1,P,3		10356	1/10/1901	31/10/1901		1	L	56	553968	6878304	50000
CCAFNCVEG V	SPJGI3182120	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	23/05/2006	23/05/2006		4	J	56	555006	6875858	100
CCAFNCVEG V	SPJGI3182596	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	28/11/2006	28/11/2006		4	J	56	549319	6880739	100
CCAFNCVEG V	SPJGI3182811	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	23/11/2006	23/11/2006		4	J	56	552481	6882556	100
CCAFNCVEG V	SPJGI3182928	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	29/11/2006	29/11/2006		4	J	56	552544	6882977	100
CCAFNCVEG V	SPJGI3183007	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	28/11/2006	28/11/2006		4	J	56	554815	6879456	100
CCAFNCVEG V	SPJGI3183049	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	22/10/2006	22/10/2006		4	J	56	555664	6880146	100
CCAFNCVEG V	SPJGI3834172	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	23/11/2006	23/11/2006		4	J	56	552481	6882556	100
CCAFNCVEG V	SPJGI3857886	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	22/10/2006	22/10/2006		4	J	56	555664	6880146	100
CCAFNCVEG V	SPJGI3943743	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	28/11/2006	28/11/2006		4	J	56	554815	6879456	100
NRAC Vegetati	SPJGI2961419	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	17/07/1994	17/07/1994		4	J	56	555104	6881188	100
OEH Data from	SADBI0000144	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	10/2/2008	10/2/2008		4	L	56	555479	6880569	4
OEH Data from	SADBI0000154	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	6/4/2008	6/4/2008		4	L	56	548770	6881109	4
OEH Data from	SDMPI0062953	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/8/2003	1/8/2003		4	L	56	555175	6873594	100
OEH Data from	SDMPI0062995	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/8/2003	1/8/2003		4	L	56	555179	6873486	100
OEH Data from	SDMPI0064653	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/8/2003	1/8/2003		4	L	56	555175	6873594	100
OEH Data from	SDMPI0064695	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/8/2003	1/8/2003		4	L	56	555179	6873486	100
OEH Data from	SDMPI0355332	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	22/05/2006	22/05/2006		4	L	56	555006	6875856	10
OEH Data from	SDMPI0355352	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	28/11/2006	28/11/2006		4	L	56	549320	6880737	10
OEH Data from	SDMPI0355366	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	23/11/2006	23/11/2006		4	L	56	552482	6882554	10
OEH Data from	SDMPI0355373	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	29/11/2006	29/11/2006		4	L	56	552545	6882975	10
OEH Data from	SDMPI0355377	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	28/11/2006	28/11/2006		4	L	56	554815	6879454	10
OEH Data from	SDMPI0355381	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	22/10/2006	22/10/2006		4	L	56	555664	6880144	10
OEH Data from	SDMPI0572626	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/6/2010	30/06/2010		4	L	56	548909	6882679	10
OEH Data from	SJJSI0011699	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/5/2005	31/05/2005		4	L	56	549295	6882146	20
OEH Data from	SJJSI0011700	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/5/2005	31/05/2005		4	L	56	549406	6882140	20
OEH Default Si	1391	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/1/1990	1/1/1990		4	L	56	555604	6879486	100
OEH Default Si	1392	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/1/1990	1/1/1990		4	L	56	555604	6880186	1000
OEH Default Si	1393	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/1/1990	1/1/1990		4	L	56	555604	6879686	100

OEH Default Si	1394	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/1/1990	1/1/1990	4	L	56	549305	6882086	100
OEH Default Si	1395	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/1/1990	1/1/1990	4	L	56	552405	6882686	100
OEH Default Si	1430	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	26/10/1987	26/10/1987	4	L	56	555604	6879486	100
OEH Default Si	6156	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/10/1991	1/10/1991	4	L	56	555604	6879486	100
OEH Default Si	6157	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/10/1991	1/10/1991	4	L	56	555604	6879586	100
OEH Default Si	6158	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/10/1991	1/10/1991	4	L	56	555604	6879686	100
OEH Default Si	6159	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/10/1991	1/10/1991	4	L	56	549305	6882086	100
OEH Default Si	6160	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/10/1991	1/10/1991	4	L	56	552405	6882686	100
OEH Default Si	6161	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/10/1991	1/10/1991	4	L	56	549305	6882086	100
OEH Default Si	6486	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/10/1991	1/10/1991	4	L	56	555756	6879890	1000
OEH Default Si	7946-HOR	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/9/1991	1/9/1991	4	L	56	554054	6881386	100
OEH Default Si	7950-HOR	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/9/1991	1/9/1991	4	L	56	549255	6880636	1000
OEH Default Si	7957-HOR	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/9/1991	1/9/1991	4	L	56	554804	6878836	1000
OEH Default Si	SDMP01011224	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	8/10/1999	8/10/1999	4	L	56	555904	6880486	100
OEH Default Si	SDMP97012209	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	21/06/1994	21/06/1994	1	L	56	549168	6878870	100
OEH Default Si	SKAF0307110B	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/1/1997	1/1/1997	4	L	56	549094	6882320	100
OEH Default Si	SWXK13091001	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	10/7/2013	10/7/2013	4	O	56	555690	6880450	10
Royal Botanic (	NSW238222	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	1/3/1991	31/03/1991	1	L	56	555718	6880688	50
Royal Botanic (	NSW297345	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	21/06/1994	21/06/1994	1	L	56	549168	6878870	1000
Royal Botanic (	NSW4047080	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	01/01/1770	31/12/2002	1	L	56	555718	6880688	1000
Royal Botanic (	NSW4160308	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	01/01/1770	31/12/2002	1	L	56	555718	6880688	1000
Royal Botanic (	NSW4175322	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	01/01/1770	31/12/2002	1	L	56	555713	6879611	1000
Royal Botanic (	NSW4202572	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	01/01/1770	31/12/2002	1	L	56	555718	6880688	1000
Royal Botanic (	NSW434321	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	18/08/1994	18/08/1994	1	L	56	555713	6879611	1000
State Forests B	SF-459289	3477	Lauraceae	10508	Cryptocarya foetida	Stinking Crypt	V,P	V	10186	5/2/1989	5/2/1989	4	M	56	555577	6879796	100
CCAFNCVEG V	SPJGI3179981	3491	Lauraceae	10532	Endiandra hayesii	Rusty Rose Wa	V,P	V	10270	10/11/2006	10/11/2006	4	J	56	550009	6875359	100
CCAFNCVEG V	SPJGI3180208	3491	Lauraceae	10532	Endiandra hayesii	Rusty Rose Wa	V,P	V	10270	3/11/2006	3/11/2006	4	J	56	551657	6876428	100
CCAFNCVEG V	SPJGI3182703	3491	Lauraceae	10532	Endiandra hayesii	Rusty Rose Wa	V,P	V	10270	19/10/2006	19/10/2006	4	J	56	548283	6878291	100
OEH Data from	SDMPI0355261	3491	Lauraceae	10532	Endiandra hayesii	Rusty Rose Wa	V,P	V	10270	10/11/2006	10/11/2006	4	L	56	550010	6875357	10
OEH Data from	SDMPI0355280	3491	Lauraceae	10532	Endiandra hayesii	Rusty Rose Wa	V,P	V	10270	3/11/2006	3/11/2006	4	L	56	551657	6876426	10
OEH Data from	SDMPI0355365	3491	Lauraceae	10532	Endiandra hayesii	Rusty Rose Wa	V,P	V	10270	19/10/2006	19/10/2006	4	L	56	548284	6878289	10
CCAFNCVEG V	SPJGI3175184	8480	Lauraceae	10536	Endiandra muelleri subsp. bracteata	Green-leaved R	E1,P		10271	20/05/2006	20/05/2006	4	J	56	549037	6882542	100
CCAFNCVEG V	SPJGI3948102	8480	Lauraceae	10536	Endiandra muelleri subsp. bracteata	Green-leaved R	E1,P		10271	20/05/2006	20/05/2006	4	J	56	549037	6882542	100
OEH Data from	SDMPI0355180	8480	Lauraceae	10536	Endiandra muelleri subsp. bracteata	Green-leaved R	E1,P		10271	20/05/2006	20/05/2006	4	L	56	549038	6882540	10
OEH Data from	SJJSI0011717	8480	Lauraceae	10536	Endiandra muelleri subsp. bracteata	Green-leaved R	E1,P		10271	1/5/2005	31/05/2005	4	L	56	548883	6882217	20
OEH Data from	SJJSI0011718	8480	Lauraceae	10536	Endiandra muelleri subsp. bracteata	Green-leaved R	E1,P		10271	1/5/2005	31/05/2005	4	L	56	549042	6882283	20
Royal Botanic (	NSW377629	8129	Lindsaeaceae	10618	Lindsaea fraseri	Fraser's Screw	E1,P,3		10481	28/05/1977	28/05/1977	1	L	56	553942	6872765	10000
ALLFLOYD Ve	SPJGI3551168	4290	Myrtaceae	12039	Syzygium hodgkinsoniae	Red Lilly Pilly	V,P	V	10792	1/3/1992	1/3/1992	4	J	56	554658	6880945	100
CCAFNCVEG V	SPJGI3179915	4290	Myrtaceae	12039	Syzygium hodgkinsoniae	Red Lilly Pilly	V,P	V	10792	10/11/2006	10/11/2006	4	J	56	549966	6875461	100
CCAFNCVEG V	SPJGI3179992	4290	Myrtaceae	12039	Syzygium hodgkinsoniae	Red Lilly Pilly	V,P	V	10792	10/11/2006	10/11/2006	4	J	56	550009	6875359	100
OEH Data from	SDMPI0355256	4290	Myrtaceae	12039	Syzygium hodgkinsoniae	Red Lilly Pilly	V,P	V	10792	10/11/2006	10/11/2006	4	L	56	549967	6875459	10
OEH Data from	SDMPI0355260	4290	Myrtaceae	12039	Syzygium hodgkinsoniae	Red Lilly Pilly	V,P	V	10792	10/11/2006	10/11/2006	4	L	56	550010	6875357	10
ALLFLOYD Ve	SPJGI3521365	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V	10793	1/3/1992	1/3/1992	4	J	56	548199	6872845	100
ALLFLOYD Ve	SPJGI3551204	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V	10793	12/8/1981	12/8/1981	4	J	56	550745	6875438	100
CCAFNCVEG V	SPJGI3179916	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V	10793	10/11/2006	10/11/2006	4	J	56	549966	6875461	100
CCAFNCVEG V	SPJGI3179993	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V	10793	10/11/2006	10/11/2006	4	J	56	550009	6875359	100
CCAFNCVEG V	SPJGI3180054	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V	10793	20/11/2006	20/11/2006	4	J	56	550526	6875554	100
CCAFNCVEG V	SPJGI3182319	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V	10793	29/05/2006	29/05/2006	4	J	56	551895	6876667	100
CCAFNCVEG V	SPJGI3182544	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V	10793	19/10/2006	19/10/2006	4	J	56	548166	6878433	100
CCAFNCVEG V	SPJGI3182616	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V	10793	28/11/2006	28/11/2006	4	J	56	549319	6880739	100
CCAFNCVEG V	SPJGI3183013	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V	10793	28/11/2006	28/11/2006	4	J	56	554815	6879456	100

CCAFNCVEG V	SPJGI3843125		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	29/05/2006	29/05/2006		4	J	56	551895	6876667	100
CCAFNCVEG V	SPJGI3928154		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	10/11/2006	10/11/2006		4	J	56	550009	6875359	100
CCAFNCVEG V	SPJGI3933700		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	28/11/2006	28/11/2006		4	J	56	554815	6879456	100
OEH Data from	SDMPI0221093		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	13/12/2006	13/12/2006		4	L	56	548079	6880981	100
OEH Data from	SDMPI0355250		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	10/11/2006	10/11/2006		4	L	56	549967	6875459	10
OEH Data from	SDMPI0355259		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	10/11/2006	10/11/2006		4	L	56	550010	6875357	10
OEH Data from	SDMPI0355264		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	20/11/2006	20/11/2006		4	L	56	550527	6875552	10
OEH Data from	SDMPI0355343		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	29/05/2006	29/05/2006		4	L	56	551895	6876665	10
OEH Data from	SDMPI0355350		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	19/10/2006	19/10/2006		4	L	56	548167	6878431	10
OEH Data from	SDMPI0355353		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	28/11/2006	28/11/2006		4	L	56	549320	6880737	10
OEH Data from	SDMPI0355378		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	28/11/2006	28/11/2006		4	L	56	554815	6879454	10
OEH Default Si		1578	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	26/10/1987	26/10/1987		4	L	56	555601	6880290	1000
OEH Default Si		5951	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	1/10/1991	1/10/1991		4	L	56	547008	6876283	1000
OEH Default Si		5953	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	1/10/1991	1/10/1991		4	L	56	555704	6880586	100
OEH Default Si	5994R		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	1/10/1991	1/10/1991		4	L	56	555756	6879890	1000
OEH Default Si		5998	4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	1/10/1991	1/10/1991		4	L	56	555304	6877386	1000
OEH Default Si	7949-HOR		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	1/9/1991	1/9/1991		4	L	56	549255	6880636	1000
OEH Default Si	7955-HOR		4292	Myrtaceae	12042	Syzygium moorei	Durobby	V,P	V		10793	1/9/1991	1/9/1991		4	L	56	554804	6878836	1000
A_VAMP Vege	SPJGI4375658		6672	Orchidaceae	12527	Geodorum densiflorum	Pink Nodding (	E1,P,2			10349	7/3/2011	7/3/2011		4	J	56	558885	6880497	10
CCAFNCVEG V	SPJGI3182181		6672	Orchidaceae	12527	Geodorum densiflorum	Pink Nodding (	E1,P,2			10349	27/05/2006	27/05/2006		4	J	56	558885	6880497	100
OEH Data from	SADBI0000145		6672	Orchidaceae	12527	Geodorum densiflorum	Pink Nodding (	E1,P,2			10349	10/2/2008	10/2/2008		4	L	56	558885	6880497	4
OEH Data from	SADBI0000146		6672	Orchidaceae	12527	Geodorum densiflorum	Pink Nodding (	E1,P,2			10349	10/2/2008	10/2/2008		4	L	56	558885	6880497	4
OEH Data from	SADBI0000149		6672	Orchidaceae	12527	Geodorum densiflorum	Pink Nodding (	E1,P,2			10349	21/04/2008	21/04/2008		4	L	56	558885	6880497	4
OEH Data from	SDMPI0131787		6672	Orchidaceae	12527	Geodorum densiflorum	Pink Nodding (	E1,P,2			10349	10/6/2004	10/6/2004		4	L	56	549071	6880541	100
OEH Data from	SDMPI0131788		6672	Orchidaceae	12527	Geodorum densiflorum	Pink Nodding (	E1,P,2			10349	10/6/2004	10/6/2004		4	L	56	549071	6880541	100
OEH Data from	SDMPI0131789		6672	Orchidaceae	12527	Geodorum densiflorum	Pink Nodding (	E1,P,2			10349	10/6/2004	10/6/2004		4	L	56	549071	6880541	100
OEH Data from	SDMPI0355334		6672	Orchidaceae	12527	Geodorum densiflorum	Pink Nodding (	E1,P,2			10349	22/05/2006	22/05/2006		4	L	56	558885	6880497	10
CCAFNCVEG V	SPJGI3179848		4479	Orchidaceae	12550	Peristeranthus hillii	Brown Fairy-ch	V,P,2			10868	20/11/2006	20/11/2006		4	J	56	549071	6880541	100
OEH Data from	SDMPI0355240		4479	Orchidaceae	12550	Peristeranthus hillii	Brown Fairy-ch	V,P,2			10868	20/11/2006	20/11/2006		4	L	56	549071	6880541	10
OEH Default Si	SKAF03110300		4480	Orchidaceae	12553	Phaius australis	Southern Swar	E1,P,2	E		10610	11/11/2000	11/11/2000		4	L	56	549071	6880541	10
Royal Botanic (	NSW504819		4480	Orchidaceae	12553	Phaius australis	Southern Swar	E1,P,2	E		10610	29/09/2002	29/09/2002		1	L	56	549071	6880541	30
ALLFLOYD Ve	SPJGI3551207		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	12/8/1981	12/8/1981		4	J	56	550745	6875438	100
CCAFNCVEG V	SPJGI3179850		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	20/11/2006	20/11/2006		4	J	56	550591	6875473	100
CCAFNCVEG V	SPJGI3182239		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	23/05/2006	23/05/2006		4	J	56	549368	6874795	100
CCAFNCVEG V	SPJGI3182625		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	28/11/2006	28/11/2006		4	J	56	549319	6880739	100
CCAFNCVEG V	SPJGI3182819		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	23/11/2006	23/11/2006		4	J	56	552481	6882556	100
CCAFNCVEG V	SPJGI3182939		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	29/11/2006	29/11/2006		4	J	56	552544	6882977	100
CCAFNCVEG V	SPJGI3183016		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	28/11/2006	28/11/2006		4	J	56	554815	6879456	100
CCAFNCVEG V	SPJGI3183172		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	26/10/2006	26/10/2006		4	J	56	554356	6877782	100
CCAFNCVEG V	SPJGI3917729		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	20/11/2006	20/11/2006		4	J	56	550591	6875473	100
OEH Data from	SDMPI0355241		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	20/11/2006	20/11/2006		4	L	56	550592	6875471	10
OEH Data from	SDMPI0355335		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	22/05/2006	22/05/2006		4	L	56	549369	6874793	10
OEH Data from	SDMPI0355354		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	28/11/2006	28/11/2006		4	L	56	549320	6880737	10
OEH Data from	SDMPI0355367		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	23/11/2006	23/11/2006		4	L	56	552482	6882554	10
OEH Data from	SDMPI0355371		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	29/11/2006	29/11/2006		4	L	56	552545	6882975	10
OEH Data from	SDMPI0355379		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	28/11/2006	28/11/2006		4	L	56	554815	6879454	10
OEH Data from	SDMPI0355385		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	26/10/2006	26/10/2006		4	L	56	554356	6877780	10
OEH Data from	SDMPI0362382		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	13/05/2009	13/05/2009		4	L	56	546268	6877823	5
Royal Botanic (	NSW93538		5372	Proteaceae	14410	Grevillea hilliana	White Yiel Yiel	E1,P			10365	01/04/1770	4/3/2008		1	L	56	554074	6878849	10000
ALLFLOYD Ve	SPJGI3551208		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V		10499	12/8/1981	12/8/1981		4	J	56	550745	6875438	100
CCAFNCVEG V	SPJGI3179852		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V		10499	20/11/2006	20/11/2006		4	J	56	550591	6875473	100

CCAFNCVEG V	SPJGI3179920		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	10/11/2006	10/11/2006	4	J	56	549966	6875461	100
CCAFNCVEG V	SPJGI3180055		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	20/11/2006	20/11/2006	4	J	56	550526	6875554	100
CCAFNCVEG V	SPJGI3182322		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	29/05/2006	29/05/2006	4	J	56	551895	6876667	100
CCAFNCVEG V	SPJGI3879892		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	29/05/2006	29/05/2006	4	J	56	551895	6876667	100
OEH Data from	SDMPI0221091		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	13/12/2006	13/12/2006	4	L	56	547868	6881431	100
OEH Data from	SDMPI0221095		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	13/12/2006	13/12/2006	4	L	56	548175	6880484	100
OEH Data from	SDMPI0221097		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	13/12/2006	13/12/2006	4	L	56	548118	6880467	100
OEH Data from	SDMPI0221099		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	13/12/2006	13/12/2006	4	L	56	548058	6880278	100
OEH Data from	SDMPI0221101		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	13/12/2006	13/12/2006	4	L	56	547930	6880468	100
OEH Data from	SDMPI0326275		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	26/06/2008	26/06/2008	4	L	56	549708	6875498	7
OEH Data from	SDMPI0326276		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	26/06/2008	26/06/2008	4	L	56	549778	6875610	7
OEH Data from	SDMPI0326277		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	26/06/2008	26/06/2008	4	L	56	549779	6875662	7
OEH Data from	SDMPI0326278		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	26/06/2008	26/06/2008	4	L	56	549825	6875626	7
OEH Data from	SDMPI0326279		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	26/06/2008	26/06/2008	4	L	56	549949	6875572	7
OEH Data from	SDMPI0326280		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	26/06/2008	26/06/2008	4	L	56	549952	6875575	7
OEH Data from	SDMPI0326281		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	26/06/2008	26/06/2008	4	L	56	550027	6875735	7
OEH Data from	SDMPI0355242		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	20/11/2006	20/11/2006	4	L	56	550592	6875471	10
OEH Data from	SDMPI0355249		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	10/11/2006	10/11/2006	4	L	56	549967	6875459	10
OEH Data from	SDMPI0355263		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	20/11/2006	20/11/2006	4	L	56	550527	6875552	10
OEH Data from	SDMPI0355342		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	29/05/2006	29/05/2006	4	L	56	551895	6876665	10
OEH Data from	SIXRI0010901		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	28/10/2012 09:00:	28/03/2013 09:00:	4	L	56	553704	6878704	25
OEH Data from	SIXRI0091626		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	28/10/2012 09:00:	28/12/2013 09:00:	4	L	56	553704	6878704	5
OEH Data from	SSLSI0004621		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	11/11/2004	12/11/2004	4	L	56	548071	6880833	250
OEH Default Si		7475	5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	10/9/1972	10/9/1972	1	L	56	550705	6873286	100
OEH Default Si	SWXK13091000		5446	Proteaceae	14586	Macadamia tetraphylla	Rough-shelled	V,P	V	10499	10/7/2013	10/7/2013	4	L	56	555690	6880450	10
ALLFLOYD Ve	SPJGI3551229		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	12/8/1981	12/8/1981	4	J	56	550745	6875438	100
CCAFNCVEG V	SPJGI3175182		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	20/05/2006	20/05/2006	4	J	56	549037	6882542	100
CCAFNCVEG V	SPJGI3179954		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	10/11/2006	10/11/2006	4	J	56	549966	6875461	100
CCAFNCVEG V	SPJGI3182281		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	23/05/2006	23/05/2006	4	J	56	549368	6874795	100
CCAFNCVEG V	SPJGI3182669		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	28/11/2006	28/11/2006	4	J	56	549319	6880739	100
CCAFNCVEG V	SPJGI3182836		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	23/11/2006	23/11/2006	4	J	56	552481	6882556	100
CCAFNCVEG V	SPJGI3182960		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	29/11/2006	29/11/2006	4	J	56	552544	6882977	100
CCAFNCVEG V	SPJGI3183193		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	26/10/2006	26/10/2006	4	J	56	554356	6877782	100
CCAFNCVEG V	SPJGI3904124		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	23/05/2006	23/05/2006	4	J	56	549368	6874795	100
OEH Data from	SDMPI0355178		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	20/05/2006	20/05/2006	4	L	56	549038	6882540	10
OEH Data from	SDMPI0355254		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	10/11/2006	10/11/2006	4	L	56	549967	6875459	10
OEH Data from	SDMPI0355339		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	22/05/2006	22/05/2006	4	L	56	549369	6874793	10
OEH Data from	SDMPI0355357		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	28/11/2006	28/11/2006	4	L	56	549320	6880737	10
OEH Data from	SDMPI0355368		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	23/11/2006	23/11/2006	4	L	56	552482	6882554	10
OEH Data from	SDMPI0355376		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	29/11/2006	29/11/2006	4	L	56	552545	6882975	10
OEH Data from	SDMPI0355386		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	26/10/2006	26/10/2006	4	L	56	554356	6877780	10
OEH Data from	SDMPI0362381		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	13/05/2009	13/05/2009	4	L	56	546278	6877827	5
OEH Data from	SDMPI0572625		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	1/6/2010	30/06/2010	4	L	56	548909	6882679	10
OEH Data from	SJJSI0011723		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	1/5/2005	31/05/2005	4	L	56	549338	6882141	20
OEH Data from	SJJSI0011724		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	1/5/2005	31/05/2005	4	L	56	548932	6882353	20
OEH Data from	SSLSI0004622		8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	11/11/2004	12/11/2004	4	L	56	548142	6880820	20
OEH Default Si		292	8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	30/09/1980	30/09/1980	1	L	56	546600	6874689	1000
OEH Default Si		296	8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	19/08/1977	19/08/1977	1	L	56	550100	6876692	1000
OEH Default Si		297	8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	3/6/1977	3/6/1977	1	L	56	553102	6876690	1000
OEH Default Si		5870	8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	1/10/1991	1/10/1991	4	L	56	550851	6875536	1000
OEH Default Si		7126	8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	1/10/1991	1/10/1991	4	L	56	550805	6875486	100

