

# **Biodiversity Assessment**

# Planning proposal for Lot 1 DP130034 & Lot 5 DP750207, Lochiel, NSW

September 2024

Report No. 24.BA-051

#### Citation

EnviroKey (2024) Stage 1 Biodiversity Assessment Report: Planning Proposal for Lot 1 DP130034 & Lot 5 DP750207, Lochiel, NSW. A report prepared by S. Sass and A. Metcalfe of EnviroKey for TA Projects. Report No. 24.BA-051. Final report. Version 1. 12.09.2024.

<b>R</b> Er	nviro <mark>K</mark>	ey	roject Title	: Stage Report	1 E	Biodiversity	Assessment
Project Identifier: 24.BA-051							
Project Location:		\EKOperations\CurrentOtherProjects\TAProjects					
Revision	Date	Prepared by (na	me)	Reviewed by (n	ame)	Approved	by (name)
Draft	09/09/2024	SS & AM		LS		Steve Sas	ss (CEnvP)
Final	12/09/2024	SS		-		Steve Sa	ss (CEnvP)

#### **Commercial In Confidence**

All intellectual property rights, including copyright, in documents created by **EnviroKey** remain the property of **EnviroKey**. The information contained within this document is confidential. It may only be used by the person to whom it is provided for the stated purpose for which it is provided. The document must not be imparted to any third person without the prior written approval of **EnviroKey**.

#### **Disclaimer**

The scope of work for this report was defined by time and budgetary constraints and the availability of other reports and data.

**EnviroKey** accept no liability or responsibility for or in respect of any use of or reliance upon this report and its supporting material in whole or in part by any third party. Information in this report is not intended to be a substitute for site specific assessment or legal advice in relation to any matter.

> Envirokey Pty. Ltd. PO Box 7231 Tathra NSW 2550 www.envirokey.com.au ABN 35150812570

# **Executive Summary**

**EnviroKey** were engaged by Annie Tyler of TA Projects on behalf of Corandrah Pty Ltd to prepare a Biodiversity Assessment (BA) for a Planning Proposal for Lot 1 DP130034 & Lot 5 DP750207, Lochiel, NSW. The study area is located within the Bega Valley local government area. The rezoning is proposed to allow the potential for a residential subdivision of the land.

The field survey identified three plant community types (PCT) within the study area. These being PCT 3181 – Bega Wet Shrub Forest, PCT 3192 - South Coast Riverflat Ribbon Gum Forest and PCT 4061 - Bega-Towamba Riparian Scrub. PCT 3181 occurs as two zones (a moderate condition zone and a poor condition zone). PCT 3192 in the study area conforms to the NSW BC Act listed threatened ecological community River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions.

Field surveys did not identify any threatened flora or fauna species present, and this is not surprising given the highly degraded nature of the majority of the study area.

Overall, the study area is of little value to the biodiversity of the Lochiel area. **EnviroKey** recommend that any subdivision design should avoid the riparian area and threatened ecological community.



# Shortened forms

BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Calculator
BC Act	Biodiversity Conservation Act 2016 (NSW)
BC Regulation	Biodiversity Conservation Regulation 2017 (NSW)
BAR	Biodiversity Assessment Report
BOAMS	Biodiversity Offsets and Agreement Management System
BOS	Biodiversity Offsets Scheme
CEEC	critically endangered ecological community
DBH	diameter at breast height over bark
EC	ecological community listed under the EPBC Act
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
EEC	endangered ecological community
HTE	high threat exotic weed
IBRA	Interim Biogeographic Regionalisation for Australia
LLS Act	Local Land Services Act 2013 (NSW)
MNES	matters of national environmental significance
NSW	New South Wales
PCT	plant community type
SAII	serious and irreversible impact
TBDC	Threatened Biodiversity Data Collection
TEC	threatened ecological community
VEC	vulnerable ecological community



# **Declarations**

# i. Certification under clause 6.15 *Biodiversity Conservation Act* 2016

I certify that this report has been prepared based on the requirements of, and information provided under, the Biodiversity Assessment Method

Signature:

Date: 12/09/2024 BAM Assessor Accreditation no: BAAS17047



# ii. Details and experience of author/s and contributors

Name	BAM Assessor Accreditation no. (if relevant)	Position/Role	Tasks performed	Relevant qualifications
Steve Sass	BAAS17047	Director / Principal Ecologist	BAM-C data entry and analysis Document preparation	B.App.Sci (Env.Sci) (Hons), GradCert.CaptVertMngt (CSU) Certified Environmental Practitioner (CEnvP)
Linda Sass	-	Senior Ecologist	Internal review	Assoc.Deg. Gn.St (Science), B.A, Dip. Ed (Sec)
James Schlunke	BAAS18148	Senior Botanist	BAM/VI plots Threatened flora surveys Vegetation community survey	PhD
Zoe Sass	-	Project Officer (GIS/Ecology)	GIS mapping and analysis	B.Sc (Biology), BA
Alex Metcalfe	-	Project Officer (Ecology)	Targeted threatened fauna surveys Assist with document preparation	B.Env.Sci (On-going), Cert III Captive Animal Management

#### Authors and contributors

This BA was led by Mr. Steve Sass (Principal Ecologist, B.App.Sci (Env.Sci) (Hons), GradCert.CaptVertMngt (CSU)) of EnviroKey. Mr. Sass is an accredited person under the BC Act (BAAS17047). Field surveys were conducted by suitably qualified and experienced personnel.



# iii. Conflict of Interest

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest.

This declaration has been made in the interests of full disclosure to the decision-maker. Full disclosure has also been provided to the client.

Signature:

Date: \_\_\_12/09/2024\_

BAM Assessor Accreditation no: \_\_\_BAAS17047



# Table of Contents

1	INTRODUCTION	1
1.1	BACKGROUND	1
1.2	LOCATION	1
1.3	PROPOSED ACTIVITY	1
1.4	STUDY AREA	1
1.5	EXCLUDED IMPACTS	7
1.6	BIODIVERSITY OFFSETS SCHEME	7
1.7	MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE	8
1.8	INFORMATION SOURCES	8
2	METHODS	11
2.1	SITE CONTEXT METHODS	11
2.2	VEGETATION COMMUNITY METHODS	11
2.3	THREATENED FLORA AND FAUNA SURVEY METHODS	12
2.4	WEATHER CONDITIONS	16
2.5	LIMITATIONS	16
3	LANDSCAPE CONTEXT	18
<b>3</b> 3.1	IDENTIFY LANDSCAPE FEATURES	<b> 18</b> 18
<b>3</b> 3.1 3.2	LANDSCAPE CONTEXT         IDENTIFY LANDSCAPE FEATURES         NATIVE VEGETATION COVER	<b> 18</b> 18 19
<b>3</b> 3.1 3.2 3.3	LANDSCAPE CONTEXT         IDENTIFY LANDSCAPE FEATURES         NATIVE VEGETATION COVER         PATCH SIZE	<b> 18</b> 18 19 19
<ol> <li>3.1</li> <li>3.2</li> <li>3.3</li> <li>4</li> </ol>	LANDSCAPE CONTEXT IDENTIFY LANDSCAPE FEATURES NATIVE VEGETATION COVER PATCH SIZE NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIE	18 18 19 19 E <b>S</b> ,
3 3.1 3.2 3.3 4 FAUN	LANDSCAPE CONTEXT IDENTIFY LANDSCAPE FEATURES NATIVE VEGETATION COVER PATCH SIZE NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIE NA AND VEGETATION INTEGRITY.	<b>18</b> 18 19 19 E <b>S</b> , <b>29</b>
<ol> <li>3.1</li> <li>3.2</li> <li>3.3</li> <li>4</li> <li>FAUN</li> <li>4.1</li> </ol>	LANDSCAPE CONTEXT IDENTIFY LANDSCAPE FEATURES NATIVE VEGETATION COVER PATCH SIZE NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIE NATIVE VEGETATION INTEGRITY NATIVE VEGETATION EXTENT	18 19 19 ES, 29 29
<ul> <li>3</li> <li>3.1</li> <li>3.2</li> <li>3.3</li> <li>4</li> <li>FAUN</li> <li>4.1</li> <li>4.2</li> </ul>	LANDSCAPE CONTEXT IDENTIFY LANDSCAPE FEATURES NATIVE VEGETATION COVER PATCH SIZE NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIE NA AND VEGETATION INTEGRITY NATIVE VEGETATION EXTENT PLANT COMMUNITY TYPES	18 19 19 <b>ES,</b> 29 29 30
<ul> <li>3</li> <li>3.1</li> <li>3.2</li> <li>3.3</li> <li>4</li> <li>FAUN</li> <li>4.1</li> <li>4.2</li> <li>4.3</li> </ul>	LANDSCAPE CONTEXT IDENTIFY LANDSCAPE FEATURES NATIVE VEGETATION COVER PATCH SIZE NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIE NATIVE VEGETATION INTEGRITY NATIVE VEGETATION EXTENT PLANT COMMUNITY TYPES FAUNA	18 19 19 <b>ES,</b> 29 29 30 37
<ul> <li>3</li> <li>3.1</li> <li>3.2</li> <li>3.3</li> <li>4</li> <li>FAUN</li> <li>4.1</li> <li>4.2</li> <li>4.3</li> <li>4.4</li> </ul>	LANDSCAPE CONTEXT IDENTIFY LANDSCAPE FEATURES NATIVE VEGETATION COVER PATCH SIZE NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIE NATIVE VEGETATION INTEGRITY NATIVE VEGETATION EXTENT PLANT COMMUNITY TYPES FAUNA THREATENED ECOLOGICAL COMMUNITIES	18 19 19 <b>ES,</b> 29 29 30 37 40
<ul> <li>3</li> <li>3.1</li> <li>3.2</li> <li>3.3</li> <li>4</li> <li>FAUN</li> <li>4.1</li> <li>4.2</li> <li>4.3</li> <li>4.4</li> <li>4.5</li> </ul>	LANDSCAPE CONTEXT IDENTIFY LANDSCAPE FEATURES NATIVE VEGETATION COVER PATCH SIZE NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIE NATIVE VEGETATION INTEGRITY NATIVE VEGETATION EXTENT PLANT COMMUNITY TYPES FAUNA THREATENED ECOLOGICAL COMMUNITIES VEGETATION INTEGRITY (VEGETATION CONDITION)	18 19 19 <b>ES,</b> 29 29 30 37 40 40
<ul> <li>3</li> <li>3.1</li> <li>3.2</li> <li>3.3</li> <li>4</li> <li>FAUN</li> <li>4.1</li> <li>4.2</li> <li>4.3</li> <li>4.4</li> <li>4.5</li> <li>5</li> </ul>	LANDSCAPE CONTEXT IDENTIFY LANDSCAPE FEATURES NATIVE VEGETATION COVER PATCH SIZE NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIE NATIVE VEGETATION INTEGRITY NATIVE VEGETATION EXTENT PLANT COMMUNITY TYPES FAUNA THREATENED ECOLOGICAL COMMUNITIES VEGETATION INTEGRITY (VEGETATION CONDITION) HABITAT SUITABILITY FOR THREATENED SPECIES	18 19 19 <b>ES</b> , 29 29 30 37 40 40 40
<ul> <li>3</li> <li>3.1</li> <li>3.2</li> <li>3.3</li> <li>4</li> <li>FAUN</li> <li>4.1</li> <li>4.2</li> <li>4.3</li> <li>4.4</li> <li>4.5</li> <li>5.1</li> </ul>	LANDSCAPE CONTEXT IDENTIFY LANDSCAPE FEATURES NATIVE VEGETATION COVER PATCH SIZE NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIE NATIVE VEGETATION INTEGRITY NATIVE VEGETATION INTEGRITY NATIVE VEGETATION EXTENT PLANT COMMUNITY TYPES FAUNA THREATENED ECOLOGICAL COMMUNITIES VEGETATION INTEGRITY (VEGETATION CONDITION) HABITAT SUITABILITY FOR THREATENED SPECIES IDENTIFICATION OF THREATENED SPECIES FOR ASSESSMENT.	18 19 19 <b>ES,</b> 29 29 30 37 40 40 40
<ul> <li>3</li> <li>3.1</li> <li>3.2</li> <li>3.3</li> <li>4</li> <li>FAUN</li> <li>4.1</li> <li>4.2</li> <li>4.3</li> <li>4.4</li> <li>4.5</li> <li>5</li> <li>5.1</li> <li>5.2</li> </ul>	LANDSCAPE CONTEXT IDENTIFY LANDSCAPE FEATURES NATIVE VEGETATION COVER PATCH SIZE NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIE NATIVE VEGETATION INTEGRITY NATIVE VEGETATION EXTENT PLANT COMMUNITY TYPES FAUNA THREATENED ECOLOGICAL COMMUNITIES VEGETATION INTEGRITY (VEGETATION CONDITION) HABITAT SUITABILITY FOR THREATENED SPECIES IDENTIFICATION OF THREATENED SPECIES FOR ASSESSMENT PRESENCE OF CANDIDATE SPECIES CREDIT SPECIES	18 19 19 <b>ES,</b> <b>29</b> 29 30 37 40 40 40 40 40 40