OEH Default Si	7947-HOR	8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	1/9/1991	1/9/1991	4	L	56	549255	6880636	1000
OEH Default Si	7958-HOR	8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	1/9/1991	1/9/1991	4	L	56	554804	6878836	1000
Royal Botanic (	NSW593622	8297	Rubiaceae	15150	Randia moorei	Spiny Gardenia	E1,P	E	10726	19/06/1977	19/06/1977	1	L	56	550734	6875448	30
CCAFNCVEG V	SPJGI3182047	6457	Rutaceae	15174	Acronychia littoralis	Scented Acron	E1,P	E	10030	22/05/2006	22/05/2006	4	J	56	554855	6875891	100
CCAFNCVEG V	SPJGI3940552	6457	Rutaceae	15174	Acronychia littoralis	Scented Acron	E1,P	E	10030	22/05/2006	22/05/2006	4	J	56	554855	6875891	100
OEH Data from	SDMPI0355330	6457	Rutaceae	15174	Acronychia littoralis	Scented Acron	E1,P	E	10030	22/05/2006	22/05/2006	4	L	56	554855	6875889	10
OEH Data from	SJALI0016949	6457	Rutaceae	15174	Acronychia littoralis	Scented Acron	E1,P	E	10030	28/03/2001	28/03/2001	4	L	56	555104	6877686	100
OEH Data from	SJALI0016950	6457	Rutaceae	15174	Acronychia littoralis	Scented Acron	E1,P	E	10030	28/03/2001	28/03/2001	4	L	56	555104	6877686	100
OEH Data from	SJALI0016951	6457	Rutaceae	15174	Acronychia littoralis	Scented Acron	E1,P	E	10030	28/03/2001	28/03/2001	4	L	56	554904	6875786	100
OEH Data from	SJALI0016952	6457	Rutaceae	15174	Acronychia littoralis	Scented Acron	E1,P	E	10030	28/03/2001	28/03/2001	4	L	56	554904	6875786	100
OEH Default Si	5799	6457	Rutaceae	15174	Acronychia littoralis	Scented Acron	E1,P	E	10030	1/1/1991	1/1/1991	4	L	56	554854	6877686	100
OEH Default Si	8349-HOR	6457	Rutaceae	15174	Acronychia littoralis	Scented Acron	E1,P	E	10030	1/8/1991	1/8/1991	4	L	56	555004	6875686	100
OEH Default Si	8350-HOR	6457	Rutaceae	15174	Acronychia littoralis	Scented Acron	E1,P	E	10030	1/8/1991	1/8/1991	4	L	56	554854	6877686	100
CCAFNCVEG V	SPJGI3179924	5765	Rutaceae	15247	Bosistoa transversa	Yellow Satinhe	V,P	V	10103	10/11/2006	10/11/2006	4	J	56	549966	6875461	100
CCAFNCVEG V	SPJGI3179997	5765	Rutaceae	15247	Bosistoa transversa	Yellow Satinhe	V,P	V	10103	10/11/2006	10/11/2006	4	J	56	550009	6875359	100
CCAFNCVEG V	SPJGI3906028	5765	Rutaceae	15247	Bosistoa transversa	Yellow Satinhe	V,P	V	10103	10/11/2006	10/11/2006	4	J	56	549966	6875461	100
CCAFNCVEG V	SPJGI3923279	5765	Rutaceae	15247	Bosistoa transversa	Yellow Satinhe	V,P	V	10103	10/11/2006	10/11/2006	4	J	56	550009	6875359	100
OEH Data from	SDMPI0355251	5765	Rutaceae	15247	Bosistoa transversa	Yellow Satinhe	V,P	V	10103	10/11/2006	10/11/2006	4	L	56	549967	6875459	10
OEH Data from	SDMPI0355258	5765	Rutaceae	15247	Bosistoa transversa	Yellow Satinhe	V,P	V	10103	10/11/2006	10/11/2006	4	L	56	550010	6875357	10
OEH Default Si	1963	5765	Rutaceae	15247	Bosistoa transversa	Yellow Satinhe	V,P	V	10103	30/09/1983	30/09/1983	1	L	56	548107	6876190	1000
OEH Default Si	6322	5765	Rutaceae	15247	Bosistoa transversa	Yellow Satinhe	V,P	V	10103	1/10/1991	1/10/1991	4	L	56	549005	6875286	100
Royal Botanic (	NSW298594	5765	Rutaceae	15247	Bosistoa transversa	Yellow Satinhe	V,P	V	10103	30/09/1980	30/09/1980	1	L	56	549160	6877024	1000
ALLFLOYD Ve	SPJGI3551216	5887	Sapindaceae	15562	Cupaniopsis serrata	Smooth Tucke	E1,P		10192	12/8/1981	12/8/1981	4	J	56	550745	6875438	100
ALLFLOYD Ve	SPJGI3551217	5889	Sapindaceae	15565	Diploglottis campbellii	Small-leaved T	E1,P	E	10231	12/8/1981	12/8/1981	4	J	56	550745	6875438	100
CCAFNCVEG V	SPJGI3179999	5889	Sapindaceae	15565	Diploglottis campbellii	Small-leaved T	E1,P	E	10231	10/11/2006	10/11/2006	4	J	56	550009	6875359	100
CCAFNCVEG V	SPJGI3180059	5889	Sapindaceae	15565	Diploglottis campbellii	Small-leaved T	E1,P	E	10231	20/11/2006	20/11/2006	4	J	56	550526	6875554	100
CCAFNCVEG V	SPJGI3836093	5889	Sapindaceae	15565	Diploglottis campbellii	Small-leaved T	E1,P	E	10231	10/11/2006	10/11/2006	4	J	56	550009	6875359	100
CCAFNCVEG V	SPJGI3925308	5889	Sapindaceae	15565	Diploglottis campbellii	Small-leaved T	E1,P	E	10231	20/11/2006	20/11/2006	4	J	56	550526	6875554	100
OEH Data from	SDMPI0355257	5889	Sapindaceae	15565	Diploglottis campbellii	Small-leaved T	E1,P	E	10231	10/11/2006	10/11/2006	4	L	56	550010	6875357	10
OEH Data from	SDMPI0355265	5889	Sapindaceae	15565	Diploglottis campbellii	Small-leaved T	E1,P	E	10231	20/11/2006	20/11/2006	4	L	56	550527	6875552	10
OEH Default Si	6616	5889	Sapindaceae	15565	Diploglottis campbellii	Small-leaved T	E1,P	E	10231	1/10/1991	1/10/1991	4	L	56	550851	6875536	1000
OEH Default Si	76	5889	Sapindaceae	15565	Diploglottis campbellii	Small-leaved T	E1,P	E	10231	3/6/1977	3/6/1977	1	L	56	552453	6876382	1000
ALLFLOYD Ve	SPJGI3551220	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	12/8/1981	12/8/1981	4	J	56	550745	6875438	100
CCAFNCVEG V	SPJGI3175090	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	13/10/2006	13/10/2006	4	J	56	548553	6882976	100
CCAFNCVEG V	SPJGI3179880	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	20/11/2006	20/11/2006	4	J	56	550591	6875473	100
CCAFNCVEG V	SPJGI3179953	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	10/11/2006	10/11/2006	4	J	56	549966	6875461	100
CCAFNCVEG V	SPJGI3180072	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	20/11/2006	20/11/2006	4	J	56	550526	6875554	100
CCAFNCVEG V	SPJGI3180249	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	3/11/2006	3/11/2006	4	J	56	551657	6876428	100
CCAFNCVEG V	SPJGI3182280	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	23/05/2006	23/05/2006	4	J	56	549368	6874795	100
CCAFNCVEG V	SPJGI3182344	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	29/05/2006	29/05/2006	4	J	56	551895	6876667	100
CCAFNCVEG V	SPJGI3182668	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	28/11/2006	28/11/2006	4	J	56	549319	6880739	100
CCAFNCVEG V	SPJGI3182754	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	19/10/2006	19/10/2006	4	J	56	548283	6878291	100
OEH Data from	SADBI0000152	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	11/12/2007	11/12/2007	4	L	56	548770	6881109	4
OEH Data from	SDMPI0221083	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	13/12/2006	13/12/2006	4	L	56	547689	6881607	100
OEH Data from	SDMPI0221084	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	13/12/2006	13/12/2006	4	L	56	547797	6881595	100
OEH Data from	SDMPI0221086	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	13/12/2006	13/12/2006	4	L	56	547894	6881506	100
OEH Data from	SDMPI0221092	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	13/12/2006	13/12/2006	4	L	56	547868	6881431	100
OEH Data from	SDMPI0221094	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	13/12/2006	13/12/2006	4	L	56	548079	6880981	100
OEH Data from	SDMPI0221096	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	13/12/2006	13/12/2006	4	L	56	548175	6880484	100
OEH Data from	SDMPI0221098	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	13/12/2006	13/12/2006	4	L	56	548058	6880278	100
OEH Data from	SDMPI0221102	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P		10460	13/12/2006	13/12/2006	4	L	56	547930	6880468	100

OEH Data from	SDMPl0326282	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	26/06/2008	26/06/2008	4	L	56	549780	6875601	7
OEH Data from	SDMPl0355176	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	13/10/2006	13/10/2006	4	L	56	548554	6882974	10
OEH Data from	SDMPl0355243	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	20/11/2006	20/11/2006	4	L	56	550592	6875471	10
OEH Data from	SDMPl0355255	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	10/11/2006	10/11/2006	4	L	56	549967	6875459	10
OEH Data from	SDMPl0355266	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	20/11/2006	20/11/2006	4	L	56	550527	6875552	10
OEH Data from	SDMPl0355277	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	3/11/2006	3/11/2006	4	L	56	551657	6876426	10
OEH Data from	SDMPl0355338	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	22/05/2006	22/05/2006	4	L	56	549369	6874793	10
OEH Data from	SDMPl0355344	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	29/05/2006	29/05/2006	4	L	56	551895	6876665	10
OEH Data from	SDMPl0355356	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	28/11/2006	28/11/2006	4	L	56	549320	6880737	10
OEH Data from	SDMPl0355364	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	19/10/2006	19/10/2006	4	L	56	548284	6878289	10
OEH Data from	SIXRl0059947	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	10/5/2011	11/5/2011	4	L	56	553915	6879291	500
OEH Data from	SIXRl0059948	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	10/5/2011	11/5/2011	4	L	56	553758	6879027	500
OEH Data from	SJJSl0011719	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/5/2005	31/05/2005	4	L	56	549042	6882279	20
OEH Data from	SJJSl0011720	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/5/2005	31/05/2005	4	L	56	548547	6882482	20
OEH Data from	SJJSl0011721	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/5/2005	31/05/2005	4	L	56	548735	6882453	20
OEH Data from	SSLSl0004620	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	11/11/2004	12/11/2004	4	L	56	548666	6880773	250
OEH Default Si	4339	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	20/08/1969	20/08/1969	1	L	56	549116	6873024	1000
OEH Default Si	4340	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	30/08/1972	30/08/1972	1	L	56	549116	6873024	1000
OEH Default Si	4346	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	30/09/1980	30/09/1980	4	L	56	547517	6875183	1000
OEH Default Si	4352	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	13/09/1965	13/09/1965	4	L	56	549116	6873024	1000
OEH Default Si	4353	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	13/06/1957	13/06/1957	4	L	56	549116	6873024	1000
OEH Default Si	4354	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	13/06/1957	13/06/1957	1	L	56	549116	6873024	1000
OEH Default Si	5761	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/10/1991	1/10/1991	4	L	56	546205	6876186	100
OEH Default Si	5764	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/10/1991	1/10/1991	4	L	56	546606	6876141	1000
OEH Default Si	5768	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/10/1991	1/10/1991	4	L	56	548855	6874481	1000
OEH Default Si	5772	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/10/1991	1/10/1991	4	L	56	546499	6873840	1000
OEH Default Si	6500	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/11/1985	1/11/1985	4	L	56	549105	6874186	10000
OEH Default Si	7465	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/5/1985	1/5/1985	1	L	56	549105	6876986	100
OEH Default Si	7953-HOR	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/9/1991	1/9/1991	4	L	56	549255	6880636	1000
OEH Default Si	SKAF03071103	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	1/1/1997	1/1/1997	4	L	56	548927	6882202	100
Royal Botanic (	NSW120504	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	20/07/1969	20/07/1969	1	L	56	549145	6873331	10000
Royal Botanic (	NSW371685	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	30/08/1972	30/08/1972	1	L	56	549145	6873331	1000
Royal Botanic (	NSW589562	8291	Sapindaceae	15622	Lepiderema pulchella	Fine-leaved Tu	V,P	10460	13/06/1957	13/06/1957	1	L	56	549145	6873331	10000
OEH Data from	SSLSl0004617	11957	Sapotaceae	15637	Niemeyera whitei	Rusty Plum, Pl	V,P	10044	11/11/2004	12/11/2004	4	L	56	548546	6880761	100
Royal Botanic (	NSW231508	7884	Scrophulariaceae	15680	Centranthera cochinchinensis	Swamp Foxglo	E1,P	10153	01/04/1770	4/3/2008	1	L	56	551617	6877937	3000

ATTACHMENT 2

Aspect North (2004) *Flora and Fauna Assessment Terranora Road (Proposed Rezoning at 225 Terranora Road, Banora Point) on behalf of Darryl Anderson Consulting*. Aspect North, Lismore.

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Flora and Fauna Assessment

Terranora Road

(Proposed Rezoning
at 225 Terranora Road, Banora Point
on behalf of Darryl Anderson Consulting)

Guy Holloway
Environmental Manager, ASPECT *north*

Date: 28-9-04

Ref No **BA030163**

January 2004

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1. Introduction and Background

1.1 Introduction

ASPECT *north* Ltd has been commissioned by Darryl Anderson Consulting to prepare a Flora and Fauna Assessment for Lot 16 DP 856265, 225 Terranora Road, Banora Point as part of a submission to Tweed Shire Council to rezone the northern part of the land from 7(d) to either 2(a) or 1(c). This assessment identifies any possible ecological constraints to the proposed development and considers appropriate environmental legislation.

A comprehensive flora assessment and a fauna inspection of the site have been undertaken and the results of these have been considered the preparation of this report.

1.2 The Subject Site

The study site is located off Terranora Road, in the township of Tweed Heads, northern New South Wales (NSW) (Refer to Figure 1). The site encompasses an irregularly shaped Lot, 10.19 hectares in area (Refer to Figure 2). A large part of the site is cleared. The remnant vegetation present on the site consists of predominantly regrowth rainforest vegetation stands dominated by Camphor Laurel (*Cinnamomum camphora*) and patches of highly disturbed to relatively undisturbed Subtropical Rainforest. The 'Tweed Vegetation Management Plan 1999' classifies the vegetation on this site as 'Highly Modified/Disturbed - Camphor Laurel Dominant Closed to Open Forest' (Map 5 - Tweed remnant vegetation classified by vegetation type).

1.3 Proposed Development

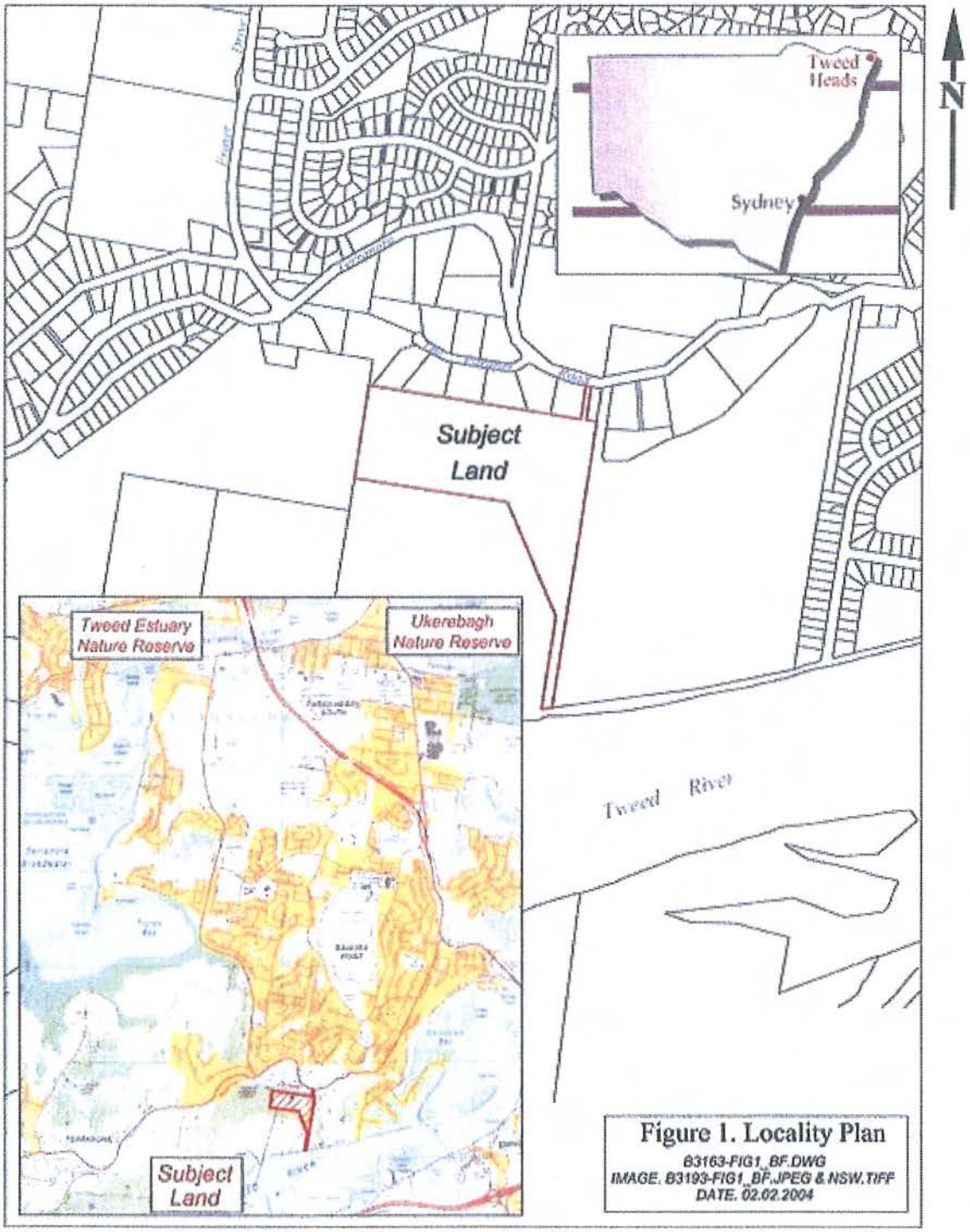
The proposed rezoning submission from a 7(d) zoning to either 2(a) or 1(c) applies to the northern portion of the site, and is submitted in order to develop the site into 30 lots having shared access from Terranora Road. Only the cleared portion of the site is proposed for development, while the forested areas are to be retained and rehabilitated as part of Section 88B Instrument or the like. Site works will eventually include clearing, earthworks, and provision of access from Terranora Dr (Refer to Figure 2).

1.4 Site History and Land Use

The subject site is privately owned land. The site has tree large flat terraces as a result of past quarrying activities (Refer to Plate 1). The subject site is contained partly in 1(c) Rural Residential Development and predominantly in 7(d) Environmental Protection (Scenic/Escarpment) Zone (Tweed Local Environmental Plan, 2000). The site is bounded by 1(c) Rural Residential Development to the north and to the south-east and 7(d) Environmental Protection (Scenic/Escarpment) to the west, south and east (Refer to Figure 2). Rural residential blocks adjoining the site to the north are predominantly cleared (i.e. they do not support a structured vegetation community) but are otherwise landscaped. While the land to the west, south and south-east of the site is predominantly vegetated.

Plate 1. Cleared terraced areas as a result of past quarrying activities.

The site is not in proximity (5 km radius) of a wetland protected under State Environmental Planning Policy No. 14 (SEPP 14) or a wetland listed as a Wetland of International Significance (Ramsar Sites) which is a considered a Matter of National Significance under the *Environmental Protection and Biodiversity Conservation Act, 1999*. Tweed Estuary Nature Reserve is located approximately 5 km north west of the site, Ukerebagh Nature Reserve is located approximately 5 km north east of the site (Refer to Figure 1), while Stotts Island Nature Reserve is located approximately 4 km to the south –west of the site.



ASPECT *north* - Advanced Surveying Planning Engineering Consultancy Team

Figure 1. Locality map

Figure 2. Subject site in context with locality and relevant zoning

1.5 Methodology

The methodology used to conduct this Assessment included:

- A review of existing studies within the vicinity of the proposed development site;
- A search of the schedules 1, 2 And 3 of the New South Wales *Threatened Species Conservation Act 1995* (TSC Act) and of the National Parks and Wildlife Service (NPWS) Atlas of NSW Wildlife (Atlas) to identify threatened species, populations and ecological communities, or their habitats recorded on and within a five kilometre radius of the site;
- Comprehensive flora survey (1.5 days) of the subject site with particular attention to the threatened flora identified in the NPWS Atlas search;
- Comprehensive fauna survey (3 day) of the subject site with particular attention given to targeting the threatened fauna identified in the NPWS Atlas search;
- An evaluation of the habitat and wildlife corridor value of the site; and
- Identification of possible effects of the proposed development on existing fauna and flora and the development of ameliorative measures.

The particular methodologies for the flora and fauna surveys conducted at the site are outlined in the Field Survey Methods section of this report.

2. Field Survey Methods

2.2 Flora

The proposed development site was divided into 4 Areas as outlined on Figure 3. Each Area was surveyed by walking the area and recording all species encountered over a day and half (22 & 23 January 2003). All flora species encountered were identified and their relative abundance noted. The native species recorded are listed in Appendix A and the non-native species recorded are listed in Appendix B. Vegetation communities on the site were classified according to their floristic and structural characteristics (Specht & Specht, 1999) and dominant species identified. Conservation significance of the vegetation present at the site was assessed according to the Relative Ecological Value assigned to vegetation in the Draft Tweed Vegetation Management Strategy 2003.

2.3 Fauna

General Survey Approach and Survey Effort

A survey of the subject site was conducted over a 3 day period between the 13th and 16th of January 2004. The aim of the survey was to determine the presence of any fauna species and/or their habitat with particular attention given to targeting threatened fauna species identified in the search of the NPWS Atlas of NSW Wildlife (see Table 1). Weather during the field study was generally showery with rain falling intermittently throughout the survey period.

As a large range of terrestrial vertebrate groups were targeted, a variety of survey methods were utilised. The particulars of the methods used are outlined below and the locations at which particular sampling activities were conducted are shown on Figure 3.

Site Selection

The locations at which sampling was undertaken were chosen based on factors such as the presence of suitable habitat for target species, accessibility and whether they were representative of the general study area.

Avifauna

Area Search
Avifauna was sampled using an area search method. Two observers, using binoculars, walked throughout the site for a period of at least one hour per day over 3 days and recorded any bird species sighted.

Call-playback Sampling
Call-playback sampling was conducted at the site to test for the presence of nocturnal bird species. An initial listening period of 15 minutes, followed by a spotlighting period of 10 minutes was undertaken prior to the calls of target species being broadcast. The call of each of the target species was broadcast intermittently for 5 minutes using an amplifier. Broadcasts were followed by a 10 minute listening and spotlighting period. The species targeted were as follows:

- Powerful Owl (*Ninox strenua*);
- Masked Owl (*Tyto novaehollandiae*);
- Barking Owl (*Ninnox connivens*);
- Sooty Owl (*Tyto tenebricosa*); and
- Grass Owl (*Tyto capensis*).

The specific locations at which call-playback sampling was undertaken are shown on Figure 3.

Mammals (excluding bats)

Elliott Trapping
Seventy five A-sized Elliott traps were placed in the field in three lines each containing 25 traps. Trap lines were situated in areas that were considered to best represent potential habitat for ground-dwelling mammal species. Traps were spaced at approximately 10 metre intervals and were baited with a mixture of oats, peanut butter, vanilla essence, oil and honey. Traps were left in the field for three nights and were checked each morning within 2 hours of sunrise. The locations of the specific trap lines are shown on Figure 3.

Cage Trapping
Three cage traps, targeting larger ground-dwelling mammals and baited with raw meat, were placed in the field for a period of 3 nights. The locations at which specific traps were placed are shown on Figure 3.

Scat and Track Surveys
Searches for footprints, scats, nests and scratches on trees were undertaken throughout the subject site using a random meander transect method. Field survey staff walked the site for a period of approximately 1 hour per day for 3

days and searched for any of the aforementioned signs of animal activity. The specific locations of the scat and track transects are shown on Figure 3.

Spotlighting
Spotlighting, targeting ground and arboreal mammals, was conducted throughout the site using a random meander transect method. Two people walked the site for approximately an hour per night over three nights using 100 watt spotlights. The specific locations of the spotlighting transects are shown on Figure 3.

Bats

Electronic Detection
A hand-held electronic bat detector was used for approximately 45 minutes on two of the survey nights to sample for the presence of microchiropteran bat species. An automatic device, that runs overnight, was used to supplement the results of hand-held sampling for one night of the survey.

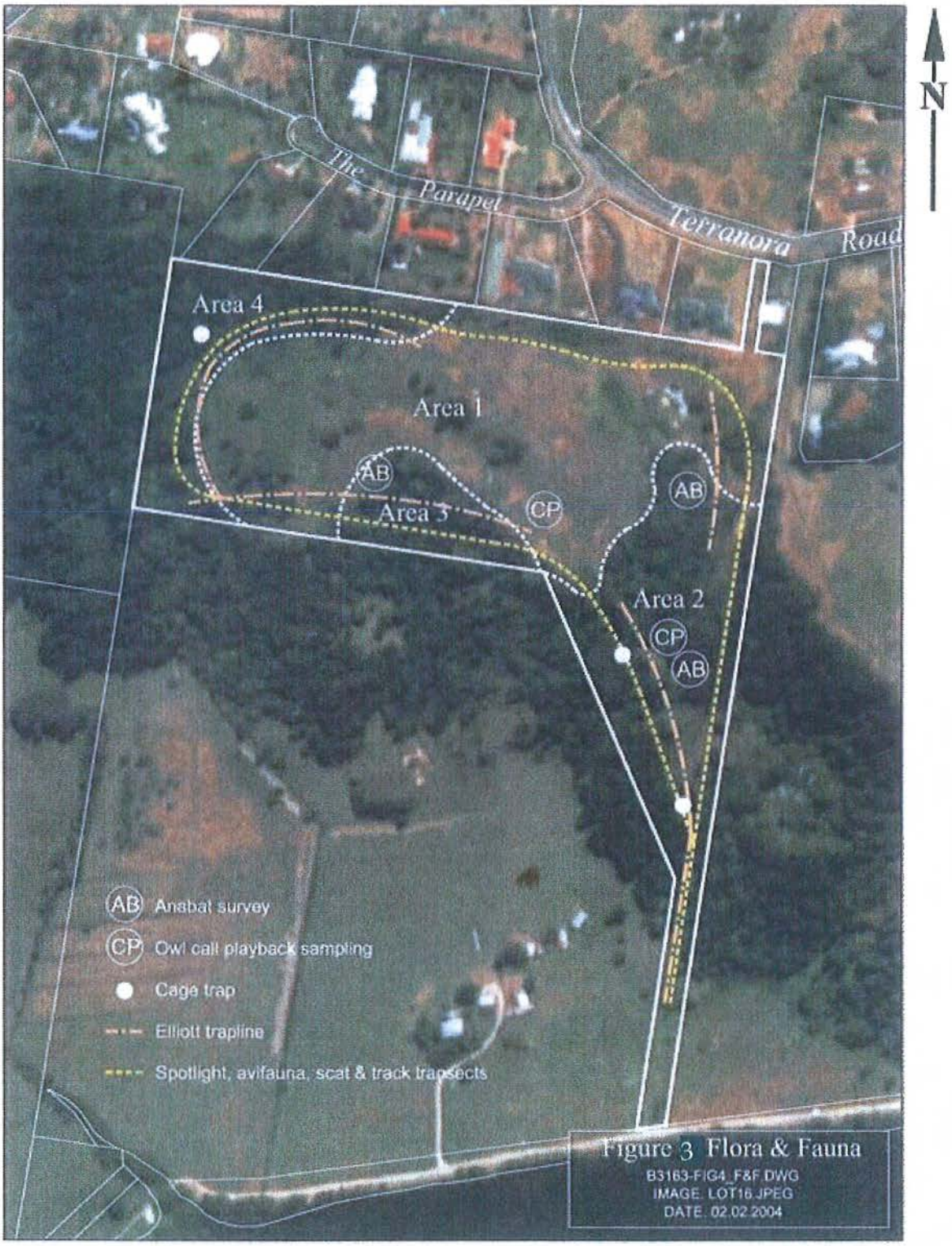
Reptiles

Habitat Searches
Searches of areas representing potential reptile habitat were conducted for a period of 45 minutes on each of three separate days to determine the presence of reptile species at the site. Searches involved turning over rocks and logs with care taken to replace them as they were found.

Spotlighting
Spotlighting as outlined above was utilised to target nocturnal reptile species potentially utilising the site.

Amphibians

The presence of frog species in the vicinity of the proposed zone of disturbance was determined by listening for their call and by spotlighting.



ASPECT *north* · Advanced Surveying Planning Engineering Consultancy Team

Figure 3. Vegetation survey sites (Areas 1 to 4) and location of fauna sampling activities.

3. Results – Flora

3.3 Threatened Species, populations and ecological communities potentially occurring at the subject site.

A search of the NPWS Atlas in January 2004[1] for threatened flora species listed under the *Threatened Species Conservation Act 1995* (TSC Act) identified 10 (ten) recorded species within a five kilometre radius of the subject site. Seven out of the ten species are also listed as threatened in the *Environmental Protection and Biodiversity Conservation Act, 1999* (EPBC Act). These are listed on Table 1 below.

Table 1. Threatened flora species recorded within 5 km radius of the site

Common Name	Scientific Name	NSW TSC Act Conservation Status*	EPBC Act# Conservation status*
Scented Acronychia	*Acronychia littoralis*	E	E
Brush Cassia	*Cassia brewsteri* var. *marksiana*	E	Not listed
Small-leaved Tamarind	*Diploglottis campbellii*	E	E
Southern Swamp Orchid	*Phaius australis*	E	E
Spiny Gardenia	*Randia moorei*	E	E
Marblewood	*Acacia bakeri*	V	Not listed
Three-leaved Bosistoa	*Bosistoa transversa*	V	V
Stinking Cryptocaria	*Cryptocarya foetida*	V	V
Fine-leaved Tuckeroo	*Lepiderema pulchella*	V	Not listed
Coolamon	*Syzygium moorei*	V	V

*E = Endangered, V = Vulnerable
#indicates species listed as threatened in the *Environmental Protection and Biodiversity Conservation Act, 1999.*

Furthermore a search of the schedules 1, 2 and 3 of the *TSC Act* NSW indicates that an endangered ecological community, namely the "Lowland Rainforest on Floodplain in the NSW North Coast Bioregion" occurs within the floodplain in the Tweed LGA. 'Lowland Rainforest on the Floodplain' includes 10 types of subtropical, dry and warm temperate rainforest. The following major rainforest

[1] The on-line search of the National Parks & Wildlife Atlas indicated that the data displayed was current up to the 15/12/2003.

Suballiance (according to Floyd, 1990) within the nominated community are the recognised categories within the lowland floodplain rainforest. These are:

- Suballiance 3: Cryptocarya obovata - Dendrocnide excelsa - Ficus spp - Araucaria.
  Elements of
  - Suballiance 1:Heritiera trifoliata,
  - Suballiance 2: Toona - Flindersia,
  - Suballiance 4: Elaeocarpus grandis,
  - Suballiance 5: Castanospermum - Dysoxylum mollissimum,
  - Suballiance 6: Archontophoenix - Livistona,
  - Suballiance 23: Ficus-Streblus-Dendrocnide-Cassine,
  - Suballiance 24: Castanospermum - Grevillea robusta,
  - Suballiance 25: Streblus - Austromyrtus, Suballiance
  - 26: Waterhousea floribunda - Tristaniopsis laurina and
  - Suballiance 33: Ceratopetalum/Schizomeria - Heritiera/Sloanea also occur.

The floodplain according to NPWS is defined as the area of land affected by the 1 in 100 year flood event.

3.4 Site Assessment

The site is facing south off the Terranora Ridge and has extensive views of the Tweed River. The central portion of the proposed development site is predominantly cleared as a result of past quarrying activities. The remainder is forested.

The central and northern portion of the site lies on flat terraced ground, the remainder of the site slopes downward to the south. According to Morand (1996) the soil type is moderately deep, moderately well-drained Yellow Earths and Yellow Podzolic Soils occurring on rolling hills on metamorphics of the Neraileigh-Fernvale Group which support partly to extensively cleared open-forest (wet-sclerophyll).

A large diversity of native flora species have been identified on the forested area of the site. The site has been divided into 4 Areas (depicted on Figure 3) according to the relative Foliage Projective Cover (FPC). Native species identified in the study for each Area and their relative abundance are listed in Appendix A. Exotic and/or non-endemic species (environmental weeds) were also noted for each Area, these are listed in Appendix B. The dominant species, height, Foliage Projective Cover, slope, aspect and general description for each Area are outlined on Table 2.

Table 2. Dominant species, height, Foliage Projective Cover, slope, aspect and general description for the 4 Areas (refer to Figure 3) identified on Lot 16 DP 856265.

Area	Dominant Species	Height (m)	Foliage Projected Cover (%)	Slope	Aspect	Description
1	*Acacia melanoxylon, Macaranga tanarius, Guioa semiglauca*	10	<5	0-15°	S	Highly disturbed open grassland with clumps of weedy regrowth.
2	*Guioa semiglauca, Cinnamomum camphora*	15-20	70	40-45°	S-SW	Secondary regrowth with areas of closed forest, powerline clearing, highly disturbed grassland. *Cupaniopsis newmanii* noted in this Area.
3	*Macaranga tanarius, Acacia melanoxylon, Guioa semiglauca*	15	40-70	30-60°	S	Highly disturbed secondary regrowth with large areas of Lantana (*Lantana camara*) thicket and grasses in disturbed areas.
4	*Cryptocarya obovata, Baloghia lucida, Guioa semiglauca, Jagera pseudorhus, Cinnamomum camphora*	25	70+	20-35°	S	Closed forest, high diversity of lowland subtropical species. Significant species include: *Macadamia tetraphylla, Archidendron muellerianum, Cupaniopsis newmanii, Syzygium moorei, Syzygium hodgkinsoniae.*

As indicated previously the 'Tweed Vegetation Management Plan 1999' classifies the vegetation on this site as 'Highly Modified/Disturbed - Camphor Laurel Dominant Closed to Open Forest' (Map 5 - Tweed remnant vegetation classified by vegetation type). This study confirms such vegetation classification for the forested areas present on the site. More specifically as indicated on Table 2, the vegetation for each of the four zoning is classified as follows:

- Area 1 – Open grassland dominated by Paspalum (*Paspalum dilatum*), and Rhodes Grass (*Chloris sp.*) and isolated clumps dominated by Lantana (*Lantana camara*) and Black Wattle (*Acacia melanoxylon*). Very poor native species diversity is present (Refer to Appendix A). A range of environmental weeds

dominate the Area (Refer to Appendix B). The vegetation in this Area is considered highly degraded - i.e. ecosystem is in very poor condition (Wilson, 2003).

- Area 2 – Regrowth closed forest dominated by Guioa (*Guioa semiglauca,*) and Camphor Laurel (*Cinnamomum camphora*) and patches of grassland. Medium native species diversity is present (Refer to Appendix A). A range of environmental weeds dominate the Area (Refer to Appendix B). The vegetation in this Area is considered degraded (i.e. ecosystem is in poor condition (Wilson, 2003).
- Area 3 - Open to closed forest regrowth with large areas of Lantana (*Lantana camara*) thicket and grasses in disturbed areas. Medium native species diversity is present (Refer to Appendix A). Fewer environmental weeds are present (Refer to Appendix B). The vegetation in this Area is considered degraded to modified - i.e. ecosystem is in poor or moderate condition (Wilson, 2003).
- Area 4 – Closed forest dominated by Peperberry (*Cryptocarya obovata*), Scrub Bloodwood *(Baloghia lucida)*, Guioa, Foambark (*Jagera pseudorhus*), and Camphor Laurel. Good native species diversity for all strata. High diversity of lowland subtropical species is present (Refer to Appendix A). Fewer environmental weeds are present (Refer to Appendix B). The vegetation in this Area is considered modified to little disturbed - i.e. ecosystem is in moderate to good condition (Wilson, 2003).

The forest community at the site ranges from highly disturbed to relatively undisturbed and display a diversity of flora species and structure. Nevertheless the vegetation at the site is affected by environmental weeds. In particular (as shown in Appendix B) Camphor Laurel, Climbing Asparagus *Protoasparagus plumosus*), Lantana, and other weed species are posing various degrees of threat to the resilience of the native vegetation community present at this site.

3.5 Threatened species found at the site

One of the ten potential threatened species listed in Table 1 was found at the site, namely Coolamon (*Syzygium moorei*). Two other threatened species where found on the site which have not been previously recorded within the 5 km radius from the study site. These are the Rough-shelled Bush Nut (*Macadamia tetraphylla*) and Red Lilly Pilly (*Syzygium hodgkinsoniae*). The Coolamon, Rough-shelled Bush Nut and the Red Lilly Pilly are listed as vulnerable under the *TSC ACT 1995* and the *EPBC ACT 1999*. These threatened species were found in Area 4 (Refer to Figure 3, Table 2 and Appendix A).

Two *Rare or Threatened Australian Plants* (ROTAP listed (Briggs & Leigh, 1995) were also found on site, namely Veiny Lace Flower (*Archidendron muellerianum*) and Long-leaved Tuckeroo (*Cupaniopsis newmanii*). The Veiny Lace Flower was found in Areas 2 and 4, while the Long-leaved Tuckeroo was found in Area 4 (Refer to Figure 3, Table 2 and Appendix A).

Endangered Ecological Community

The *TSC Act* NSW indicates that an endangered ecological community, namely the "Lowland Rainforest on Floodplain in the NSW North Coast Bioregion" occurs within the floodplain in the Tweed LGA. The floodplain according to NPWS is defined as the area of land affected by the 1 in 100 year flood event. The remnant vegetation in the subject site has been classified as 'Highly Modified/Disturbed - Camphor Laurel Dominant Closed to Open Forest' by the 'Tweed Vegetation Management Plan 1999' (Map 5-Tweed remnant vegetation classified by vegetation type). The site assessment found that portions of vegetation on the site fit the closed forest classification according to Specht & Specht (1999), and the native species present on the site are recognised as rainforest species. In particular the vegetation community in Area 4 (Figure 3) displays characteristic associated with lowland subtropical rainforest.

Tweed Shire Council has not undertaken a flood study for this site hence no information was available as whether the site lays within the 1 in 100 year flood event. However, perusal of the relevant topographical map indicates that site elevation ranges from 90m to 10m AHD. Area 4 elevation ranges from 80 to 40m AHD, which should be well above the floodplain.

Furthermore, according to Dr John Stanisic (2003) there is unambiguous distinction *'between what is lowland subtropical rainforest on alluvium and relatively adjacent rainforest on higher ground. The latter can be classified as 'foothill' rainforest, usually growing on rocky substrate'*, which is the case for the vegetation present in Area 4.

This would indicate that the remnant Rainforest community present at the site could not be classified as "Lowland Rainforest on Floodplain in the NSW North Coast Bioregion" as it does not occur within the floodplain and it does not display the bio-physical characteristics which are typical of Lowland Rainforest.

3.6 Vegetation Conservation Significance of Subject Site

The conservation significance ranking for the vegetation present in the Tweed is identified in the Draft Tweed Vegetation Management Strategy 2003, however Tweed Shire Council has currently postponed the release of the Draft Strategy 2003 and the document is not available for perusal (Judge G., 2003, pers. comm.). Hence the conservation significance for the vegetation type mapped for the site (i.e. 'Highly Modified/Disturbed - Camphor Laurel Dominant Closed to Open Forest') could not be determined.

Following site assessment, the vegetation at the site can be best described as predominantly regrowth rainforest vegetation stands dominated by Camphor Laurel (*Cinnamomum camphora*) and patches of highly disturbed to relatively undisturbed Subtropical Rainforest. Again no measure of conservation significance could be assigned for the Tweed area. However in the nearby Brunswick and Richmond catchments, Rainforest community is recognised as vegetation of Very High Conservation Value (Byron Shire Council, 2003; RRVC, 2002).

It must be noted that classification of vegetation community or forest ecosystem significance is relatively independent of the actual condition in regard to disturbance, threats and resilience of the community. The habitat value of the remnant vegetation present at the site is further discussed Section 4.3.