5.4	EXPERT REPORTS	64
6	IDENTIFYING PRESCRIBED IMPACTS	69
7	CONCLUSION	71
8	REFERENCES	72
9	APPENDICES	75
APPE	NDIX A: BIODIVERSITY VALUES MAP AND THRESHOLD TOOL REP 76	ORT
APPE	NDIX B: BAM SHEETS	77
APPE	NDIX C: VEGETATION SURVEY DATA	78
APPE	NDIX D: FLORA SPECIES RECORDED	80
APPE	NDIX E: FAUNA SPECIES RECORDED	86



# Figures

Figure 1-1: Regional location of the study area	4
Figure 1-2: The study area	5
Figure 1-3: Study area showing cadastral boundaries	6
Figure 1-4: Native vegetation regulatory mapping of Lot 1 & 5	7
Figure 1-5: Biodiversity Values mapping within the study area and surrounds	. 10
Figure 2-1: VI plot and fauna survey locations within the study area	. 17
Figure 3-1: Location Map with NSW LGA Boundaries and IBRA regions/subregions for the	е
study area	. 21
Figure 3-2: Mitchell landscapes within the study area	. 22
Figure 3-3: Waterways within the study area	. 23
Figure 3-4: Key Fish Habitat and Freshwater Fish Community Status within a 1500-metre	!
buffer of the study area	. 24
Figure 3-5: Fish Freshwater Threatened Species within a 1500-metre buffer of the study	
area	. 25
Figure 3-6: Vegetation formation highlighting habitat connectivity within a 1500-metre buff	fer
of the study area	. 26
Figure 3-7: The study area showing the 1500-metre buffer using an air photo to show nat	ive
vegetation extent	. 27
Figure 3-8: NSW State Vegetation Type mapping within a 1500-metre buffer of the study	
area	. 28
Figure 4-1: Plant communities within the study area	. 42
Figure 4-2: Fauna habitat within the study area	. 43
Figure 4-3: Threatened Ecological Community within the study area	. 44
Figure 4-4: Vegetation zones within the study area	. 45
Figure 5-1: Existing threatened mammal records in the locality surrounding the study area	a65
Figure 5-2: Existing threatened bird records in the locality surrounding the study area	. 67
Figure 5-3: Existing threatened plant records in the locality surrounding the study area	. 68



# Tables

Table 1-1: General photos of the study area	2
Table 2-1: Weather conditions during field survey periods	
Table 3-1: Native vegetation cover in the assessment area (1500 metre buffer of st	udy area)
	19
Table 4-1: The extent of the Plant Community Type within the Study Area based on	the NSW
State Vegetation Type Map	
Table 4-2: PCTs identified within the study area	30
Table 4-3: PCT 3181 - Bega Wet Shrub Forest	31
Table 4-4: PCT 3192 - South Coast Riverflat Ribbon Gum Forest	33
Table 4-5: PCT 4061 - Bega-Towamba Riparian Scrub	35
Table 4-4: Vegetation integrity scores for the study area	40
Table 5-1: Predicted ecosystem credit species	
Table 5-2: Predicted candidate species credit species	54
Table 5-3: Determining the presence of candidate flora species credit species within	the study
area	63
Table 6-1: Prescribed impacts identified	
Table 9-1: Vegetation survey data and locations	79



# **Stage 1: Biodiversity Assessment**

# **1 INTRODUCTION**

### 1.1 BACKGROUND

**EnviroKey** were engaged by Annie Tyler of TA Projects on behalf of Corandrah Pty Ltd to prepare a Biodiversity Assessment Report (BA) for a Planning Proposal for Lot 1 DP130034 & Lot 5 DP750207, Lochiel, NSW. The Planning Proposal would seek the rezoning of the land, the subject of this report, to allow for potential subdivision of the land.

### 1.2 LOCATION

The study area is located adjacent to Mount Darragh Road, Lochiel, New South Wales. The general location of the Study Area is provided in **Figure 1-1** and **Figure 1-2**. Cadastral boundaries are identified on **Figure 1-3**.

### 1.3 PROPOSED ACTIVITY

While this report focusses on identifying and documenting the existing environment with regard to biodiversity, should the planning proposal be successful allowing for a rezoning, it is likely that a development application would be prepared with potential proposed activities including a residential subdivision. This BA does it assess any proposed activity. However It does describe the existing environment which could be used to prepare any environmental impact assessment should one be required.

### 1.4 STUDY AREA

For the purpose of this Biodiversity Assessment (BA), the study area is the land that is the subject of the rezoning proposal. The 13.11 hectare study area is also encompassed by a 1500 metre buffer that, combined with the study area forms the "assessment area". In accordance with the BAM, a parent case (00049841) was established in the NSW Biodiversity Accredited Assessor System (BAAS) and the Biodiversity Offsets and Agreement Management System. The parent case was then split into a related case in the Biodiversity Assessment Methodology (BAM) Credit Calculator (BAM-C) (related case 00049842).

The study area is within one land use zone. This being RU2 – Rural Landscape under the Bega Valley Local Environmental Plan, 2013 (LEP). The study area has been the subject of previous disturbances due to agricultural land use. The footprint contains both native and non-native vegetation.

The study area occurs within:



- South East Corner Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion
- South East Coastal Ranges Sub-region.

General photographs of the terrain and vegetation within the study area are provided in **Table 1-1**.

Table 1-1: General photos of the study area











Figure 1-1: Regional location of the study area

4













6



# 1.5 EXCLUDED IMPACTS

Clause 6.8(3) of the BC Act specifies that the BAM is to exclude the assessment of the impacts of any clearing of native vegetation and loss of habitat on category 1-exempt land (as defined in Part 5A of the LLS Act), other than prescribed impacts (as defined in clause 6.1 of the Biodiversity Conservation Regulation 2017 (BC Regulation)).

There is category 1 – exempt land and category 2 – regulated land mapped within the study area based on the Draft native vegetation regulatory map (accessed July 2024) (**Figure 1-4**).



Figure 1-4: Native vegetation regulatory mapping of Lot 1 & 5

# 1.6 BIODIVERSITY OFFSETS SCHEME

The *Biodiversity Conservation Regulation 2017* sets out thresholds for when the Biodiversity Offset Scheme (BOS) will be triggered. The threshold has three triggers:

- 1. Whether the amount of native vegetation being cleared exceeds a threshold based on minimum lot size associated with the property;
- 2. Whether the area cleared is mapped as 'sensitive' on the Biodiversity Values Map published by the (then) NSW Office of Environment and Heritage; or
- 3. Whether a significant impact is likely according to a 'test of significance'.

Based on the Biodiversity Offset Scheme Entry Threshold (BOSET) Map, a small portion of the study area is mapped as having Biodiversity values (Biodiverse riparian land). This mapping relates to Pambula River that crosses a small portion of the northern end of the study area (**Figure 1-5**). This portion of the study area is however outside of the proposed



development footprint and therefore, areas mapped Biodiverse riparian land would not be impacted.

# 1.7 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The EPBC Act referral is not a mandatory requirement for planning proposals. The purpose of the referral process is to determine whether or not a proposed action will need formal assessment and approval under the EPBC Act. The referral will be the principal basis for the Minister's decision as to whether approval is necessary and, if so, the type of assessment that will be taken.

More specifically, the following question must be considered:

• Is the proposed action 'likely' to have a 'significant impact' on a matter of national environmental significance?

A person or entity must not undertake an action that has, will have, or is likely to have a significant impact on any of the matters of national environmental significance (NES) or other protected matters without approval from the Australian Government Minister for the Environment and Water.