4. Results – Fauna

4.1 Threatened Species Potentially Occurring at the Subject Site

A search of the NPWS Atlas in January 2004 identified thirty one (31) threatened fauna species (listed under the TSC Act) recorded within a five-kilometre radius of the subject site (see Table 3).

Table 3. Threatened fauna listed on the NPWS atlas database that were detected within a five kilometre radius of the site

Common Name	Scientific Name	Legal Status*
Avifauna		
Barking Owl	*Ninox connivens*	V
Barred Cuckoo-shrike	*Coracina lineata*	V
Beach Stone-curlew	*Esacus neglectus*	E
Black Bittern	*Ixobrychus flavicollis*	V
Black-necked Stork	*Ephippiorhynchus asiaticus*	E
Black-tailed Godwit	*Limosa limosa*	V
Bush-hen	*Amaurornis olivaceus*	V
Collared Kingfisher	*Todiramphus chloris*	V
Comb-crested Jacana	*Irediparra gallinacea*	V
Flesh-footed Shearwater	*Puffinus carneipes*	V
Grass Owl	*Tyto capensis*	V
Great Knot	*Calidris tenuirostris*	V
Greater Sand Plover	*Charadrius leschenaultii*	V
Lesser Sand Plover	*Charadrius mongolus*	V
Little Tern	*Sterna albifrons*	E
Magpie Goose	*Anseranas semipalmata*	V
Mangrove Honeyeater	*Lichenostomus fasciogularis*	V
Osprey	*Pandion haliaetus*	V
Pied Oystercatcher	*Haematopus longirostris*	V
Rose-crowned Fruit-Dove	*Ptilinopus regina*	V
Sooty Oystercatcher	*Haematopus fuliginosus*	V
Terek Sandpiper	*Xenus cinereus*	V
White-eared Monarch	*Monarcha leucotis*	V
Mammals		
Bats		
Beccari's Freetail Bat	*Mormopterus beccarii*	V
Black Flying-fox	*Peteropus alecto*	V
Common Blossom-bat	*Syconycteris australis*	V
Eastern Long-eared Bat	*Nyctophilus bifax*	V

Common Name	Scientific Name	Legal Status*
Grey-headed Flying-fox	*Pteropus poliocephalus*	V
Other		
Koala	*Phascolarctos cinereus*	V
Reptiles		
Green Turtle	*Chelonia mydas*	V
Invertebrates		
Mitchell's Rainforest Snail	*Thersites mitchellae*	E

*Legal Status key:
E: Schedule 1 (Endangered) under the TSC Act
V: Schedule 2 (Vulnerable) under the TSC Act

4.2 Site Assessment

Fauna Species Detected at the Site

Avifauna

Sampling resulted in the detection of the avifauna listed in Table 4. No bird species listed as threatened in current conservation legislation were detected during the survey period. Brush turkeys were seen to be present on the site and three of their mounds were seen in the forested sections of the site. A Whistling Kite was heard calling as it roosted in or near to the southern section of the site where the forested land gives way to land cleared for pasture. A nest could not be sited.

Table 4. Avifauna species recorded during the site survey.

Common Name	Scientific Name/ Family	Method of Observation
Avifauna		
Australian Brush Turkey	*Alectura lathami*	O
Australian Magpie	*Gymnorhina tibicen*	O
Australian Pelican	*Pelecanus conspicillatus*	O
Australian White Ibis	*Threskiornis molucca*	O
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*	O
Brown Quail	*Coturnix ypsilophora*	O
Cattle Egret	*Ardea ibis*	O
Crested Pigeon	*Ocyphaps lophotes*	O
Torresian Crow	*Corvus orru*	O
Dollarbird	*Eurystomus orientalis*	O
Figbird	*Specotheres viridis*	O
Golden-headed Cisticola	*Cisticola exilis*	O
Grey Butcherbird	*Cracticus torquatus*	O
Grey Fantail	*Rhipidura fuliginosa*	O
Grey Shrike Thrush	*Colluricincla harmonica*	O
Kookaburra	*Dacelo novaeguineae*	O
Lewin's Honeyeater	*Meliphaga lewinii*	O

Common Name	Scientific Name/ Family	Method of Observation
Noisy Miner	*Manorina melanocephala*	O
Pheasant Coucal	*Centropus phasianinus*	O
Pied Butcherbird	*Racticus nigrogularis*	O
Rainbow Lorikeet	*Trichoglossus haematodus*	O
Red-backed Fairy-wren	*Malurus melanocephalus*	O
Red-browed Finch	*Neochmia temporalis*	O
Rufus Whistler	*Pachycephala rufiventris*	O
Spangled Drongo	*Dicrurus bracteatus*	O
Spotted Turtle-Dove	*Streptopelia chinensis*	O
Variegated Fairy-wren	*Malurus lamberti*	O
Whipbird	*Psophodes olivaceus*	O
Whistling Kite	*Haliastur sphenurus*	W
Willie Wagtail	*Rhipidura leucophrys*	O

Key:

O – Observed
T – Trapped
W – Heard Calling

Mammals

The mammals species detected during sampling are listed in Table 5. A number of ground dwelling mammals species and one species of bat were detected during sampling. The use of electronic bat detectors at the site did not result in the detection of any microbat species. It is likely that the results of electronic detection were hindered by the relatively poor weather conditions and intermittent rainfall occurring at the time of sampling.

Table 5. Mammal species recorded during the site survey.

Common Name	Scientific Name/ Family	Method of Observation
Mammals		
Bush Rat	*Rattus fuscipes*	T
Grassland Melomys	*Melomys bertoni*	T
House Mouse	*Mus musculus*	T
Swamp Rat	*Rattus lutreolus*	T
Swamp Wallaby	*Wallabia bicolor*	O
Unidentified Flying-fox	*Pteropus* sp.	W

Key:

O – Observed
T – Trapped
W – Heard Calling

Reptiles

The reptile species detected during sampling are listed in Table 5. Both of the identified specimens were trapped in Elliott traps of an evening. No reptiles, aside from the occasional skink were detected during active searches.

Table 6. Reptile species recorded during the site survey.

Common Name	Scientific Name/ Family	Method of Observation
Reptiles		
Pink-tongued Skink	*Cyclodomorphus gerrardii*	T
Eastern Blue-tongued Lizard	*Tiliqua scincoides*	T
Skink species	*Scincidae sp.*	O

Key:

O – Observed
T – Trapped

Amphibians

The amphibian species detected during sampling are listed in Table 7. All of these specimens were heard calling during the survey period. *L. terreaereginae* was heard to start calling late in the survey period after substantial rain had fallen and parts of the survey site began to become inundated with water.

Table 7. Amphibian species recorded during the site survey.

Common Name	Scientific Name/ Family	Method of Observation
Amphibians		
Northern Pobblebonk	*Lymnodynastes terraereginae*	W
Toadlet sp.	*Pseudophryne* sp.	W

Key:

W – Heard calling

4.3 Fauna Habitat and Corridor Value of Subject Site

Fauna Habitat

The habitat value of the site was assessed in terms of criteria developed by Gilmore *et al* (1985) (see Appendix C). The site contained features indicative of both an area of high conservation value and medium conservation value according to the above criteria. Features of an area of high conservation value were, however, most common and consequently the site was determined to be of overall high conservation value. Specifically, the characteristics of the site with regard to conservation values are summarised in Table 4.

Table 4. Fauna habitat conservation values.

Characteristic of Site	Conservation Value According to Gilmore *et al.*
Some vegetation stands have good structure (high);	High
There is some degradation of the site due to exotic species occurrence;	Medium
There is good potential habitat for a diversity of fauna including endangered fauna;	High
There is a low diversity of habitat types;	Medium
The site is above 4 hectares in size;	High
The site is linked or provides links to other areas of habitat;	High
The site likely functions as a corridor for fauna;	High
The site has good potential for rehabilitation;	High
The site contains vegetation communities or associations of local significance;	High

The habitat value of the site for the general fauna groups is described in the following paragraphs:

Avifauna

A reasonably large number of bird species were detected during the survey conducted for the purposes of this report. None of these species are listed as vulnerable or endangered according to the relevant legislation. The subject site would provide preferred foraging habitat for a diversity of avifauna species due to the fact that there are a variety of flora species at the site including a number of fruiting and nectar bearing plants that provide a food resource for avifauna. Additionally, the Camphor Laurel dominated Closed to Open Forest occurring on

the site affords a good degree of cover for avifauna species as they forage and roost.

Mammals

Bats

The survey results indicate that the site is utilised opportunistically by flying-foxes for the purposes of foraging. This is likely due to the fact that there are a variety of both rainforest and wet-sclerophyll tree species that would provide fruit as a food source for such species. Microbat species are less likely to utilise the area as flyways are largely absent from the closed forest at the site as are tree hollows such as those required by microbat species.

Arboreal Mammals

Most arboreal mammals rely on tree hollows for habitat and as there are few hollow-bearing trees at the site it is unlikely that significant numbers of such species utilise the area. However, the presence of fruiting and flowering trees and the occasionally dense foliage of the rainforest understorey may provide foraging habitat for some arboreal mammal species. The relatively comprehensive survey undertaken for the purposes of this report failed to detect any evidence of arboreal mammals utilising the site.

No Koala food trees were detected at the site.

Terrestrial Mammals

The rainforest understorey habitat of the subject site provides potential habitat for ground-dwelling mammal species particularly when it is considered that the site is relatively densely vegetated and provides a high degree of cover. Additionally, the more dense grassland occurring at the site is preferred habitat for ground mammals such as native rats and melomys as evidenced by the results of Elliott trapping.

Reptiles

Two lizards were captured in Elliott traps during the fauna survey indicating that the grassland area of the site is favourable habitat for some reptile species. In addition to the captured reptile species, the dense rainforest understorey may provide favourable habitat for such species as the Green Tree Snake (*Dendrelaphis punctulata*) and Carpet Python (*Morelia spilota*).

Amphibians

Although the site does not contain any permanent waterways, there area some soakage areas that provide breeding habitat for amphibians (some Northern Pobblebonks were heard calling from such a soak). Additionally, some individual *Pseudophryne* sp. were heard calling from the damp leaf litter occurring in the closed forest areas of the site.

Fauna Corridor

Fauna corridors are described as vegetation communities that allow the movement of fauna between connected landscape elements (Soule & Gilpin, 1991). Corridors provide dispersion routes for migrating animals with large foraging or breeding ranges. Corridors are also particularly important for small remnants that do not support large viable populations.

The subject site is part of a segment of land that provides a connection between proximate stands of vegetation. Specifically, the subject site is part of a band of forested land that extends from Chinderah Bay in the Tweed River to the east to the Tweed Broadwater (in the vicinity of Stott's Island Nature Reserve) to the west.

The potential of the subject area as a fauna corridor will be maintained in the long term when it is considered that the forested sections of the site will be largely retained.

4.4 Likelihood of Occurrence of Threatened Fauna Species

There are a number of listed species that have been detected previously in the general area of the site that, based on their habitat requirements (see Table 5), could potentially utilise the habitat available in the area of the proposed development. Species considered as either likely to occur, or possibly occurring, at the subject site are assessed in Section 5 with regard to the relevant legislative considerations.

Table 5. Likelihood of Threatened Fauna Species Occurring at the Site

Common Name	Scientific Name	Habitat	Likely	Possible	Unlikely
Avifauna					
Barking Owl	*Ninox connivens*	The Barking Owl occupies eucalypt woodland, open forest, swamp woodlands and timber along watercourses.. Occasionally it roosts in denser habitats but hunts over more open country. Nests are in hollows of large, old eucalypt trees. Roosts are typically in tall, densely-foliaged understorey trees, such as wattles and casuarinas, or the dense clumps canopy leaves in large eucalypts. The Owl feeds on a variety of prey including birds, invertebrates and mammals. Territories range from 30 to over 1000 hectares and pairs of birds remain in the same area all year (NPWS, 2002b).			✔
Barred Cuckoo-shrike	*Coracina lineata*	Flocks travel between food trees, common in northern Australia, less common in this region. Found in coastal rainforest and vine scrubs, nearby eucalypts, paperbarks, plantations and tropical gardens. The Shrike nests from September to March in a shallow saucers of twigs, Casuarina needles and rootlets bound with web in the fork of a tree 15-30 m above the ground (Morecombe, 2000).		✔	
Beach Stone-curlew	*Esacus neglectus*	Marine tidal zone, northern half of Australia (Morecombe, 2000).			✔
Black Bittern	*Ixobrychus flavicollis*	The Black Bittern inhabits both terrestrial and estuarine wetlands preferring areas with permanent water and dense vegetation. If permanent water is found, the Bittern will occupy flooded grassland, forests, woodland, rainforest and mangroves. The Bitten forages on reptiles, fish and invertebrates. During the day, the bird generally roosts in trees or on the ground amongst dense reeds (NPWS, 1999a).			✔
Black-necked Stork	*Epippiorhynchus asiaticus*	Inhabits terrestrial wetlands including swamps, large permanent pools, lagoons and mangrove swamps. The Stork is also found in flooded meadows, spring seepages, on dry plains and occasionally on open grassy woodlands (Ayers, 1995).			✔
Black-tailed Godwit	*Limosa limosa*	Found in estuaries, sheltered bays, and lagoons and sometimes around large			✔

Common Name	Scientific Name	Habitat	Likely	Possible	Unlikely
		ephemeral inland lakes. Less frequently found on rocky coasts, islets and sewage farms. Black-tailed Godwits nest on the Cairns shoreline and in the Gulf of Carpentaria (Morecombe, 2000).			
Bush-hen	*Amaurornis olivaceus*	The Bush-hen is found in densely overgrown margins of permanent terrestrial freshwater wetlands such as creeks, rivers, billabongs, ponds, swamps, waterholes, dams, lakes and roadside ditches. Habitat requirements are permanent waterbodies, streams and thick undergrowth 2-4m tall, especially tall dense grasses or dense thickets of lantana or other shrubs (Marchant and Higgins, 1993; Holmes, 1987). Breeding occurs in dense grasses close to streams. The hen prefers to breed in grass clumps growing among or beneath shrubs, bushes, thickets or trees next to creeks. The Bush-hen is considered to be predominantly nocturnal, feeding on seeds, soft vegetation and small animals (frogs) (Murantyi, 1994).			✔
Collared Kingfisher	*Todiramphus chloris*	The Collared Kingfisher is sedentary in northern Australia but migratory here. It is found around mangroves and hunts on nearby mudflats and beaches. It nests in termite mounds, tree hollows and earthen banks (Morecombe, 2000).			✔
Comb-crested Jacana	*Irediparra gallinacea*	Lakes, swamps and dams where there are waterlilies or other extensive cover of floating vegetation provide habitat for this species. It forages across such waters searching for small aquatic species or insects (Morecombe, 2000).			✔
Flesh-footed Shearwater	*Puffinus carneipes*	The Flesh-footed Shearwater breeds on a number of offshore islands in the Indian ocean and around the Australian and New Zealand coastline. The species is oceanic and coastal in temperate and subtropical seas (Lindsey, 1986 and Simpson and Day, 1996).			✔
Grass Owl	*Tyto capensis*	As the name indicates, Grass Owls inhabit tall course grasses in open swampy country (Morcombe, 2000).			✔
Great Knot	*Calidris*	The Great Knot is found on sheltered coastal mudflats, inlets, harbours,			✔

Common Name	Scientific Name	Habitat	Likely	Possible	Unlikely
	tenuirostris	lagoons, mangrove swamps, sandy bars and beaches. Occasionally found on salt lakes, lagoons and saltworks ponds (Morcombe, 2000).			
Greater Sand Plover	*Charadrius leschenaultii*	Found on mudflats and sandbanks of sheltered bays and estuaries, sandy cays of coral reefs, reef platforms, saltmarsh and wetlands around Australia (Morcombe, 2000).			✔
Lesser Sand Plover	*Charadrius mongolus*	Lesser Sand Plovers occur on mudflats, wide sandy beaches, estuaries and tidal areas in mangroves (NPWS, 2002).			✔
Little Tern	*Sterna albifrons*	Found in sheltered coastal locations including estuaries, bays, islets, coastal swamps and lakes around most of the Australian coast, rare in southern Australia (Morcombe, 2000).			✔
Magpie Goose	*Anseranas semipalmata*	Magpie geese are found mainly in shallow wetlands (less than one metre deep) such as large swamps and dams, especially with dense growth of rushes or sedges, and with permanent lagoons and grasslands nearby. The commencement of breeding is strongly influenced by water level (NPWS, 2002).			✔
Mangrove Honeyeater	*Lichenostomus fasciogularis*	Primary habitat is mangrove forest but the species also occurs in other near-coastal forests and woodlands, including casuarina and paperbark swamp forests. It sometimes frequents adjacent shrublands and woodlands dominated by banksias and eucalypts; and sometimes visits gardens in coastal towns (NPWS, 2002).			✔
Osprey	*Pandion haliaetus*	Found around the coast of Australia, over coastal waters and estuaries, beaches, islets and reefs. Follows major rivers and wetlands inland to large pools (Morcombe, 2000).			✔
Pied Oystercatcher	*Haematopus longirostris*	Found on beaches and mudflats of inlets, bays, ocean beaches and offshore islets around the coast of Australia (Morcombe, 2000).			✔
Rose-crowned Fruit-dove	*Ptilinopus regina*	Within northeastern NSW this species may be found in eucalypt woodland with scattered small patches of rainforest and also in mangrove forests (Recher, et .al., 1995). It is known to inhabit rainforests, monsoon forests, wet		✔	

Common Name	Scientific Name	Habitat	Likely	Possible	Unlikely
		eucalypt forests, melaleuca woodlands, lantana thickets and regrowth scrub along creeks (Morcombe, 2000).			
Sooty Oystercatcher	*Haematopus fuliginosus*	Sooty Oystercatchers favour rocky headlands, rocky shelves and beaches and offshore islands. They also occur more rarely on sandy beaches and estuarine tidal flats (NPWS, 2002).			✔
Terek Sandpiper	*Xenus cinereus*	The Terek Sandpiper inhabits tidal muflats, estuaries, shores and reefs of offshore island and coastal swamps (NPWS, 2002).			✔
White-eared Monarch	*Monarcha leucotis*	Found in coastal rainforest, mangroves, swamps and riverine vegetation from northern NSW to north Queensland. Builds nests high in the canopy of rainforest and breeds from September to February (Morecombe, 2000).		✔	
Mammals					
Bats					
Beccari's Freetail Bat	*Mormopterus beccarii*	Beccari's Freetail Bat occurs though New Guinea and northern Australia in desert, semi arid and mesic regions where it forages over rainforests, floodplains, and eucalypt communities. The freetail bat hunts above the tree canopy and over rivers. They roost in tree hollows but have been found under roofs (McKenzie, 1995).		✔	
Black Flying-fox	*Peteropus alecto*	These are nocturnal animals that in many areas spend the day time roosting in "camps" in mangroves, paperbark swamps or patches of rainforest including tropical and subtropical rainforests and wet sclerophyll forests of the coastal areas of northern Australia. These camps can contain hundreds of thousands of Flying-foxes (Hall, 1995). Pollen and nectar of blossoms of eucalypts, paperbarks and turpentine trees are the preferred food of the bat and it will travel up to 50 km to feed (Hall, 1995). They also feed on other flowers and fruit, including introduced and commercial fruits like mangoes. Fruit bats are responsible for pollinating a wide variety of native flowering plants (Hall, 1995). It has also been noted that on rare occasions they may utilise swamp sclerophyll forests as foraging habitat and utilise remnant		✔	

Common Name	Scientific Name	Habitat	Likely	Possible	Unlikely
		vegetation as "stepping stones" between feeding grounds.			
Common Blossom-bat	*Syconycteris australis*	Common Blossom-bats forage in heathlands but roost in rainforest. They roost most commonly in the sub-canopy but occasionally in the canopy. Roosts are amongst large leaves (sometimes dead), often on the growing tips of saplings or amongst dense vines. The combination of heathland and coastal rainforest is essential habitat for this species in northern NSW. Common Blossom-bats have a foraging area of about 13ha of heathland and use the same area each night. Farther north they occur in rainforest, monsoon and paperbark forests (Churchill, 1998).		✔	
Eastern Long-eared Bat	*Nyctophilus bifax*	Inhabits a variety of habitats from rainforests to dry sclerophyll woodlands and is often found among the vegetation along watercourses. Lunney *et.al.* (1995) notes that rainforest appears to be the most critical habitat for this species in northern NSW. The Long-eared Bat has been recorded roosting in tree hollows and the roofs of buildings. In northern NSW, it has been recorded roosting in dead foliage of rainforests as well as the dead fronds of Bangalow Palms. The species has also been recorded roosting under the bark of paperbarks (State Forests of NSW, 1995).		✔	
Grey-headed Flying-fox	*Pteropus poliocephalus*	Occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands. They forage on nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and fruits of rainforest trees and vines. They also forage in cultivated gardens and fruit crops. The Grey-headed Flying-fox roosts in large camps up to the tens of thousands, often in stands of riparian rainforest, Paperbark or Casuarina forest (NPWS, 1999b; Australasian Bat Society Inc., 2000).		✔	
Other					
Koala	*Phascolarctos cinereus*	Associated with eucalypt forest, the Koala feeds almost entirely on the foliage of species of this genus. Feeds on Forest Red Gums, Tallowwoods			✔

Common Name	Scientific Name	Habitat	Likely	Possible	Unlikely
		and Grey Gums in northern NSW (Hall, 1995).			
Reptiles					
Green Turtle	*Chelonia mydas*	The Green Turtle is abundant along the tropical coast of Australia and breeds throughout its range (Cogger, 2000).			✔
Invertebrates					
Mitchell's Rainforest Snail	*Thersites mitchellae*	Remnant areas of lowland subtropical rainforest and swamp forest on alluvial soils. Slightly higher ground with palms and fig trees around the edges of wetlands are particularly favoured habitat (NPWS, 2002 & NPWS, 2001).			✔

5. Statutory Requirements

5.1 NSW Environmental Planning and Assessment Act 1979

State Environmental Planning Policy No. 44 – Koala Habitat Protection

State Environmental Planning Policy No. 44 (SEPP 44) was gazetted in January 1995. It encourages the conservation and management of natural vegetation areas that provide habitat for Koalas to ensure permanent free-living populations will be maintained over their present range. The policy applies to 107 local government areas. Local councils cannot approve development in an area affected by the policy without an investigation of core Koala habitat. The policy provides the statewide approach needed to enable appropriate development to continue, while ensuring there is ongoing protection of Koalas and their habitat.