Given the poor quality of vegetation and habitats within the study area as detailed within this report, it is unlikely that any proposed action would result in a significant impact to threatened biota, including matters of NES.

# 1.8 INFORMATION SOURCES

The following information sources were used to guide the preparation of this BAR:

- Biodiversity Assessment Method (BAM) 2020 (DPE, 2020)
- BAM 2020 Operational Manual Stage 1
- BioNet Threatened Biodiversity Profile Data Collection (TBDC) (DPE/BCS, 2024a)
- NSW State Vegetation Map (DPE, 2024a)
- Seed database <u>https://www.seed.nsw.gov.au/</u>
- NSW Biodiversity Conservation Division (BCD) Threatened Biodiversity profile search
- Threatened Species Survey and Assessment: Guidelines for developments and activities (working draft) (DEC, 2004)
- Bat calls of NSW: A region based guide to echolocation calls of microchiropteran bats (Pennay et al., 2004).









Figure 1-5: Biodiversity Values mapping within the study area and surrounds



# 2 METHODS

### 2.1 SITE CONTEXT METHODS

#### 2.1.1 Landscape features

In accordance with the BAM, a number of features are assessed within and surrounding the study area which was conducted within ArcGIS and implemented within the BAM-C. Landscape value is an assessment of a number of factors including:

- Native vegetation cover
- Rivers, streams and estuaries
- Areas of geological significance
- Karst areas
- Areas of outstanding biodiversity value
- Habitat connectivity.

#### 2.1.2 Native Vegetation Cover

A layer of native vegetation cover within a buffer of 1500 metres around the study area was used to determine the context of the study area. The Sharing and Enabling Environmental Data (SEED) database was searched for relevant vegetation information to determine the extent of native vegetation within the buffer. Data from the NSW State Vegetation Type Map was used to determine native vegetation cover within the buffer.

### 2.2 VEGETATION COMMUNITY METHODS

#### 2.2.1 Existing information

A review of relevant databases and existing vegetation mapping was carried out to identify likely vegetation communities and threatened ecological communities with the potential to occur within the vicinity of the study area. This information was reviewed prior to field surveys commencing.

The following resources were used:

- Database searches
  - Protected Matters Search Tool (EPBC Act) for flora and ecological communities identifies as Matters of National Environmental Significance (MNES) known from or with potential habitat (Last Accessed 15/07/2024).
  - BAM-C tool to identify potential candidate species credit species and predicted ecosystem species known or predicted to occur within the IBRA subregion (Last Accessed 28/08/2024).



- Vegetation mapping
  - State Vegetation Type Mapping (SVTM) was examined prior to the field surveys commencing to understand the plant community types with the potential to occur within the study area (DPE, 2024a).

#### 2.2.2 Mapping native vegetation

Vegetation within the study area was recorded and mapped using a combination of a vegetation quadrats and a walking meander.

#### 2.2.3 Vegetation integrity survey

Nine vegetation integrity (VI) plots, as defined by the BAM, were carried out (at least one within each vegetation zone).

Assessment of vegetation mapping, verification of vegetation communities and the presence of threatened ecological communities, was completed from a combination of floristic surveys in accordance with the BAM. Plant community types (PCT) were assigned to published PCTs in accordance with the SVTM. The PCT assignment was done by comparing the dominant species recorded, the general description of location including landscape position, soil type and other attributes as described in the OEH online VIS classification database v2.1 (DPE, 2024b).

The location of the VI plots for the study area is provided in **Figure 2-1**.

# 2.3 THREATENED FLORA AND FAUNA SURVEY METHODS

#### 2.3.1 Review of existing information

A review of relevant literature and databases was carried out to identify likely vegetation communities and threatened biota with the potential to occur within the vicinity of the study area. This information was reviewed prior to field surveys commencing.

Database searches within the locality (10 km of the study area) were conducted prior to the commencement of the field survey. The following resources were used:

- Database searches
  - NSW BioNET Atlas for spatial records of threatened flora and fauna listed under the BC Act and EPBC Act (DPE/BCS, 2024a) (Last Accessed 24/07/2024).
  - Protected Matters Search Tool (EPBC Act) for flora and ecological communities identified as Matters of National Environmental Significance (MNES) known from or with potential habitat (Last Accessed 15/07/2024).

- BAM-C tool to identify potential candidate species credit species and predicted ecosystem species known or predicted to occur within the IBRA subregion (Accessed 8/08/2024).
- Vegetation mapping
  - State Vegetation Type Map was examined prior to the field surveys commencing to understand the plant community types with the potential to occur within the study area.

Threatened species that require assessment were initially identified based on a specific set of criteria. These being:

- The distribution of the species includes the IBRA subregion of the study area
- The study area has geographic constraints of the species distribution within the IBRA subregion
- The species is associated with the PCTs of the study area
- Native vegetation cover within a 1500 metre buffer of the study area exceeds the minimum habitat required for the species
- Patch size exceeds the minimum required for the species
- The species is identified as an ecosystem or species credit species in the Threatened Biodiversity Data Collection.

Ecosystem Credit Species are defined by BAM as species for which the likelihood of occurrence or the presence of potential habitat can be predicted based on vegetation proxies and landscape features, or species for which targeted surveys have a low probability of detection (DPE, 2020). Species Credit Species are defined by BAM as species for which the likelihood of occurrence or the presence of potential habitat cannot be predicted based on vegetation proxies or landscape features and which can be reliably detected by targeted surveys.

The process for identifying threatened species which meet the criteria is determined by the BAM-C. The PCT identified within the study area, patch size and native vegetation cover (as detailed within section 4 of this BAR) were entered into the BAM-C. This resulted in a preliminary list of threatened species.

#### 2.3.2 Flora surveys

Nine vegetation integrity plots were completed within the study area on the 22<sup>nd</sup> and 23<sup>rd</sup> of July 2024. Plots were undertaken within each vegetation zone where the level of survey effort met the minimum number of plots per zone. Each plot measured the composition, structure and functions attributes of the vegetation present. Additionally, threatened flora transects were carried out across the study area. However, these were limited given the very low condition of the vegetation present.



### 2.3.3 Fauna surveys

The BAM details the process for determining the habitat suitability for threatened species (section 6 of BAM). Under the BAM, threatened species are separated into two categories; 'ecosystem' and 'species' credit species. Those threatened species where the likelihood of occurrence of a species or components of the species' habitat can be predicted by vegetation surrogates and landscape features, or for which a targeted survey has a low probability of detection, are identified as 'ecosystem' credit species. Targeted surveys are not required for ecosystem species and potential impacts to these species are assessed in conjunction with impacts to each PCT.

Field survey methods to carry out the field assessment of the terrestrial biodiversity values of the study area were completed on the 22<sup>nd</sup> July 2024.

The surveys considered the relevant survey guidelines for general impact assessment and for specific threatened species. If information was not available on whether or not threatened species occur within the study area, then a precautionary approach was adopted, and species presence was assumed. This approach is consistent with the BAM and relevant impact assessment guidelines.

Field surveys were conducted under the authority of a current Scientific License issued under Clause 22 of the *National Parks and Wildlife Regulation 2002* and section 132C of the *National Parks and Wildlife Act 1974* by OEH and an Animal Research Authority approved by, and in accordance with, the Animal Care and Ethics Committee (ACEC) of the Director-General of Department of Primary Industries.

The locations of all field surveys are provided on Figure 2-1.

Fauna survey effort was focused on the basis of vegetation communities and potential habitat for threatened fauna within the study area. The following provides a summary of the methodology applied to this BAR.

#### Diurnal bird surveys

Surveys to determine the presence and usage of the study area by diurnal birds were conducted. Five surveys were completed within the study area (**Figure 2-1**), guided by a standardised technique (Watson, 2003). Surveys were conducted in either the early morning or late afternoon to coincide with peak bird activity. The observer actively searched for diurnal birds and identified species by sight and by vocalisation during each 20-minute bird survey.

#### Nocturnal surveys - Call Playback

Call playback was conducted to target nocturnal fauna. The target species for this assessment were the Yellow-bellied Glider, Barking Owl, Masked Owl and Powerful Owl. Call playback was undertaken within the study area during the field survey. One survey was conducted over one night for this assessment (**Figure 2-1**).

At the location, the call playback survey commenced with an initial listening period of three minutes. The call of the target species was then transmitted intermittently over a period of two



minutes, followed by a three-minute listening period. The call playback session was 30 minutes.

Spotlighting was undertaken at the conclusion of the call playback as described below.

#### Nocturnal surveys – Spotlighting and Echolocation Call Recording Survey

Spotlighting was undertaken using a hand-held 50W spotlight by one person at the conclusion of each call playback (nocturnal) survey for a period of one person hour.

While spotlighting, microchiropteran bats were targeted by using a 'Titley' Anabat Walkabout Echolocation Call Recording Unit. Survey time was about 60 minutes. The use of Echolocation Call Recording Unit is consistent with state and commonwealth guidelines for surveying microchiropteran bats.

All data collected from the Anabat was then analysed into bat and non-bat origin files. These files were then analysed guided by the 'Bat Calls of New South Wales: Region based guide to echolocation calls of microchiropteran bats' (Pennay et al., 2004) and the EnviroKey reference call collection. It should be noted that members of the *Nyctophilus* genus were unable to be identified to species level due to a lack of differentiation between species and are identified to genus level only. Anabat analysis was conducted by Principal Ecologist Steve Sass, who has analysed more than 50,000 files from across southern NSW.

A call was defined as a sequence of three or more consecutive pulses of similar frequency. Due to variability in the quality of calls and the difficulty in distinguishing some species, the identification of each call was assigned a confidence rating as follows:

D = Definite: Species identification not in doubt.

PR = Probable: Call most likely to represent a particular species, but there exists a low probability of confusion with species of similar call types.

PO = Possible: Call characteristics are comparable with the species, but there exists a reasonable probability of confusion with one or more bat similar species, or the quality or length of call prohibits a confident identification.

Those calls unable to be identified due to poor call quality resulting in a lack of diagnostic features were assigned 'Unidentifiable'.

#### Camera trapping

One Reconyx remote sensing camera was installed and activated within the study for a total of 10 days (**Figure 2-1**). This camera captures any animal movement within 18 metres of the camera during diurnal and nocturnal hours. The camera takes up to two frames per second in colour by day and black and white by night.