Does the subject land occur in a Local Government Area identified in Schedule 1?

The site is located in the Tweed Local Government Area, which is listed in Schedule 1.

Is the land to which the development application applies smaller than 1 hectare in area?

The subject land is 10.19 hectares in area.

Does the site contain areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15 percent of the total number of trees in the upper or lower strata of the tree component?

The site does not contain areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15 percent of the total number of trees in the upper or lower strata of the tree component.

Is the land potential Koala habitat?

The land is not considered potential Koala habitat in that there are no Koala food trees occurring on the site. Additionally, the land is not identified as Koala habitat, but rather classified as mainly cleared/other vegetation community, on the Tweed Coast Koala Habitat Atlas - Habitat Classification Map (Australian Koala Foundation, 1996).

Is there core habitat on the subject land?

There is no core habitat on the land.

Is there a requirement for the preparation of a Plan of Management for identified core Koala habitat?

There is no core habitat on the land therefore a Plan of Management is not required.

Section 5A of the Environmental Planning and Assessment Act

Section 5A of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) lists the factors (8 point test of significance) to be considered when determining whether a proposed development is likely to have a significant effect upon listed threatened species, populations or ecological communities, and their habitats, therefore determining if a Species Impact Statement is required.

Three (3) threatened listed flora species were found on the site, namely the
- Coolamon (*Syzygium moorei*);
- Rough-shelled Bush Nut (*Macadamia tetraphylla*); and
- Red Lilly Pilly (*Syzygium hodgkinsoniae*).

The Coolamon, Rough-shelled Bush Nut and the Red Lilly Pilly are listed as vulnerable under the *TSC ACT 1995* and the *EPBC ACT 1999*.

No threatened fauna species were detected utilising the subject site during the fauna inspection. A number of listed species are, however, considered to have potential to utilise the site.

The fauna species considered are as follows:
- Barred Cuckoo-shrike (*Coracina lineata*);
- Rose-crowned Fruit-dove; (*Ptilinopus regina*)
- White-eared Monarch; (*Monarcha leucotis*)
- Beccari's Freetail Bat (*Mormopterus beccarii*);
- Black Flying-fox (*Pteropus alecto*);
- Common Blossom Bat (Syconycteris australis);
- Eastern Long-eared Bat (*Nyctphilus bifax*); and
- Grey-headed Flying-fox (*Pteropus poliocephalus*).

An assessment of these threatened flora and fauna species with regard to the provisions of Section 5A of the EP&A Act is undertaken below.

Eight Point Test of Significance

In the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction.

FLORA

Common name	Scientific name	Legal Status (TSC Act)
Coolamon	*Syzygium moorei*	Vulnerable

Habitat description/ life cycle components	Coolamon is a tree to 40m tall, with dense dark foliage and flaky bark. Its paired leaves are thick and usually rounded at the tips. Flowers are pink to red and are clustered directly on the older leafless branches and the trunk of the tree (NPWS, 2002). Flowering time is November to March (Harden, 1991). It is found in Subtropical and Riverine Rainforest at low altitude. It is also occur as isolated paddock trees (NPWS, 2002).
Sensitivities	Threats to the Coolamon include the following: • Clearing and fragmentation of habitat for development, agriculture and road-works; • Weed infestation and general degradation of rainforest habitats; • Grazing and trampling by domestic stock; and • Illegal collection for horticulture (NPWS, 2002).
Likelihood of local extinction	The proposed activity will not result in the local extinction of this species as all examples of this species detected on the site are to be retained.

Common name	Scientific name	Legal Status (TSC Act)
Rough-shelled Bush Nut	*Macadamia tetraphylla*	Vulnerable

Habitat description/ life cycle components	*M. tetraphylla* is a densely bushy tree growing up to 15m tall. The leathery, glabrous leaves are usually in whorls of four, 18-25cm long and have stiff, prickly toothed margins (Harden, 1991). Creamy pink to purplish flowers hang in long strings among the leaves (NPWS, 2002) from August-October (Harden, 1991).

In the Richmond and Tweed valleys of northern NSW, *M. tetraphylla* is generally found in small wild populations (2-50 plants) within disjunct rainforest remnants with different habitat attributes in terms of forest fragment area and disturbance history (agricultural, urban and logging impacts).

It is found in subtropical rainforest, usually near the coast (NPWS, 2002). It is uncommon in the wild.

Sensitivities

The Rough-shelled Bush Nut is at threat from the following:

- Clearing and fragmentation of habitat for coastal development, agriculture and road-works;
- Risk of local extinction due to low numbers;
- Grazing and trampling by domestic stock;
- Fire;
- Invasion of habitat by introduced weeds; and
- Loss of local genetic strains through hybridisation with commercial variety (NPWS, 2002).

Likelihood of local extinction

The proposed activity will not result in the local extinction of this species as all examples of this species detected on the site are to be retained.

Common name	Scientific name	Legal Status (TSC Act)
Red Lilly Pilly	*Syzygium hodgkinsoniae*	Vulnerable

Habitat description/ life cycle components

Red Lilly Pilly is a small tree with smooth-fibrous to flaky bark to 11m tall. The glabrous leaves are dark green above and paler below (Harden, 1991). The flowers are off-white, fluffy and held in clusters at the ends of stems from February to March. Round, bright red fruit follows (NPWS, 2002).

Red Lilly Pilly is usually found in Riverine and Subtropical rainforest on rich alluvial or basaltic soils (NPWS, 2002).

Sensitivities

The Red Lilly Pilly is at threat from the following:

- Clearing and fragmentation of habitat for development, agriculture, road-works and powerlines;
- Weed infestation and general degradation of rainforest habitat;
- Grazing and trampling by domestic stock;
- Roadside slashing and mowing; and
- Illegal collection for horticulture (NPWS, 2002).

Likelihood of local extinction	The proposed activity will not result in the local extinction of this species as all examples of this species detected on the site are to be retained.

FAUNA

Common name	Scientific name	Legal Status (TSC Act)
Barred Cuckoo-shrike	*Coracina lineata*	Vulnerable

Habitat description/ life cycle components	Flocks travel between food trees, common in northern Australia, less common in this region. Found in coastal rainforest and vine scrubs, nearby eucalypts, paperbarks, plantations and tropical gardens. The Shrike nests from September to March in a shallow saucers of twigs, Casuarina needles and rootlets bound with web in the fork of a tree 15-30 m above the ground (Morecombe, 2000).
Sensitivities	The Barred Cuckoo-shrike is at threat from the following: • Reduction of habitat, particularly rainforest, as a result of clearing for agriculture, development and timber harvesting. (NPWS, 2002).
Likelihood of local extinction	Given the fact that the proposed development does not call for alteration to land on the site that represents potential habitat for the Cuckoo-shrike, namely the forested areas, it is unlikely that the life cycle of this species would be disrupted such that a viable local population could be placed at risk of extinction. Rather, proposed rehabilitation works for the forested areas of the site would likely enhance the overall habitat potential of the location.

Common name	Scientific name	Legal Status (TSC Act)
Rose-Crowned Fruit Dove	*Ptilinopus regina*	Vulnerable

Habitat description/ life cycle components	The Rose-crowned fruit-dove occurs mainly in sub-tropical and dry rainforests and occasionally in moist eucalypt forest and swamp forest, where fruit is plentiful. They are shy pigeons, not easy to see amongst the foliage, and are more often heard than seen. They feed entirely on fruit from vines, shrubs, large trees and palms, and are thought to be locally nomadic as they follow the ripening of fruits. Some populations are migratory in response to food availability – numbers in NE NSW increase during spring and summer then decline in April or May. The

Rose-crowned Fruit-dove occurs throughout coastal Queensland and Northern Territory south to Port Stephens.

Within northeastern NSW this species may be found in eucalypt woodland with scattered small patches of rainforest and also in mangrove forests (Recher *et .al.*, 1995). The Rose-crowned Fruit-dove is a frugivore (fruit eater) that forages mainly in the canopy of mature trees. The species has been identified as utilising a number of exotic species such as Camphor Laurel, Lantana and Wild Tobacco (Recher, *et. al.*, 1995), as well as native species such as the Moreton Bay Fig (Holmes, 1987).

Sensitivities

The Rose-crowned Fruit-dove is at threat from the following:

- Clearing and fragmentation of low to mid-elevation rainforest;
- Logging and roading in moist eucalypt forest with well-developed rainforest understorey;
- Burning of remnant rainforest habitat; and
- Invasion of habitat by introduced weed species.

Likelihood of local extinction

Given that the proposed development does not call for alteration to land on the site that represents potential habitat for the Rose-crowned Fruit Dove, namely the forested areas, it is unlikely that the life cycle of this species would be disrupted such that a viable local population could be placed at risk of extinction. Rather, proposed rehabilitation works for the forested areas of the site would likely enhance the overall habitat potential of the location.

Common name	Scientific name	Legal Status (TSC Act)
White-eared Monarch	*Monarcha leucotis*	Vulnerable

Habitat description/ life cycle components

Found in coastal rainforest, mangroves, swamps and riverine vegetation from northern NSW to north Queensland. Builds nests high in the canopy of rainforest and breeds from September to February (Morecombe, 2000).

Sensitivities

The White-eared Monarch is at threat from the following:

- Clearing and isolation of low-elevation subtropical rainforest, coastal rainforest, and wet and swamp forest resulting from agricultural, tourist and residential development;
- Conversion of multi-aged wet forests to young, even-

aged stands through forestry operations; and
- Weed invasions completely dominating habitats. (NPWS, 2002).

Likelihood of local extinction

Given that the proposed development does not call for alteration to land on the site that represents potential habitat for the White-eared Monarch, namely the forested areas, it is unlikely that the life cycle of this species would be disrupted such that a viable local population could be placed at risk of extinction. Rather, proposed rehabilitation works for the forested areas of the site would likely enhance the overall habitat potential of the location.

Common name	Scientific name	Legal Status (TSC Act)
Beccari's Freetail Bat	*Mormopterus beccarii*	Vulnerable

Habitat description/ life cycle components

Beccari's Freetail-bat occurs throughout New Guinea and northern Australia in desert, semi arid and mesic regions where it forages over rainforests, floodplains, and eucalypt communities. The Freetail Bat hunts above the tree canopy and over rivers. They roost in tree hollows but have been found under roofs (McKenzie, 1995).

Sensitivities

Beccari's Freetail-bat is at threat from the following:
- Clearing of forest and woodland habitat for agricultural, residential and infrastructure development;
- Loss of hollow-bearing trees used for roosting and maternity sites as the result of dieback, too-frequent burning and forest management favouring younger stands; and
- Use of pesticides. (NPWS, 2002).

Likelihood of local extinction

Given that the proposed development does not call for alteration to land on the site that best represents potential habitat for Beccari's Freetail Bat , namely the forested areas, it is unlikely that the life cycle of this species would be disrupted such that a viable local population could be placed at risk of extinction. Rather, proposed rehabilitation works for the forested areas of the site would likely enhance the overall habitat potential of the location.

Common name	Scientific name	Legal Status (TSC Act)
Black Flying-Fox	*Pteropus alecto*	Vulnerable

Habitat description/ life cycle components

Black Flying-foxes are nocturnal animals that spend the day roosting in "camps" in mangrove areas, paperbark swamps or patches of rainforest including tropical, subtropical rainforests and wet sclerophyll forest of the coastal areas of northern Australia. These camps can contain hundreds of thousands of Flying-foxes (Hall, 1995).

The preferred food of the Black Flying-fox is pollen and the nectar from the blossoms of eucalypt, paperbark and turpentine trees, with individuals travelling up to 50 kilometres to feed (Hall, 1995). They also feed on other flowers and fruit, including introduced and commercial fruits like mangoes.

Fruit bats are responsible for pollinating a wide variety of native flowering plants (Hall, 1995). It has also been noted that on rare occasions they may utilise swamp sclerophyll forests as foraging habitat and utilise remnant vegetation as "stepping stones" between feeding grounds.

Mating season occurs from March to April and activity occurs in the camps at this time. The mother carries a single young usually born in October for about one month (Hall, 1995). During the winter months, camps are disbanded and most bats live alone or in small groups preferring to roost amongst dense leaf cover, high in the branches of mangrove and paperbark swamps.

Sensitivities

The Black Flying-fox is at threat from the following:

- Clearing and fragmentation of rainforest and swamp forest remnants used for roost sites, mostly as the result of urban development;
- Loss of forest areas used for feeding, particularly winter feeding areas, through agriculture, intensive forestry and urban development;
- Deliberate destruction and disturbance of flying-foxes including shooting of individuals and harassment and attempted re-location of camps near urban areas;
- Conversion of old-growth forests, woodlands and shrublands to young, even-aged stands as a result of intensive forestry and too frequent burning;
- Invasion of habitat by introduced weeds
- (NPWS, 2002);
- Unregulated shooting by local orchard owners as a

means of controlling crop loss; and
- Electrocution on powerlines due to their large size (Hall, 1995).

Likelihood of local extinction

Given that the proposed development does not call for alteration to land on the site that best represents potential habitat for the Black Flying-fox , namely the forested areas, it is unlikely that the life cycle of this species would be disrupted such that a viable local population could be placed at risk of extinction. Rather, proposed rehabilitation works for the forested areas of the site would likely enhance the overall habitat potential of the location.

Common name	Scientific name	Legal Status (TSC Act)
Common Blossom-bat	*Syconecteris australis*	Vulnerable

Habitat description/ life cycle components

Common Blossom-bats forage in heathlands but roost in rainforest. They roost most commonly in the sub-canopy but occasionally in the canopy. Roosts are amongst large leaves (sometimes dead), often on the growing tips of saplings or amongst dense vines. The combination of heathland and coastal rainforest is essential habitat for this species in northern NSW. Common Blossom-bats have a foraging area of about 13ha of heathland and use the same area each night. Farther north they occur in rainforest, monsoon and paperbark forests (Churchill, 1998).

Sensitivities

The Common Blossom-bat is at threat from the following:
- Clearing of coastal habitat for urban development or sandmining; and
- Weeds, such as Bitou Bush, that suppress the regeneration of key food trees, such as Coastal Banksia (NPWS, 2002).

Likelihood of local extinction

Given that the proposed development does not call for alteration to land on the site that best represents potential habitat for the Common Blossom-bat , namely the forested areas, it is unlikely that the life cycle of this species would be disrupted such that a viable local population could be placed at risk of extinction. Rather, proposed rehabilitation works for the forested areas of the site would likely enhance the overall habitat potential of the location.

Common name	Scientific name	Legal Status (TSC Act)

Casuarina forest (NPWS, 1999b & Australasian Bat Society Inc., 2000).

Sensitivities

The Grey-headed Flying -fox is at threat from the following:

- Clearing and fragmentation of rainforest and other vegetation remnants used for roosting sites, mainly through agriculture and urban development;
- Loss or modification of forest areas used for feeding, particularly winter feeding areas, through agricultural development, intensive forestry and urban development;
- Deliberate destruction and disturbance of flying-foxes, including shooting of individuals and attempted re-location of camps near urban areas;
- Invasion of habitat by introduced weeds; and
- Conversion of old-growth forests, woodlands and shrublands to young, even-aged stands as a result of intensive forestry and too-frequent burning. (NPWS, 2002).

Likelihood of local extinction

As with the Black Flying-fox, given that the proposed development does not call for alteration to land on the site that best represents potential habitat for the Grey-headed Flying-fox, namely the forested areas, it is unlikely that the life cycle of this species would be disrupted such that a viable local population could be placed at risk of extinction. Rather, proposed rehabilitation works for the forested areas of the site would likely enhance the overall habitat potential of the location.

In the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised.

There are no endangered fauna populations, as defined In Part 2 of Schedule 1 of the Threatened Species Conservation Act 1995, at the site and it is unlikely that the life cycle of a species that constitutes such a population will be disrupted.

In relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed.

It cannot be said that, in relation to the regional distribution of the habitat of threatened species, that a significant area of known habitat is to be removed or

Eastern Long-Eared Bat	*Nyctophilus bifax*	Vulnerable

Habitat description/ life cycle components	Inhabits a variety of habitats from rainforests to dry sclerophyll woodlands and is often found among the vegetation along watercourses. Lunney et.al. (1995) notes that rainforest appears to be the most critical habitat for this species in northern NSW. The Long-eared Bat has been recorded roosting in tree hollows and the roofs of buildings. In northern NSW, it has been recorded roosting in dead foliage of rainforests as well as the dead fronds of Bangalow Palms. The species has also been recorded roosting under the bark of paperbarks (State Forests of NSW, 1995).
Sensitivities	The Eastern Long-eared Bat is at risk from the following: • Clearing, fragmentation and isolation of lowland subtropical rainforest, wet and swamp eucalypt forest and coastal scrub, particularly forest and scrub close to the coast, for agricultural, residential and other development; • Loss of hollow-bearing trees and stands of palms and rainforest trees used for roosting and maternity sites; • Invasion of habitat by weeds, particularly by Bitou Bush on the coast; and • Use of pesticides.
Likelihood of local extinction	Given that the proposed development does not call for alteration to land on the site that best represents potential habitat for the Eastern Long-eared Bat , namely the forested areas, it is unlikely that the life cycle of this species would be disrupted such that a viable local population could be placed at risk of extinction. Rather, proposed rehabilitation works for the forested areas of the site would likely enhance the overall habitat potential of the location.

Common name	Scientific name	Legal Status (TSC Act)
Grey-Headed Flying-Fox	*Pteropus poliocephalus*	Vulnerable

Habitat description/ life cycle components	The Grey-headed Flying-fox occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands. They forage on nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and fruits of rainforest trees and vines. They also forage in cultivated gardens and fruit crops. The Grey-headed Flying-fox roosts in large camps up to the tens of thousands, often in stands of riparian rainforest, paperbark or

modified. Rather, the forested area that, for the purposes of this report, is habitat or considered to be potential habitat for some threatened species is to be retained with management strategies incorporated into the development process that will see these areas rehabilitated and enhanced in terms of their potential as habitat.

Whether an area of known habitat is likely to become isolated from currently interconnecting or proximate areas of habitat for a threatened species, population or ecological community.

An area of known habitat is not likely to become isolated from currently interconnecting or proximate areas of habitat as the significant areas of vegetation (i.e. the forested areas) occurring at the site are to be retained and rehabilitated. Development is only proposed for a section of the subject site that was previously cleared for quarrying purposes and is currently overwhelmingly weed infested.

Whether critical habitat will be affected.

Stott's Island (habitat for the endangered Mitchell's Rainforest Snail) and Sydney's North Harbour (habitat for the endangered Little Penguin) are the only critical habitats listed under the TSC Act, therefore the proposed development will not affect critical habitat.

Whether a threatened species, population or ecological community, or their habitats, are adequately represented in conservation reserves (or other similar protected areas) in the region.

It could be argued that none of the threatened species in northern NSW are considered adequately represented in conservation reserves. Nevertheless, all of the species considered in this assessment are found in one or more nature reserves in the region of the proposed development. The following is a summary of where the subject flora and fauna species have been detected previously:

Coolamon
The species has been detected in Nicholls Scrub National Park, Brunswick Heads Nature Reserve, and· Stotts Island Nature Reserve (Briggs and Leigh, 1995).

Rough-shelled Bush Nut
The Rough-shelled Bush Nut is relatively well represented in conservation reserves of the Caldera rim and local rainforest remnant reserves. The species has been detected in Lamington National Park, Natural Arch National Park, Mount Warning National Park, Nightcap National Park, Nicholls Scrub National Park, Davis Scrub Nature Reserve, Limpinwood Nature Reserve, Numinbah Nature Reserve, Victoria Park Nature Reserve, and Minyon Falls Flora Reserve (Briggs and Leigh, 1995).

Red Lilly Pilly
The Red Lilly Pilly is relatively well represented in conservation reserves of the Caldera rim and local rainforest remnant reserves. The species has been detected in Gwongorella National Park, Mount Cougal National Park, Natural Arch National Park, Warrie National Park, Mount Warning national Park, Nightcap National Park, Numinbah Nature Reserve, Brunswick Heads Nature Reserve, · Inner Pocket Nature Reserve, Limpinwood Nature Reserve, Big Scrub Flora Reserve, Boomerang Falls Flora Reserve, and Minyon Falls Flora Reserve (Briggs and Leigh, 1995).

Barred Cuckoo-shrike
The Barred Cuckoo-shrike has been detected previously in Richmond Range National Park and Bundjalung National Park.

Rose-crowned Fruit Dove
The Rose-crowned Fruit-dove is relatively well represented in conservation reserves of the Caldera rim and local rainforest remnant reserves. The species has been detected in Brunswick Nature Reserve, Cudgen Nature Reserve and Broken Head Nature Reserve.

White-eared Monarch
The White-eared Monarch has been detected previously in Nightcap National Park, Border Ranges National Park, Bundjalung National Park and Mount Warning National Park (NPWS, 2000). Additionally, the species has been detected in the Big Scrub Flora Reserve, Richmond Range State Forest, Brunswick Heads Nature Reserve, Cudgen Nature Reserve and Victoria Park Nature Reserve.