Baits were set up near the front of the camera to attract any threatened mammals that may be within or near the study area. A bait ball mix of peanut butter, oats and honey and a separate truffle oil bait was used as the attractants.



All data captured on the camera was then analysed with a particular focus on any photographs of threatened mammals.

# 2.4 WEATHER CONDITIONS

Weather conditions were considered conducive to detecting all fauna species, including threatened fauna across a range of seasonal and yearly surveys. Data from the closest weather station was sought (BOM, 2024) (Merimbula) and is presented (**Table 2-1**).

Date	Min Temp (degrees C)	Max Temp (degrees C)	Rainfall (mm)
22/07/2024	5.7	19.8	0.0
23/07/2024	6.9	20.1	0.0

Table 2-1: Weather conditions during field survey periods

### 2.5 LIMITATIONS

Field surveys were guided by the BAM (DPE, 2020) and the Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (working draft) (DEC, 2004) with consideration of the size of the study area and the plant community types and fauna habitats present. The survey methods used in this study confirms that this assessment is consistent with biodiversity guidelines.





Figure 2-1: VI plot and fauna survey locations within the study area

17



# **3 LANDSCAPE CONTEXT**

# 3.1 IDENTIFY LANDSCAPE FEATURES

In accordance with the BAM, a number of features are assessed within and surrounding the study area. This section provides details relating to the IBRA region and subregion and NSW landscape region (Mitchell Landscapes). Other landscape features such as rivers, streams, estuaries and wetlands, habitat connectivity, karst areas or areas of outstanding biodiversity value are considered where appropriate.

Landscape features are detailed in **Figure 3-1** to **Figure 3-8**. Landscape features were identified by desktop image analysis, SEED map layers and site walkovers. A discussion of relevant landscape features is provided below.

#### 3.1.1 IBRA bioregions and IBRA subregions

IBRA bioregions represent a landscape-based approach to the classification of land including geomorphology, landform, climate, lithology and characteristic flora and fauna (Thackway & Creswell, 1995). The study area is located entirely within the South East Corner IBRA bioregion and the South East Coastal Ranges IBRA subregion (NPWS, 2003). IBRA regions and subregions are detailed in **Figure 3-1**.

#### 3.1.2 NSW (Mitchell) landscape

One Mitchell landscape is mapped within the study area (**Figure 3-2**). Bodalla – Nadgee Coastal Sands landscape is characterised by beach, dune and lagoon complex of Quaternary quartz sands. General elevation 0 to 20m. Moderate carbonate content in frontal dune transitions to simple podsols with organic pan and diffuse iron pans on the most inland dunes. Organic silty sand in lagoons and estuary (Mitchell, 2002).

#### 3.1.3 Rivers, streams, estuaries and wetlands

There is one river crossing the northern portion of the study area, this being Pambula River (**Figure 3-3**). There are no streams, estuaries or wetlands within or adjacent to the study area. Pambula river is mapped as Key Fish Habitat by the NSW Department of Primary Industries (Fisheries) (**Figure 3-4**). The portion of Pambula River crossing the study area is mapped as having a 'fair' Freshwater Fish Community Status (**Figure 3-4**). Additionally, one Threatened Fish Habitat occurs within the portion of river crossing the study area, this being Australian Grayling (**Figure 3-5**).

No important local wetlands, national wetlands (i.e. as listed in The Directory of Important Wetlands of Australia or international wetlands (e.g. Ramsar listed)) are located within the study area.



### 3.1.4 Habitat connectivity

The study area is located within a highly modified landscape (i.e. agricultural land), consisting of exotic grassland and scattered trees. Pambula River crosses the northern portion of the study area, which would provide habitat connectivity upstream and downstream of the river. In the wider landscape, the river connects to larger areas of habitat in the form of Yurammie State Forest, providing connectivity opportunities given the extent of mapped vegetation (**Figure 3-6**).

# 3.1.5 Karst, caves, crevices, cliffs, rocks, or other geological features of significance

There are no geological features of significance within the study area. Additionally, no specific soil hazards such as acid sulfate soils, have been identified within the study area.

#### 3.1.6 Areas of outstanding biodiversity value

There are no areas of outstanding biodiversity value, as identified under the BC Act, within the study area or within the Bega Valley local government area.

# 3.2 NATIVE VEGETATION COVER

A layer of native vegetation cover is required for a 1500 metre buffer around the study area to determine the context of the site within the assessment area. The extent of native vegetation within the assessment area was considered using the SVTM as the vegetation layer.

**Table 3-1** summarises the extent of native vegetation cover within the 1500 metre buffer, while**Figure 3-7** shows the native vegetation extent and **Figure 3-8** shows native vegetation extentusing the SVTM using an air photo.

5	
Study area (ha)	4.15
Total area of native vegetation cover (ha)	560.52
Percentage of native vegetation cover (%)	0.74%
Class (0-10, >10-30, >30-70 or >70%)	0-10%

Table 3-1: Native vegetation cover in the assessment area (1500 metre buffer of study area)

### 3.3 PATCH SIZE

Patch size as defined by the BAM as 'an area of native vegetation that:

- Occurs on the development site or biodiversity stewardship site, and
- Includes native vegetation that has a gap of less than 100 metres from the next area of moderate to good condition native vegetation (or <30 metres for non-woody

ecosystems). Patch size can extend onto adjoining land that is not part of the development site or biodiversity stewardship site'.