Beccari's Freetail Bat
Beccari's Freetail Bat has been detected previously in Ukerebagh Nature Reserve, Tweed Estuary Nature Reserve, Cudgen Nature Reserve and Stotts Island Nature Reserve.

Black Flying-fox
The Black Flying Fox has been recorded at the Border Ranges National Park, Broadwater National Park and Bundjalung National Park. It has also been detected in Boatharbour Nature Reserve, Wilson Nature Reserve, Ballina Nature Reserve and the Tweed Estuary Nature Reserve.

Common Blossom-bat
The Common Blossom-bat has been recorded at Broadwater National Park, Bundjalung National Park, Mt Warning National Park, Yuraygir National Park, Iluka Nature Reserve, Cudgen Nature Reserve, Tyagarah Nature Reserve, Brunswick Heads Nature Reserve, Broken Head Nature Reserve, Limeburners Creek Nature Reserve and Cape Byron State Conservation Area.

Eastern Long-eared Bat
The Eastern Long-eared Bat has been detected previously in Nightcap National Park, Bundjalung National Park, Border Ranges National Park, Booyong Recreation Reserve, Whian Whian State Forest, Victoria Park Nature Reserve, Tyagarah Nature Reserve, Wilson Nature Reserve, Brunswick Heads Nature Reserve and Cape Byron State Conservation Area.

Grey-headed Flying-fox
Grey-headed Flying Foxes are currently found along the east coast of Australia from Bundaberg to Melbourne. In northern NSW, the western boundary reaches the western slopes, however in the south it is confined to a narrow band east of the escarpment. In NSW, Grey-headed Flying Foxes have been recorded in numerous conservation reserves along the east coast, and the tablelands and eastern slopes of the Great Dividing Range (NPWS, 2001). The Grey-headed Flying-fox has been detected in Ballina Nature Reserve and the Tweed Estuary Nature Reserve.

Whether the development or activity proposed is of a class of development or activity that is recognised as a threatening process,

The TSC Act lists the following threatening processes:
- Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands (as described in the final determination of the Scientific Committee to list the threatening process)
- Human Caused Climate Change
- Bush rock removal (as described in the final determination of the Scientific Committee to list the threatening process)
- Clearing of native vegetation (as defined and described in the final determination of the Scientific Committee to list the key threatening process)
- Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)
- High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition
- Invasion of native plant communities by *Chrysanthemoides monilifera*
- Loss or degradation (or both) of sites used for hill-topping by butterflies
- Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish) (as described in the final determination of the Scientific Committee to list the threatening process)
- Predation by the European Red Fox *Vulpes vulpes* (Linnaeus, 1758)
- Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)
- Predation by the Ship Rat *Rattus rattus* on Lord Howe Island

The proposed development is not considered a threatening process as defined above. Some clearing of the subject site will occur but the project plans are for clearing to occur in an area of previously cleared land (i.e. the area of the old quarry) that is currently infested with introduced weep species rather than

containing native vegetation. It should be noted that the development proposal calls for areas of existing native vegetation occurring on the site to be rehabilitated as part of a community title agreement or the like.

Whether any threatened species, population or ecological community is at the limit of its known distribution.

The Coolamon occurs in the Richmond, Tweed and Brunswick Valleys in north – eastern NSW. It has a limited occurrence in south-east QLD with a northern limit to the Mudgeeraba area (NPWS, 2002; Harden, 1991). Hence it is not at the limit of its known habitat

The Rough-shelled Bush Nut native to south-eastern QLD and north-eastern NSW (north from Rous near Lismore to Mt Tambourine), growing in subtropical rainforests usually near the coast. Hence it is not at the limit of its known habitat

The red Lilly Pilly occupies a restricted range from the Richmond River in north-eastern NSW to Gympie in QLD. It can be locally common in parts of its range, but it is otherwise sparsely distributed (NPWS, 2002). However, it is not at the limit of its known habitat.

A number of the listed fauna species that are considered to have potential to occur at the subject site are nearing the southern most limit of their distribution. The pattern of distribution for these species is as follows:

- Barred Cuckoo-shrike occurs as far south as northern NSW (Simpson and Day, 1996);
- The Rose-crowned Fruit Dove occurs as far south as northern NSW (Simpson and Day, 1996);
- The White-eared Monarch occurs as far south as northern NSW (Simpson and Day, 1996);
- Beccari's Freetail-bat occurs as far south as the north east corner of NSW (NPWS, 2002).
- The Black Flying-fox occurs as far south as near Coffs Harbour in NSW (Strahan, 1995);
- The Common Blossom-bat occurs as far south as near Port Macquarie in NSW (Strahan, 1995); and
- The Eastern Long-eared Bat is distributed along the east coast of Australia from Cape York to northern NSW (Churchill, 1998).

Other listed species listed in Table 5 as potentially occurring at the subject site are not at their known limit of distribution in the vicinity of the subject site.

5.2 NSW Threatened Species Conservation Act 1995

The objectives of the TSC Act are:

- To conserve biological diversity and promote ecologically sustainable development;
- To prevent the extinction and promote the recovery of threatened species, populations and ecological communities;
- To protect the critical habitat of those threatened species, populations and ecological communities that are endangered;
- To eliminate or manage certain processes that threaten the survival or evolutionary development of threatened species, populations and ecological communities;
- To ensure that the impact of any action affecting threatened species, populations and ecological communities is properly assessed; and
- To encourage the conservation of threatened species, populations and ecological communities by the adoption of measures involving co-operative management.

Section 94 lists the eight-part test of significance to determine whether an action is likely to significantly affect threatened species, populations or ecological communities, or their habitats. The appropriate provisions prescribed in Section 94 are identical to those found in the EP&A Act, 1979 and have been addressed in Section 5 above.

5.3 NSW Fisheries Management Act 1994

The *Fisheries Management Act 1994* aims to protect fish and fish stocks and protect threatened species, populations and ecological communities of fish and marine vegetation. The Act lists (Section 220C - Schedules 4 & 5) the following endangered and vulnerable species, populations and communities:

Endangered species (Part 1 of Schedule 4)

Fish

**Carcharias taurus*	Grey Nurse Shark
Craterocephalus fluviatilis	Murray Hardyhead
**Maccullochella ikei*	Eastern Freshwater Cod
**Maccullochella macquariensis*	Trout Cod
**Nannoperca oxleyana*	Oxleyan Pygmy Perch
Notopala sublineata	River Snail
Pristis zijsron	Green Sawfish

*indicates species listed as threatened in the *Environmental Protection and Biodiversity Conservation Act, 1999*

Endangered populations (Part 2 of Schedule 4)

Ambassis agassizii (Steindachner, 1866) Olive Perchlet, western NSW population.
Mogurnda adspersa (Castelnau, 1878) Purple Spotted Gudgeon, western NSW population.

Endangered ecological communities (Part 3 of Schedule 4)

Aquatic ecological community in the natural drainage system of the lower Murray River catchment (as described in the recommendation of the Fisheries Scientific Committee to list the ecological community).

Aquatic ecological community in the natural drainage system of the lowland catchment of the Darling River (as described in the recommendation of the Fisheries Scientific Committee to list that aquatic ecological community, as the area covered by that recommendation).

Vulnerable species (Schedule 5)

Fish

Archaeophya adamsi	Adams Emerald Dragonfly
Bidyanus bidyanus	Silver Perch
Branchinella buchananensis	Buchanans Fairy Shrimp
**Carcharodon carcharias*	Great White Shark
Epinephelus daemelii	Black Cod
Macquaria australasica	Macquarie Perch
Nannoperca australis	Southern Pygmy Perch

*indicates species listed as threatened in the *Environmental Protection and Biodiversity Conservation Act, 1999.*

None of these species are likely to occur at the subject site therefore the proposed activity will not result in a significant effect on their lifestyle or habitat. There is also no likelihood of impacts on marine vegetation from the proposed development.

The proposed development does not represent a threatening process under the Act. Threatening processes listed include:

- Degradation of native riparian vegetation along NSW watercourses.
- Installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams.
- Introduction of fish to waters within a river catchment outside their natural range.
- Removal of large woody debris
- Cold water pollution.
- River regulation and environmental flow.

5.4 Environmental Protection and Biodiversity Conservation Act 1999

The Commonwealth mechanism for national environment protection and biodiversity conservation is the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act provides for:

- Identification and listing of Threatened Species and Threatened Ecological Communities;
- Development of Recovery Plans for listed species and ecological communities;
- Recognition of Key Threatening Processes; and where appropriate; and
- Reducing these processes through Threat Abatement Plans.

The EPBC Act identifies that a person must not, without approval under the act, take an action that has or will have, or is likely to have a significant impact on a matter of National Environmental Significance (NES). NES matters include:

- The world heritage value of a declared World Heritage property;
- The ecological character of a declared Ramsar wetland;
- A threatened species or endangered community listed under the Act;
- A migratory species listed under the Act;
- A nuclear action; and
- An action in a Commonwealth marine area or on Commonwealth land that has or will have, or is likely to have a significant impact on the environment.

Table 6 summarises the assessment of the proposed development with regard to the EPBC Act.

Table 6. Assessment of Impacts of the Proposed Activity on NES Matters as Described in the EPBC Act

NES Matter	Impact	Comment
World Heritage	No	The site is not a World Heritage property and the proposed activity will not impact on any World Heritage property.
Ramsar wetlands	No	The site is not a Ramsar wetland or located near a Ramsar wetland.
Threatened species or endangered communities	No	All nationally listed species and communities are also listed on the TSC Act. Impacts on these species are discussed in detail previously in Section 5.
Migratory species	No	The subject site does not provide high conservation value habitat for migratory species.
Nuclear action	No	The proposal does not include any nuclear action.
Impact on Commonwealth land	No	The proposal is not on Commonwealth land.

6. Impacts and Amelioration

Due to the sensitivity of the site, this detailed flora and fauna assessment under Section 5A of the *NSW Environmental Planning and Assessment Act 1979* was conducted and is to be lodged with the Development Application.

As the proposed development will almost exclusively be undertaken on the previously cleared area of land (Area 1), that was formerly used as a quarry and is now largely weed infested, it is considered that potential adverse impacts on flora and fauna, particularly listed threatened flora occurring at the site and fauna potentially occurring on the site, are minimal.

The retention and proposed ongoing management of the forested areas surrounding the previously cleared quarry site (Areas 2, 3 and 4) will ensure that a majority of the preferred habitat for threatened flora and fauna species potentially occurring on the site is maintained.

Those fauna species detected (using Elliott traps during the site survey) in the grassland proposed for development typically occur in a range of vegetation communities that have a dense understorey and it is likely that the proposed works will simply result in these animals being displaced to the neighbouring forested areas. As a precautionary measure, and considering the fact that a reasonably large number of individual animals were captured during sampling, a programme of trapping and relocating animals to nearby suitable habitat is recommended for the period immediately prior to site works. Additionally, it is recommended that an ecologist be on hand during initial site clearing works in the case that any of the ground dwelling animals are disturbed and/or injured.

The following section outlines management strategies recommended in order to minimise adverse impacts and maintain the habitat values of the site.

6.1 Recommendations

It is recommended that the following actions be undertaken prior to, and during, potential development of the site:

- Native vegetation in Areas 2, 3 and 4 to be retained and an ecological restoration program for the management of these areas be developed and implemented ;
- Areas 2, 3 and 4 are to be to be developed under a Section 88B instrument or the like which will include provisions to permanently protect the threatened species occurring in these areas (i.e. the Coolamon, the Rough-shelled Bush Nut and the Red Lilly Pilly);
- At least a 10 m buffer to be provided between any of the Coolamon, Rough-shelled Bush Nut and Red Lilly Pilly plants present in Area 4 and any development. No earthworks, construction, clearing, stockpiling of material etc. is allowed in the buffer;
- All the buffers should be clearly identified during site works with flagging tape, a temporary fence or similar;
- A programme of trapping and relocating animals to nearby suitable habitat to be implemented for the period immediately prior to site works; and
- an ecologist to be present during initial site clearing works in the case that any animals utilising the site are disturbed and/or injured.

7. Conclusion

This detailed flora and fauna assessment under Section 5A of the *NSW Environmental Planning and Assessment Act 1979* has been prepared to provide information to assist with the application for rezoning of Lot 16 DP 856265 Terranora Road, Banora Point. It is submitted that:

- The criteria contained in SEPP 44 have been addressed and a Koala Management Plan is not required;

- A number of listed plant species have been detected at the site and a number of threatened fauna species potentially occur at the site. As a result, various management strategies have been recommended to retain all significant habitat at the site so as to minimise any potential impacts on these species. Consequently, the development will not result in a significant effect (as described in Section 5A of the EP&A Act) on a threatened species (as listed in the TSC Act). Therefore, a Species Impact Statement is not required;

- The proposed development will not result in a significant effect on the threatened species listed in the *NSW Fisheries Management Act 1994*, therefore a Species Impact Statement is not required;

- The proposed development will not have a significant impact on matters of NES as described in the EPBC Act and therefore does not need to be referred to the Minister;

- The forest vegetation on the site is to be largely retained apart from Area 1 which is already cleared and weed infested; and

- Long term protection of the retained forested land will be ensured via the instigation of an Environmental Management Plan to be administered by the Body Corporate or other formal arrangement.

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9. Appendices

9.1 Appendix A – Native Flora Species Detected

Area 1

Native Flora Survey: Lot 16 DP 856265, 225 Terranora Road, Banora Point, 2486 NSW
Prepared by: D. Roche, J. Farrell and P. Poroprat
Methods: Walking survey
Duration:
Date: 21/22-1-04

Botanical Name	Common Name	Abundance (Very Common, Common, Occasional, Infrequent
Upper Storey		
Casuarina glauca	Swamp Oak	I
Acacia melanoxylon	Black Wattle	VC
Macaranga tanarius	Macaranga	C
Guioa semiglauca	Guioa	C
Araucaria cunninghamii	Hoop Pine	I
Glochidion ferdanandi	Cheese Tree	I
Mid Storey		
Omolanthus populifolius	Bleeding Heart	I
Cupaniopsis anacardioides	Tuckeroo	I
Lower Storey		
Stephania japonica	Snake Vine	O
Rubus sp.	Native Rasberry	O
Phragmites australis	Common Reed	O
Pteridium esculentum	Bracken Fern	O
Imperata cylindrica	Blady Grass	O

Key: # threatened species listed in the TSC Act 1995
* ROTAP listed species (Briggs & Leigh, 1995)

Area 2

Native Flora Survey: Lot 16 DP 856265, 225 Terranora Road, Banora Point, 2486 NSW
Prepared by: D. Roche, J. Farrell and P. Poroprat
Methods: Walking survey
Duration:
Date: 21/22-1-04

Botanical Name	Common Name	Abundance (Very Common, Common, Occasional, Infrequent
Upper Storey		
Acacia melanoxylon	Black Wattle	VC
Guioa semiglauca	Gioa	VC
Mallotus philippensis	Red Kamala	O
Macaranga tanarius	Macaranga	VC
Mid Storey		
Acacia melanoxylon	Blackwood	C
Glochidion sumatranum	Umbrella Cheese Tree	O
Guioa semiglauca	Guioa	VC
Archontophoenix cunninghamiana	Bangalow Palm	O
Commersonia bartramia	Brown Kurrajong	O
Cupaniopsis anacardioides	Tuckeroo	O
*Cupaniopsis newmanii**	Long-leaved Tuckeroo	I
Elaeocarpus obovatus	Hard Quandong	I
Ficus coronata	Creek Sandpaper Fig	O
Jagera pseudorhus	Foambark	O
Macaranga tanarius	Macaranga	C
Mallotus philippensis	Red Kamala	O
Omolanthus populifolius	Bleeding Heart	O
Pittosporum undullatum	Sweet Pittosporum	O
Diosporus fasciculosa	Grey Ebony	I
Lepiderema pulchella	Fine-leaved Tuckeroo	I
Glochidion ferdinandi	Cheese Tree	O
Streblus brunonianus	Whalebone Tree	I
Ficus virens	White Fig	I
Dysoxylum fraserianum	Rosewood	I
Dysoxylum muelleri	Red Bean	I
Claoxylon australe	Brittlewood	I
Dysoxylum rufum	Hairy Rosewood	I
Cryptocarya obovata	Pepperberry	I
Sarcopteryx stipata	Steelwood	I
Sloanea australis	Maiden's Blush	I

Botanical Name	Common Name	Abundance (Very Common, Common, Occasional, Infrequent
Acalypha capillipes	Small-leaved Acalypha	I
Ehretia acuminata	Koda	I
Arytera distylis	Twin-leaved Coogera	I
Rapanea variabilis	Muttonwood	I
Pilidiostigma glabrum	Plum Myrtle	I
Aphananthe philippinensis	Rough-leaved Elm	I
Lower Storey		
Breynia oblongifolia	Coffee Bush	O
Cyathea cooperi	Straw Treefern	I
Wikstroemia indica	Thai Bush	O
Austromyrtus dulcis	Midgen Berry	O
Groundlayer/Vines		
Geitonoplesium cymosum	Scrambling Lily	
Maclura cochinchinensis	Cockspur	
Oplismenus sp.	Basket Grass	
Alpinia caerulea	Native Ginger	O
Commelina cyanea	Hairy Commelina	C
Derris involuta	Native Derris	O
Hibbertia scandens	Climbing Guinea Flower	O
Smilax australis	Smilax	O
Platycerium bifurcatum	Elkhorn	I
Ghania sp.		I
Lycopodium cernuum	Scrambling Clubmoss	I
Gleichenia dicarpa	Coral Fern	I
Sticherus flabellatus	Umbrella Fern	I
Christella dentata		I
Adiantum hispidulum	Rough Maidenhair	C - O

Key: # threatened species listed in the TSC Act 1995
* ROTAP listed species (Briggs & Leigh, 1995)

Area 3

Native Flora Survey: Lot 16 DP 856265, 225 Terranora Road, Banora Point, 2486 NSW
Prepared by: D. Roche, J. Farrell and P. Poroprat
Methods: Walking survey
Duration:
Date: 21/22-1-04

Botanical Name	Common Name	Abundance (Very Common, Common, Occasional, Infrequent
Upper Storey		
Macaranga tanarius	Macaranga	C
Acacia melanoxylon	Black Wattle	C
Guioa semiglauca	Guioa	C
Cupaniopsis anacardioides	Tuckeroo	O
Ficus fraseri	Sandpaper Fig	O
Glochidion sumatranum	Umbrella Cheese Tree	O
Archontophoenix cunninghamiana	Bangalow Palm	O
Mid Storey		
Glochidion sumatranum	Umbrella Cheese Tree	O
Guioa semiglauca	Guioa	O
Archontophoenix cunninghamiana	Bangalow Palm	O
Mallotus philippensis	Red Kamala	O
Omolanthus populifolius	Bleeding Heart	O
Amorphospermum antilogum	Brown Pearwood	I
Mallotus discolor	Yellow Kamala	I
Dysoxylum muelleri	Red Bean	O
Breynia oblongifolia	Breynia	C
Streblus brunonianus	Whalebone Tree	O
Arytera distylis	Twin-leaved Coogera	I
Groundlayer/Vines		
Cissus antarctica	Water Vine	O
Cyathea cooperi	Hairy Treefern	I
Parsonsia straminea	Common Silkpod	C
Maclura cochinchinensis	Cockspur	VC
Mucuna gigantea	Burny Bean	
Rubus rosifolius	Rose-leaf Bramble	

Key: # threatened species listed in the TSC Act 1995
* ROTAP listed species (Briggs & Leigh, 1995)

Area 4

Native Flora Survey: Lot 16 DP 856265, 225 Terranora Road, Banora Point, 2486 NSW
Prepared by: D. Roche, J. Farrell and P. Poroprat
Methods: Assessment and walking survey, mainly
Duration:
Date: 21/22-1-04

Botanical Name	Common Name	Abundance (Very Common, Common, Occasional, Infrequent	Botanical Name	Common Name	Abundance (Very Common, Common, Occasional, Infrequent
Upper Storey					
Sloanea woollsii	Yellow Carabeen	O	*Acmena brachyandra*	Red Apple	I
Pentaceras australe	Crow's Ash	O	*Argyrodendron trifoliolatum*	White Booyong	O
Macadamia tetraphylla#	Rough-shelled Bush Nut	O	*Baloghia lucida*	Brush Bloodwood	C
Guioa semiglauca	Guioa	C	*Jagera pseudorhus*	Foam Bark Tree	C
Mallotus discolor	Yellow Kamala	O	*Ficus fraseri*	Sandpaper Fig	O
Gmelina leichhardtii	White Beech	I	*Cryptocarya obovata*	Pepperberry	C
Syzygium moorei#	Coolamon	O			
Mid Storey					
Acacia melanoxylon	Blackwood	VC	*Dysoxylum muelleri*	Red Bean	C
Glochidion sumatranum	Umbrella Cheese Tree	C	*Clerodendrum floribundum*	Smooth Clerodendrum	O
Guioa semiglauca	Guioa	VC	*Syzygium hodgkinsoniae#*	Red Lilly Pilly	I
Archontophoenix cunninghamiana	Bangalow Palm	O	*Cryptocarya triplinervis*	Three-veined Cryptocarya	O
Commersonia bartramia	Brown Kurrajong	O	*Dysoxylum fraserianum*	Rosewood	O
Cupaniopsis anacardioides	Tuckeroo	O	*Croton verreauxii*	Native Cascarilla	O
Elaeocarpus obovatus	Hard Quandong	O	*Sarcopteryx stipata*	Steelwood	O
Ficus coronata	Creek Sandpaper	O	*Capparis aborea*	Capparis	O

Botanical Name	Common Name	Abundance (Very Common, Common, Occasional, Infrequent	Botanical Name	Common Name	Abundance (Very Common, Common, Occasional, Infrequent
	Fig				
Jagera pseudorhus	Foambark	C	*Sarcomelicope simplicifolia*	Yellowwood	O
Macaranga tanarius	Macaranga	VC	*Aphananthe philippinensis*	Rough-leaved Elm	O
Mallotus philippensis	Red Kamala	C	*Endiandra prbens*	Hairy Walnut	O
Omolanthus populifolius	Bleeding Heart	C	*Streblus brunonianus*	Whalebone Tree	O
Wilkiea huegeliana	Veiny Wilkiea	O	*Neolitsea dealbata*	White Bolly Gum	C
Croton verreauxii	Native Cascarilla	O	*Litsea reticulata*	Bolly Gum	O
Cassine australis	Red Olive Plum	O			
Archidendron muellerianum *	Veiny Lace Flower	I			
*Cupaniopsis newmanii**	Long-leaved Tuckeroo	I			
Symplocos thwaitesii	Buff Hazelwwood	I			
Lower Storey					
Eustrephus latifolius	Wombat Berry	C	*Dysoxylum muelleri*	Red Bean	O
Breynia oblongifolia	Coffee Bush	C	*Diospyrus pentamera*	Myrtle Ebony	I
Canthium lamprophyllum	Large-leaved Canthium	O	*Elattostachys nervosa*	Green Tamarind	I
Cordyline petiolaris	Broad-leaved Palm Lilly	O	*Hedraianthera porphyropetala*		O
Hedraianthera porphyropetala	Hedraianthera	O	*Lepiderema pulchella*	Fine-leaved Tuckeroo	O
Pilidiostigma glabrum	Plum Myrtle	C	*Cinnamomum virens*	Red-barked Sassafras	O
Pittosporum undulatum	Sweet Pittosporum	C	*Trema aspera*	Poison Peach	O
Rapanea variabilis	Muttonwood	O	*Bridelia exaltata*	Brush Ironbark	C
Rubus hilli	Native Raspberry	C	*Argyrodendron trifoliolatum*	White Booyong	O
Cryptocarya laevigata	Glossy-leaved Laurel	O	*Austromyrtus hillii*	Scaly Myrtle	O
Acmena smithii	Lilly Pilly	O	*Floydia praelta*	Ball Nut	I
Groundlayer/Vines					
Cissus antarctica	Water Vine	O	*Smilax australis*	Native Sarsparilla	O

Botanical Name	Common Name	Abundance (Very Common, Common, Occasional, Infrequent	Botanical Name	Common Name	Abundance (Very Common, Common, Occasional, Infrequent
ODerris involuta	Native Derris	C	*Adiantum hispidulum*	Black Coral Fern	
Dioscorea transversa	Native Yam	O	*Pseuderanthemum variabile*	Pastel Flower	C
Geitonoplesium cymosum	Scrambling Lily	C	*Milletia megasperma*	Native Wisteria	
Maclura cochinchinensis	Cockspur	C	*Hibbertia scandens*	Climbing Guinea Flower	C
Oplismenus sp.	Basket Grass	C	*Cordyline petiolaris*	Broad-leaved Palm Lilly	
Parsonsia straminae	Common Silkpod	O			

Key: # threatened species listed in the TSC Act 1995
* ROTAP listed species (Briggs & Leigh, 1995)

9.2 Appendix B – Environmental Weed Species Detected

Area 1

Weed Survey: Lot 16 DP 856265, 225 Terranora Road, Banora Point, 2486 NSW
Prepared by: D. Roche, J. Farrell and P. Poroprat
Methods: Walking survey
Date: 21/22-1-04

Common Name	Botanical Name	Abundance (Very Common, Common, Occasional, Infrequent	Form/strata position	Common Name	Botanical Name	Abundance (Very Common, Common, Occasional, Infrequent	Form/strata position
Camphor Laurel	*Cinnamomum camphora*	C	Upper	Coastal Morning Glory	*Ipomoea cairica*	VC	Vine
Cobbler's Pegs	*Bidens pilosa*	VC	Ground	Hairy Commelina	*Commelina benghalensis*	C	Ground
Crofton Weed	*Ageratina adenophora*	O	Ground	Kikuyu	*Pennisetum clandestinum*	VC	Ground
Dandelion	*Taraxacum officinale*	C	Ground	Rag Weed	*Ambrosia artemisiifolia*	VC	Ground
Droopy Head	*Erechites valerianifolia*	O	Ground	Siratro	*Macroptilium atropurpureum*	O	Vine
Fleabane	*Conyza sp*	O	Mid-ground	Green Desmodium	*Desmodium intortum*	O	Vine
Lantana	*Lantana camara*	VC	Mid	Rhodes Grass	*Chloris sp.*	VC	Ground
Paddy's Lucerne	*Sida rhombifolia*	C	Ground	Cotton Bush	*Gomphocarpus physocarpus*	C	Ground
Paspalum	*Paspalum dilatum*	VC	Ground	Setaria	*Setaria sp.*	C	Ground
Purple Top	*Verbena bonariensis*	C	Ground	Whisky Grass	*Agrostis capillaris*	C	Ground
Silver leaved Desmodium	*Desmodium uncinatum*	C	Vine/ground	Parramatta Grass	*Sporobolus africanus*	C	Ground
Tobacco-wild	*Solanum mauritianum*	C	Mid		*Xanthium sp.*	C	Ground
Blue Billy Goat	*Ageratum houstonianum*	O	Ground	Barner Grass	*Pennisetum sp.*	C	Ground

Common Name	Botanical Name	Abundance (Very Common, Common, Occasional, Infrequent	Form/strata position	Common Name	Botanical Name	Abundance (Very Common, Common, Occasional, Infrequent	Form/strata position
Winter Senna	*Senna pendula var. glabrata*	O	Ground/ mid	Panic Grass	*Panicum sp.*	C	Ground
Gold Fern	*Pityrogramma austroamericana*			Wild Sorghum	*Sorghum sp.*	O	Ground

Area 2

Weed Survey: Lot 16 DP 856265, 225 Terranora Road, Banora Point, 2486 NSW
Prepared by: D. Roche, J. Farrell and P. Poroprat
Methods: Walking survey
Date: 21/22-1-04

Common Name	Botanical Name	Abundance (Very Common, Common, Occasional, Infrequent	Form/strata position	Common Name	Botanical Name	Abundance (Very Common, Common, Occasional, Infrequent	Form/strata position
Asparagus-Fern	*Protoasparagus africanus*	I	Ground cover	Coastal Morning Glory	*Ipomoea cairica*	C	Vine
Blackberry Nightshade	*Solanum nigrum*	O	Ground	Molasses Grass	*Melinis minutiflora*	C	Ground
Camphor Laurel	*Cinnamomum camphora*	VC	Canopy/ mid	Burr	*Xanthium sp.*	C	Ground
Cobbler's Pegs	*Bidens pilosa*	O – C	Ground	Groundsel Bush	*Baccharis halimifolia*	O	Mid-storey
Corky Passionfruit	*Passiflora suberosa*	O	Vine	Climbing Nightshade	*Solanumseaforthianum*	O	Vine
Crofton Weed	*Ageratina adenophora*	O	Ground	Green Desmodium	*Desmodium intortum*	O	Vine
Droopy Head	*Erechites valerianifolia*	I	Ground	Gold Fern	*Pityrogramma* austroamericana	I	Ground
Lantana	*Lantana camara*	VC	Mid-storey	Climbing Asparagus	*Protoasparagus plumosis*		
Mist Flower	*Ageratina riparia*	C – VC	Ground	Slash Pine	*Pinus elliottii*	I	Canopy
Ochna	*Ochna*	O	Mid	Singapore		I - C	Ground

Common Name	Botanical Name	Abundance (Very Common, Common, Occasional, Infrequent	Form/strata position	Common Name	Botanical Name	Abundance (Very Common, Common, Occasional, Infrequent	Form/strata position
	serrulata			Daisy			
Orange Jessamine	*Murraya paniculata*	I	Ground/ mid	Setaria Grass	*Setaria sp.*	O	Ground
Paddy's Lucerne	*Sida rhombifolia*	C	Ground	Whisky Grass	*Agrostis capilearis*	C	Ground
Passionfruit	*Passiflora edulis*	I	Vine	Paspalum Grass	*Paspalum sp.*	C	Ground
Purple Top	*Verbena bonariensis*	O		Guava	*Psidium guajava*	I	Small tree/shrub
Senna-winter	*Senna pendula var glabrata*	C	Mid-storey	Brazilian Cherry	*Eugenia uniflora*	I	Small tree/shrub
Silver leaved Desmodium	*Desmodium uncinatum*	C	Vine				
Tobacco-wild	*Solanum mauritianum*	O	Mid-storey				
Tropical Chickweed	*Drymaria cordata subsp. Diandra*	O	Ground				
Umbrella Tree	*Schefflera actinophylla*	O	Mid-storey				
White Passionflower	*Passiflora subpeltata*	C	Vine				

Area 3

Weed Survey: Lot 16 DP 856265, 225 Terranora Road, Banora Point, 2486 NSW
Prepared by: D. Roche, J. Farrell and P. Poroprat
Methods: Walking survey
Date: 21/22-1-04

Common Name	Botanical Name	Abundance (Very Common, Common, Occasional, Infrequent	Form/strata position
Lantana	*Lantana camara*	VC	Mid/lower
Orange Jessamine	*Murraya paniculata*	O	Shrub, seedlings/ground
Tobacco-wild	*Solanum mauritianum*	C	Tree/Upper, mid, lower
White Passionflower	*Passiflora subpeltata*	C	Upper, mid, ground
Elephant Barny Grass	*Pennisetum sp.*	C	
Burr	*Xanthium sp.*	C	
Corky Passion Flower	*Passiflora suberosa*	C	Vine/Upper, mid, ground
Coastal Morning Glory	*Ipomoea cairica*	VC	Vine/Upper, mid, ground
Green Desmodium	*Desmodium intortum*	C	Vine/mid, ground
Molases Grass	*Melinis* minutiflora	VC	
Groundsel Bush	*Baccharis halimifolia*		

Area 4

Weed Survey: Lot 16 DP 856265, 225 Terranora Road, Banora Point, 2486 NSW
Prepared by: D. Roche, J. Farrell and P. Poroprat
Methods: Walking survey
Date: 21/22-1-04

Common Name	Botanical Name	Abundance (Very Common, Common, Occasional, Infrequent	Form/strata position
Blackberry Nightshade	*Solanum nigrum*	C	Ground
Camphor Laurel	*Cinnamomum camphora*	VC	Ground, middle layer, canopy
Cobbler's Pegs	*Bidens pilosa*	VC	Ground
Corky Passionfruit	*Passiflora suberosa*	C	Canopy, ground
Crofton Weed	*Ageratina adenophora*	C	Ground
Droopy Head	*Erechites valerianifolia*	C	Ground
Fleabane	*Conyza sp*	VC	Ground
Lantana	*Lantana camara*	VC	Ground, middle layer
Mist Flower	*Ageratina riparia*	C	Ground
Ochna	*Ochna serrulata*	C	Ground
Senna-winter	*Senna pendula var glabrata*		
Tobacco-wild	*Solanum mauritianum*		
Umbrella Tree	*Schefflera actinophylla*		
White Passionflower	*Passiflora subpeltata*		
Climbing asparagus	*Protoasparagus plumosus*	C	Canopy

9.3 Appendix C – Fauna Habitat Conservation Values

The conservation categories in regard to fauna habitat listed below and their specifications are based on Gilmore, *et als* (1985).

1. High Conservation Value

Good vegetative structure
Low degradation due to exotic species occurrence
Observed or good potential habitat for a diversity of fauna including endangered fauna
Good diversity of habitat type
Above 4 hectares in size
Is linked or provides link to other areas of significant habitat
Functioning as an important corridor for fauna
Contains vegetation communities or associations of regional, state or national significance

2. Medium Conservation Value

Recognisable vegetative structure
Some degradation due to exotic species occurrence
Unlukely to provide significant habitat for endangered fauna
Low diversity of habitat types
1 to 4 hectares in size
Is linked or provides links to other areas of habitat
Functioning as a corridor for fauna
Good potential for rehabilitation
Contains vegetation communities or associations of local and in some cases regional significance

3. Low Conservation Value

Poor vegetative structure
Highly degraded due to exotic species and grazing and/or logging
Very highly unlikely to provide habitat for endangered fauna
Poor or no habitat diversity
< 1 hectare in size
Not functioning as a viable corridor or has low value as a fauna corridor
Poor rehabilitation potential

Vegetation communities or associations not considered of local, regional or national significance

The following is a response to the matters raised of an ecological nature by Tweed Shire Council in its correspondence of 10 September 2016 as presented below:

2. BIODIVERSITY

2.1 Drainage lines/freshwater wetlands

There are two defined drainage lines traversing the site, with associated depressions supporting freshwater wetland vegetation. The location of these drainage lines and depressions needs to be mapped in relation to the lot pattern depicted in the concept plan of subdivision, and an assessment undertaken of their biodiversity and/or habitat value. The assessment would need to include evaluation of any required or proposed alterations to those drainage lines / depressions, and address any potential impacts on downstream vegetation communities.

Comment

Drainage Line / Depression 1: The subject area is located within the eastern sections of the site and generally runs in a north to south directly adjacent to the forested areas of Community 2 (refer to Attachment 1).

Image 1: Images of mapped Drainage Line / Depression 1

The majority of the depressed area is regularly slashed / maintained (refer to the above images). Residual vegetation which is not subject to the slashing contains Bana Grass (*Pennisetum purpureum*), Guinea Grass (*Megathyrsus maximus*) and Common Reed (*Phragmites australis*).

It is noted that no areas contained flowing water during the site inspection even though 16.4ml of rainfall fell within the locality the preceding day (recorded at Coolangatta Airport). Only a minor area of the drainage line / depression contained soakage. It is also noted that no amphibians were recorded vocalising throughout the area.

Considering that the area is regularly slashed / maintained and only minor areas contain soakage it is considered that the drainage line / depressed area is of low value and does not provide significant ecological values.

It is highly unlikely that any impacts will arise on external vegetation communities as a result of the development given the provided ecological buffers. Additionally, management measures during the construction phase of the development (i.e. installation of sediment fencing) will ensure that no impacts will arise on external vegetation communities.

Drainage Line / Depression 2: The subject area occurs within the southwestern sections of the site and generally runs in a north to south direction.

Image 2: Images of mapped Drainage Line / Depression 2

Similarly to the previous drainage line / depressed area, the majority of the area is regularly slashed / maintained. Residual vegetation which is not subject to the slashing is primarily dominated by weed species. Grass species recorded includes Bana Grass (*Pennisetum purpureum*), Guinea Grass (*Megathyrsus maximus*) and Common Reed (*Phragmites australis*). Other vegetation recorded throughout the area includes Macaranga (*Macaranga tanarius*), Black Wattle (*Acacia melanoxylon*) and Bracken (*Pteridium esculentum*).

As previous stated, exotic species dominated this area and includes Lantana (*Lantana camara*), Blue Billygoat Weed (*Ageratum houstonianum*), Cobbers Pegs (*Bidens pilosa*), Easter Cassia (*Senna pendula var. glabrata*), Devil's Fig (*Solanum chrysotrichum*), Wild Tobacco (*Solanum mauritianum*) etc.

No areas contains flowing water even though 16.4ml of rainfall fell in the locality the preceding day (recorded at Coolangatta Airport).

Considering that the area is regularly slashed / maintained and is heavily infested with exotic species it is considered that the drainage line / depressed area is of low value and does not provide significant ecological values.

It is highly unlikely that any impacts will arise on external vegetation communities as a result of the development given the provided ecological buffers. Additionally, management measures during the construction phase of the development (i.e. installation of sediment fencing) will ensure that no impacts will arise on external vegetation communities.

2.2 Vegetation mapping and classification

The vegetation mapping prepared to date is not adequate (Figures 11, 13 and 19) and needs to be updated to address the following matters:

1. *The line-work on the vegetation mapping (Figures 11, 13 and 19) is difficult to interpret and needs to be redrafted, with clear definition of the boundaries of each mapped vegetation unit.*

Given the degree of accuracy of the Tweed Vegetation Management Strategy 2004 (Mapping Update 2009) mapping (line-work only), the TVMS 2009 mapping line-work should also be shown on the updated plans.

Comment

Noted. Please refer to Attachments 2, 3, 4 and 5.

2. *Preliminary comparison of the mapping and the line-work discussed above (from TVMS) indicates that the outermost extent of mapped vegetation should be adopted as the merged 'line of vegetation'. Classification of each remnant unit based on the merged 'line of vegetation' must be clearly defined on a 'final map of vegetation' (refer to the further and additional matters below).*

Comment

Noted. Please refer to Attachment 2.

3. *Following an onsite inspection conducted on the 19 August 2015, a unit of vegetation immediately to the south of Lot 2 (as shown on Concept Plan) and generally downslope of the 50 m AHD contour, was determined to be representative of a candidate Endangered Ecological Community (listed under the TSC Act) - Lowland Rainforest in NSW North Coast and Sydney Basin bioregion.*

   Further detailed survey of the vegetation within this area and downslope across the entire vegetation remnant must be clearly shown to identify the vegetation community boundaries.

Comment

An assessment of the abovementioned areas was undertaken by an ecologist to determine whether it represents the EEC – Lowland Rainforest in NSW North Coast and Sydney Basin bioregion. The following was noted from the investigation:

The canopy generally ranges from 15-20m in height although a number of emergent trees exceed this. For the most part the canopy crowns are arranged in an open forest structure (per Walker & Hopkins) although several portions of the site contain less cover (mainly associated with the southeast and southern section) and are more reflective of open forest cover.

The canopy layer is dominated by Camphor Laurel (*Cinnamomum camphora*) and Wild Quince (*Guioa semiglauca*). Additional species recorded within the upper layer included Macaranga (*Macaranga tanarius*), Black Wattle (*Acacia melanoxylon*) and Red Kamala (*Mallotus phillippensis*).

Native species recorded within the mid canopy and shrub layer included Bangalow Palm (*Archotophoenix cunninghamiana*), Green Kamala (*Mallotus claoxyloides*), Steelwood (*Sarcopteryx stipata*), Sandpaper Fig (*Ficus coronata*), Hairy Rosewood (*Dysoxylum rufum*), Whalebone tree (*Streblus brunonianus*), Glossy Laurel (*Cryptocarya laevigata*), Coffee Bush (*Breynia oblongifolia*), Native Ginger (*Alpinia caerulea*), Umbrella Cheese Tree (*Glochidion sumatranum*), Sweet Pittosporum (*Pittosporum undullatum*), Tuckeroo (*Cupaniopsis anacardioides*)

Groundlayer species recorded include Cunjavoi (*Alocasia brisbanensis*), Crow's Nest Fern (*Asplenium australasicum*), Scurvy Weed (*Commelina cyanea*), Rough Maidenhair Fern (*Adiantum hispidulum*), Basket Grass (*Oplismenus aemulus*), Bana Grass (*Pennisetum purpureum*), Whisky Grass (*Agrostis capilearis*), Paspalum (*Paspalum dilatatum*) and Molasses Grass (*Melinis minutiflora*).

Additionally, both native and exotic vine species were recorded within this area which included Coastal Morning Glory (*Ipomoea cairica*), Silverleaf Desmodium (*Desmodium uncinatum*),

Corky Passionfruit (*Passiflora suberosa*), White Passionflower (*Passiflora subpeltata*), Green Glycine (*Neonotonia wightii*), Monkey Rope (*Parsonsia straminea*), Barbed Wire Vine (*Smilax australis*) and Cockspur Thorn (*Maclura cochinchinensis*).

Exotic species dominated the species diversity and includes Lantana (*Lantana camara*), Blue Billygoat Weed (*Ageratum houstonianum*), Easter Cassia (*Senna pendula var. glabrata*), Crofton Weed (*Ageratina adenophora*), Castor Oil Plant (*Ricinus communis*), Giant Devil's Fig (*Solanum chrysotrichum*), Fishbone Fern (*Nephrolepis cordifolia*), Blackberry Nightshade (*Solanum nigrum*), Inkweed (*Phytolacca octandra*), Ochna (*Ochna serrulata*), Cocos Palm (S*yagrus romanzoffiana*), Green Cestrum (*Cestrum parqui*), Cobbler's Pegs (*Bidens pilosa*), Mist Flower (*Ageratina riparia*), Singapore Daisy (*Sphagneticola trilobata*), Wild Tobacco (*Solanum mauritianum*), Umbrella Tree (*Schefflera actinophylla*), Burr (*Xanthium spp.*), Climbing Asparagus Fern (*Asparagus africanus*), Climbing Nightshade (*Solanum dulcamara*), Groundsel Bush (*Baccharis halimifolia*) and Paddy's Lucerne (*Sida rhombifolia*).

A discussion of potentially applicable endangered ecological communities (EECs) is provided below in the context of vegetation surveys undertaken within the site and the relevant scientific determinations for EECs.

LOWLAND RAINFOREST IN NSW NORTH COAST AND SYDNEY BASIN BIOREGION
This EEC is described by the scientific committee (online @ http://www.environment.nsw.gov.au/determinations/LowlandRainforestEndCom.htm) as follows:

> *Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions is the name given to the ecological community of subtropical rainforest and some related, structurally complex forms of dry rainforest, excluding Littoral Rainforest (as described in the Final Determination gazetted on 4/6/04) and Lowland Rainforest on Floodplain in the NSW North Coast Bioregion (as described in the Final Determination gazetted on 13/8/99). Lowland Rainforest may be associated with a range of high-nutrient geological substrates, notably basalts and fine-grained sedimentary rocks, on coastal plains and plateaux, footslopes and foothills. In the north of its range, Lowland Rainforest is found up to 600m above sea level, but in the Sydney Basin bioregion it is limited to elevations below 350 m.*
>
> *Lowland Rainforest, in a relatively undisturbed state, has a closed canopy, characterised by a high diversity of trees whose leaves may be mesophyllous and encompass a wide variety of shapes and sizes. Typically, the trees form three major strata: emergents, canopy and sub-canopy which, combined with variations in crown shapes and sizes, give the canopy an irregular appearance (Floyd 1990). The trees are taxonomically diverse at the genus and family levels, and some may*

have buttressed roots. A range of plant growth forms are present in Lowland Rainforest, including palms, vines and vascular epiphytes. Scattered eucalypt emergents (e.g. Eucalyptus grandis, E. saligna*) may occasionally be present. In disturbed stands of this community the canopy continuity may be broken, or the canopy may be smothered by exotic vines. Although every stand of rainforest is unique in terms of its biota, Lowland Rainforest can be characterised by the following species (found @ http://www.environment.nsw.gov.au/determinations/LowlandRainforestEndCom.htm).*

It is considered that the vegetation community south of Lot 2 (refer Attachment 2) may be reflective of the above listed EEC as determined by the Scientific Committee. It is noted that this community will be retained in association with the proposal and a weed management plan be implemented to progressively decrease the existing risk of native flora species diversity reduction through exotic species dominance.

4. *Any Threatened Ecological Community/s listed under the Environment Protection and Biodiversity Conservation Act 1999 must also be shown.*

Comment

It is considered that no threatened ecological communities listed under the *Environment Protection and Biodiversity Act 1999* occurs within the subject site. Areas mapped as Community 4 (refer Attachment 2) did not meet the criteria as stated within EPBCA's *Lowland Rainforest of Subtropical Australia Listing Advice*. Nevertheless, it is noted that all areas mapped as Vegetation Community 4 will be retained.

5. *Both Figure 13 and Figure 19 need to be amended to show the ecological buffers based on the 'final map of vegetation', and applied as follows:*

    A. *Minimum 20 m buffer from any identified candidate Endangered Ecological Community listed under the TSC Act and or Threatened Ecological Community listed under the EPBC Act; and*
    B. *Minimum 10m buffer from all other mapped vegetation classified as Vegetation Community 2 or 3 as described in the ATFFA (pursuant to amendments).*

The land necessary for buffer area must be located outside of the land zoned for R5 urban use. The detailed management measures for the buffer areas will also need to be addressed at the development application stage.

Comment

Please refer to Attachment 3 and 4 which illustrates the amendments to Figures 13 and 19.

2.3 Threatened flora species

Locations of all threatened flora species need to be clearly shown on a separate plan.

During a site inspection a number of additional stems of Lepiderema pulchella were recorded within the area described as 'Retain/Manage Camphor Laurel Patch' in Figure 19 of the

ATFFA. These stems must also be identified and clearly shown on a threatened flora species plan. To assist in locating those stems flagging tape has been secured to each stem.

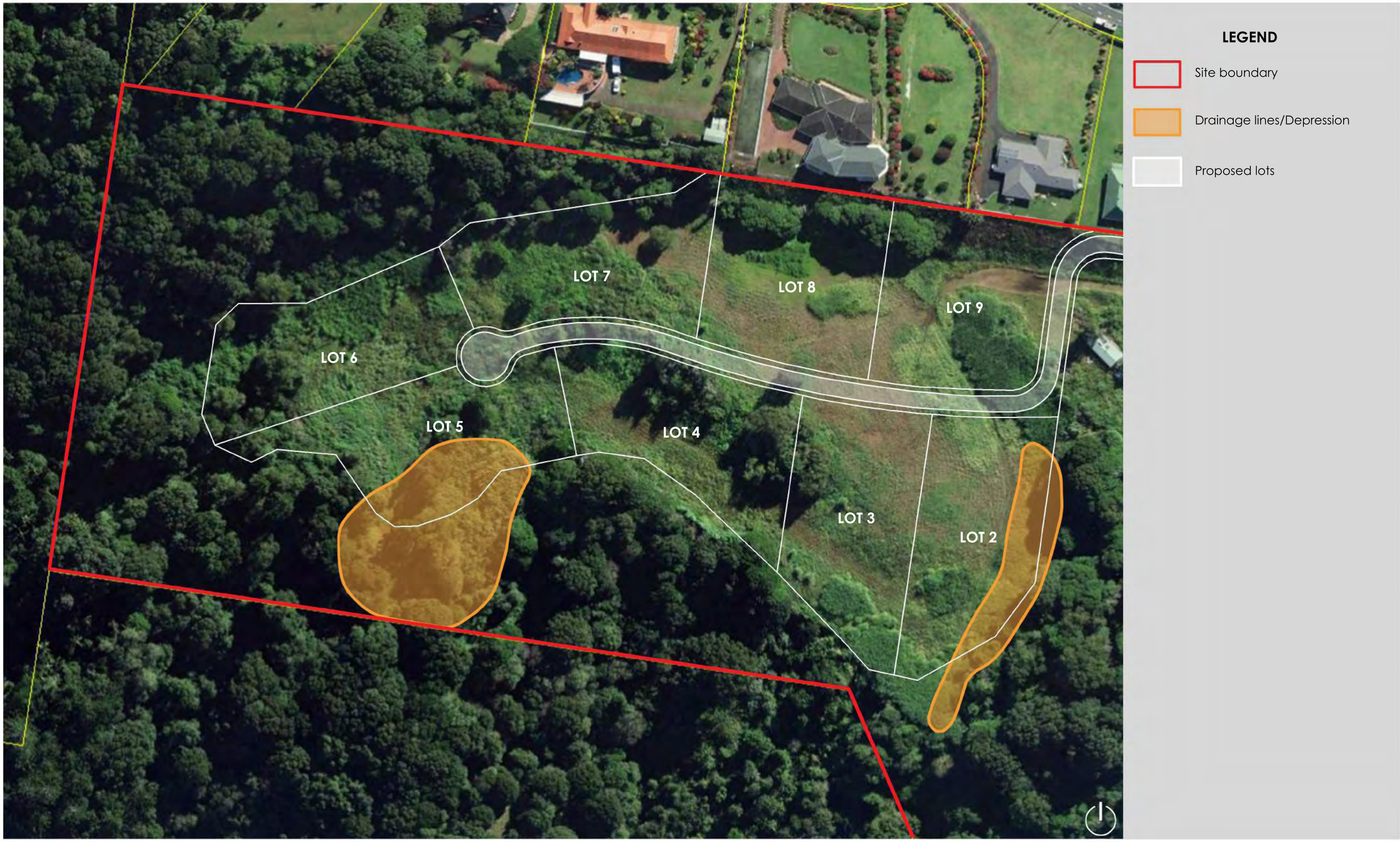
Comment

Please refer to Attachment 6 which illustrates the location of threatened flora species recorded within, and immediately adjacent to the subject site during site inspections. It is noted that all recorded threatened flora will be retained.

Attachment List

Attachment 1: Drainage Line / Depression Map
Attachment 2: Final Map of Vegetation Communities
Attachment 3: Updated Potential EEC Map
Attachment 4: Updated Ecological Recommendations Summary Mapping
Attachment 5: Updated TVMS 2009 Map
Attachment 6: Recorded Threatened Flora Map

ATTACHMENT 1: DRAINAGE LINE / DEPRESSION MAP



LEGEND

- Site boundary
- Drainage lines/Depression
- Proposed lots

252 TERRANORA ROAD | TERRANORA

Drainage lines/Depressions Plan

SCALE: AS SHOWN
DATE: 04/16
REV: 01

DRAWN: MS
CHECKED: TR
DRAWN NO:

0m 10m 20m 30m 40m 50m 100m

Level 1 2247 Gold Coast Hwy
Nobby Beach
PO Box 206 Nobby Beach QLD 4218

Telephone: 07 5526 1500
Fax: 07 5526 1502
admin@planitconsulting.com.au

PLANIT CONSULTING

ATTACHMENT 2: FINAL MAP OF VEGETATION COMMUNITIES

551900 552000 552100 552200 552300

6876700

6876600

6876500

6876400

6876300

UPDATED VEGETATION COMMUNITY MAPPING

COMMUNITY 1: TALL TO VERY TALL CLOSED PASTURE GRASSLAND +/- WEED SHRUBLAND. SCATTERED NATIVE TREES AND CAMPHOR LAUREL PATCHES {NORTHWEST}. HIGHLY DISTURBED

COMMUNITY 2: CAMPHOR LAUREL +/- EARLY REGROWTH RAINFOREST +/- WEED SHRUBLAND. HIGHLY DISTURBED

COMMUNITY 3: EARLY REGROWTH RAINFOREST/CAMPHOR LAUREL FOREST +/- WEED SHRUBLAND. HIGHLY DISTURBED.

COMMUNITY 4: SUBTROPICAL RAINFOREST/CAMPHOR LAUREL FOREST. HIGHLY DISTURBED SOUTHERN AND EASTERN FRINGES ONLY

NOTES:
Vegetation maps have been compiled using Mapinfo geographic information system (GIS) software (Ver. 11.5). Information utilized has included:
Data including contours, site boundaries and 2009, 2012 & 2014 aerial photographs.
Tweed VMP (2004) vegetation community mapping metadata
Upper North East CRA Forest Ecosystem Layer metadata
NSW DEH Vegetation Information System Spatial Information Exchange (SIX)
Northern Comprehensive Regional Assessment Aerial Photograph Interpretation
VISmap 1108 Layer metadata
Rainforest Mapping for NENSW VIS ID3887
2004 Apsect North Vegetation Community Mapping & Descriptions

Ground truthing was performed as outlined (Section 3 of Report) with geo-referenced colour aerial photographs overlaid with contour plans, existing mapped vegetation boundaries and cadastre boundaries for the initial recognition of community boundaries in the field and adjustments noted as necessary. Communities (refer Section 3 of the report) were then transcribed directly into the GIS program utilizing the aerials, contours, geological information and existing mapped vegetation boundaries as a reference background.

Boundaries have been slightly modified based upon March 2016 inspections

Map Created: 4-4-2016
Scale = 1:1750 @ A3

ATTACHMENT 3: UPDATED POTENTIAL EEC MAP

551900 552000 552100 552200 552300

6876700

6876600

6876500

6876400

6876300

UPDATED POTENTIAL ECOLOGICAL COMMUNITIES

Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion

Nominal 20m setback

N.B. this map is subject to the limitations and discussions within Section 3.2.1 of the attached report.

NOTES:

Vegetation maps have been compiled using Mapinfo geographic information system (GIS) software (Ver. 11.5). Information utilized has included:

Data including contours, site boundaries and 2009, 2012 & 2014 aerial photographs.
Tweed VMP (2004) vegetation community mapping metadata
Upper North East CRA Forest Ecosystem Layer metadata
NSW DEH Vegetation Information System Spatial Information Exchange (SIX)
Northern Comprehensive Regional Assessment Aerial Photograph Interpretation
VISmap 1108 Layer metadata
Rainforest Mapping for NENSW VIS ID3887
2004 Apsect North Vegetation Community Mapping & Descriptions

Ground truthing was performed as outlined (Section 3 of Report) with geo-referenced colour aerial photographs overlaid with contour plans, existing mapped vegetation boundaries and cadastre boundaries for the initial recognition of community boundaries in the field and adjustments noted as necessary. Communities (refer Section 3 of the report) were then transcribed directly into the GIS program utilizing the aerials, contours, geological information and existing mapped vegetation boundaries as a reference background.

Boundaries have been slightly modified based upon March 2016 inspections

Map Created: 4-4-2016
Scale = 1:1750 @ A3

ATTACHMENT 4: UPDATED ECOLOGICAL RECOMMENDATIONS SUMMARY MAPPING

551900 552000 552100 552200 552300

6876700 6876600 6876500 6876400 6876300

RETAIN/MANAGE CAMPHOR LAUREL PATCH

RETAIN/MANAGE MACARANGA PATCH

RETAIN/MANAGE HIGHLY DISTURBED WEED AREA WITH SCATTERED NATIVE TREES ON SLOPING LAND. FAUNA L NKAGE

UPDATED ECOLOGICAL RECOMMENDATIONS SUMMARY

- SITE BOUNDARY
- RETAINED HIGHLY DISTURBED CAMPHOR LAUREL +/- EARLY REGROWTH RAINFOREST +/- WEED SHRUBLAND. WEED MANAGEMENT AREA
- RETAINED PARTIAL EEC SUBTROPICAL RAINFOREST/CAMPHOR LAUREL FOREST.
- 20M ECOLOGICAL BUFFER TO RETAINED VEGETATION COMMUNITY 4 EEC
- 10M SEPARATION BUFFER TO RETAINED HIGHLY DISTURBED CAMPHOR LAUREL/EARLY REGROWTH RAINFOREST
- RAINFOREST TREE PLANTING AREAS

NOTES:
Vegetation maps have been compiled using Mapinfo geographic information system (GIS) software (Ver. 11.5). Information utilized has included:
Data including contours, site boundaries and 2009, 2012 & 2014 aerial photographs.
Tweed VMP (2004) vegetation community mapping metadata
Upper North East CRA Forest Ecosystem Layer metadata
NSW DEH Vegetation Information System Spatial Information Exchange (SIX)
Northern Comprehensive Regional Assessment Aerial Photograph Interpretation
VISmap 1108 Layer metadata
Rainforest Mapping for NENSW VIS ID3887
2004 Apsect North Vegetation Community Mapping & Descriptions

Ground truthing was performed as outlined (Section 3 of Report) with geo-referenced colour aerial photographs overlaid with con:our plans, existing mapped vegetation boundaries and cadastre boundaries for the initial recognition of community boundaries in the field and adjustments noted as necessary. Communities (refer Section 3 of the report) were then transcribed directly into the GIS program utilizing the aerials, contours, geological information and existing mapped vegetation boundaries as a reference background.

Boundaries have been slightly modified based upon March 2016 inspections

Map Created: 4-4-2016
Scale = 1:1750 @ A3


RECOMMENDED ENVIRONMENT PROTECTION & MANAGEMENTBUFFERS
RETAIN/MANAGE CAMPHOR LAUREL PATCH
RETAIN/MANAGE MACARANGA PATCH
RECOMMENDED DEVELOPMENT FOOTPRINT
RECOMMENDED TREE PLANTING AREAS
RETAIN/MANAGE HIGHLY DISTURBED WEED AREA WITH SCATTERED NATIVE TREES ON SLOPING LAND. FAUNA LINKAGE
RECOMMENDED ENVIRONMENT PROTECTION & MANAGEMENT BUFFERS
nearmap
0
70.00
meters
Scale: 1:1,750

ATTACHMENT 5: UPDATED TVMS 2009 MAPPING

551900
552000
552100
552200
552300
552400
6876700
6876600
6876500
6876400
1099: Substantially Cleared of
Native Vegetation
Highly Modified / Disturbed
998: Not Assessed
Miscellaneous Map Units
998: Not Assessed
Miscellaneous Map Units
998: Camphor Lau
Closed to Op
Highly Modified
998: Camphor Laurel Dominant
Closed to Open Forest
Highly Modified / Disturbed

551900 552000 552100 552200 552300 552400 552500 552600

6876800 6876700 6876600 6876500 6876400 6876300

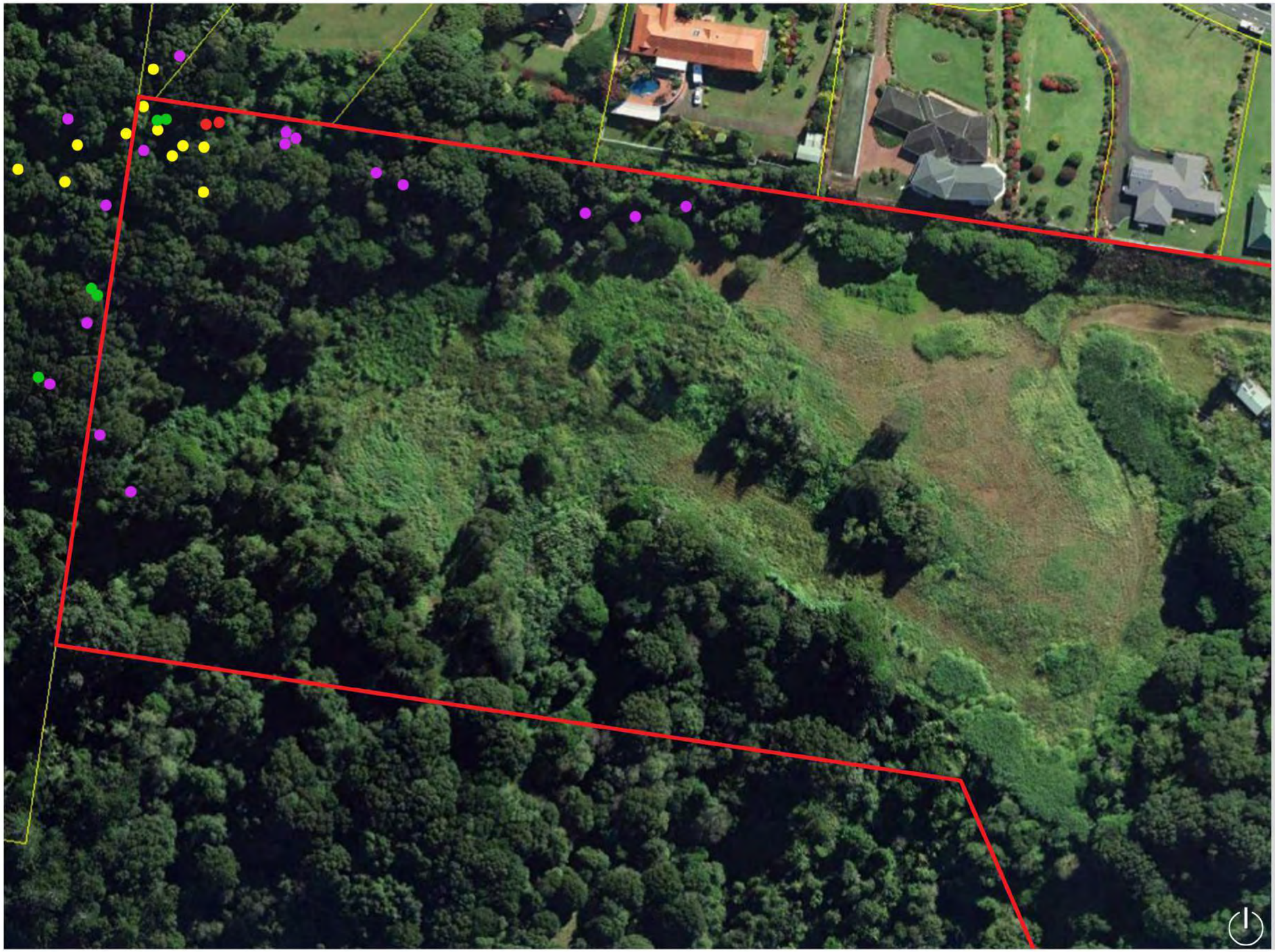
Camphor Laurel Dominant
Closed to Open Forest

nearmap

tweed_LGA_VISmap_673 by Vegtyp

- Acacia / Other Sclerophyll Regrowth Open Forest to Woodland
- Banksia Dry Sclerophyll Open Forest to Shrubland
- Black She-oak Low Open Forest to Woodland
- Blackbutt Open Forest Complex
- Broad-leaved Apple Open Forest
- Broad-leaved Paperbark + Eucalyptus spp.+/- Swamp Box Closed F
- Broad-leaved Paperbark / Swamp She-oak Closed Forest to Woodl
- Broad-leaved Paperbark Closed Forest to Woodland
- Brush Box Open Forest
- Camphor Laurel Dominant Closed to Open Forest
- Coastal Acacia Communities
- Coastal Blackbutt Open Forest to Woodland
- Coastal Brush Box Open Forest to Woodland
- Coastal Forest Red Gum Open Forest to Woodland
- Coastal Pink Bloodwood / Brush Box Open Forest to Woodland
- Coastal Pink Bloodwood Open Forest to Woodland
- Coastal Scribbly Gum Open Forest to Woodland
- Coastal Swamp Box Open Forest to Woodland
- Coastal Swamp Mahogany Open Forest to Woodland
- Coastal Tallowwood Open Forest to Woodland
- Cool Temperate Rainforest
- Cypress Pine Open Forest to Woodland
- Dry Heathland to Shrubland
- Dry Rainforest
- Early Regrowth Rainforest
- Exotic Plantation
- Fernland / Forbland (Murray & James 1998 Study Area Only)
- Flooded Gum Open Forest
- Foredune Complex
- Freshwater Wetlands
- Grey Ironbark / White Mahogany / Grey Gum Open Forest Complex
- Littoral Rainforest
- Lowland Rainforest on Floodplain
- Mangrove Open Forest to Woodland
- Montane Heathland/Scrub
- Mowed Heathland (Murray & James 1998 Study Area Only)
- Myrtaceous Riparian Low Closed Forest to Woodland
- Native Grasslands (Murray & James 1998 Study Area Only)
- Native Plantation
- New England Blackbutt Open Forest
- Not Assessed
- Open Water
- Post-mining Regeneration
- River She-oak Open Forest
- Rock Faces
- Saltmarsh Communities
- Scribbly Gum / Pink Bloodwood Open Forest
- Sedgeland / Rushland (Murray & James 1998 Study Area Only)
- Sub-tropical / Warm Temperate Rainforest on Bedrock Substrates
- Substantially Cleared of Native Vegetation
- Swamp She-oak Closed Forest to Woodland
- Sydney Blue Gum Open Forest
- Tallowwood Open Forest
- Turpentine +/- Pink Bloodwood Open Forest
- Urban Bushland
- Wet Heathland to Shrubland

ATTACHMENT 6: RECORDED THREATENED FLORA MAP



LEGEND

Site boundary

Plant Species

- Lepiderema pulchella
- Syzygium moorei
- Macadamia tetraphylla
- Syzygium hodgkinsoniae

252 TERRANORA ROAD | TERRANORA

THREATENED SPECIES PLAN

SCALE: AS SHOWN
DATE: 04/16
REV: 01

DRAWN: MS
CHECKED: TR
DRAWN NO:

0m 10m 20m 30m 40m 50m 100m

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