Patch size was calculated using the field validated vegetation types and consideration of the SVTM. Patch size is required to be assessed as one of four classes per vegetation zone mapped. These being <5 hectares, 5-24 hectares, 25-100 hectares or >100 hectares.

Based upon vegetation mapping and air photo interpretation beyond the study area, patches were assigned to the <5 hectares class and 5-24 hectares class which was applied to the BAM-C.





Figure 3-1: Location Map with NSW LGA Boundaries and IBRA regions/subregions for the study area







Coordinate System: GDA 2020, MGA Zone 55 Mapping Date: August 2024

Data Sources: Study Area: TA Projects Mitchell Landscapes: DPE Aerial Imagery: SIX Maps (NSW Govt)



Figure 3-2: Mitchell landscapes within the study area











Watercourses

Study Area







**Figure 3-4**: Key Fish Habitat and Freshwater Fish Community Status within a 1500-metre buffer of the study area





Figure 3-5: Fish Freshwater Threatened Species within a 1500-metre buffer of the study area




**Figure 3-6**: Vegetation formation highlighting habitat connectivity within a 1500-metre buffer of the study area





**Figure 3-7:** The study area showing the 1500-metre buffer using an air photo to show native vegetation extent

FINAL September 2024





Figure 3-8: NSW State Vegetation Type mapping within a 1500-metre buffer of the study area

Draft September 2024



## 4 NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIES, FAUNA AND VEGETATION INTEGRITY

## 4.1 NATIVE VEGETATION EXTENT

A review of the NSW State Vegetation Map confirms the presence of native vegetation within the assessment area. Two PCTs are mapped within the study area (**Figure 3-8**). Based on the SVTM, the two PCTs and their extent within the study area are detailed in **Table 4-1**.

 Table 4-1: The extent of the Plant Community Type within the Study Area based on the NSW State

 Vegetation Type Map

PCT Name	Area (ha)	% of the study area
Non-native vegetation	3.87	51.53
PCT 3185 – Far South Riverflat Wet Forest	3.44	45.81
PCT 3659 – South Coast Hinterland Silvertop Ash Forest	0.2	2.66
TOTAL	7.51	

## 4.1.1 Changes to the mapped native vegetation extent

Based on our review of the SVTM, the study area comprises PCT 3185 – Far South Riverflat Wet Forest and PCT 3659 – South Coast hinterland Silvertop Ash (**Figure 3-8**). However, our field surveys found no PCT 3185 or PCT 3659 within the study area. Our data confirms that the existing SVTM is incorrect, and that the vegetation present is more closely aligned with PCT 3181 - Bega Wet Shrub Forest, PCT 3192 - South Coast Riverflat Ribbon Gum Forest and PCT 4061 - Bega-Towamba Riparian Scrub (**Figure 4-1**).

## 4.1.2 Areas that are not native vegetation

A large portion of the study area comprises of heavily cultivated exotic grasslands. This is detailed on **Figure 4-1**. To confirm this, three VI plots were completed in this zone and were dominated by non-native species. For the purpose of the BAM-C and calculation of vegetation integrity scores, this area of vegetation was assigned as PCT 3181 - exotic grasslands.



## 4.2 PLANT COMMUNITY TYPES

### 4.2.1 Overview

Vegetation within the study area has been assessed as aligning with the BioNet Vegetation Classification PCTs identified within **Table 4-2** and their extent is shown in **Figure 4-1**. A detailed description of the PCTs and each zone is provided.

PCT no.	PCT name	Condition Class	Vegetation dition Class Zone		Area (ha)
3181	Bega Wet Shrub Forest	Exotic grassland	Veg Zone 1	4, 5, 6	5.92
3181	Bega Wet Shrub Forest	Scattered trees - exotic ground	Veg Zone 3	3	0.66
3181	Bega Wet Shrub Forest	DNG - poor	Veg Zone 4	7, 9	2.31
3181	Bega Wet Shrub Forest	DNG - moderate	Veg Zone 5	2	0.43
4061	Bega-Towamba Riparian Scrub	Poor-moderate	Veg Zone 2	8	1.85
3192	South Coast Riverflat Ribbon Gum Forest	Moderate	Veg Zone 6	1	1.75
Total					12.92

Table 4-2: PCTs identified within the study area

## 4.2.2 PCT 3181 - Bega Wet Shrub Forest

#### 4.2.2.1 PCT overview

This PCT exists in the study area as both remnant trees with absent mid-storey and an almost exclusively exotic ground layer, and as a derived native grassland (DNG) form. The canopy within PCT 3181 consists of mostly Blue Box (*Eucalyptus baueriana*), with occasional Roughbarked Apple (*Angophora floribunda*) and River Peppermint (*Eucalyptus elata*). No areas of PCT 3181 contain an intact mid-storey, however scattered individual shrubs occur in places, including Tree Violet (*Melicytus dentatus*) and Mountain Kangaroo Apple (*Solanum linearifolium*). The ground layer is dominated by exotic species in areas containing a canopy, with grasses Kikuyu (*Cenchrus clandestinus*), Cocksfoot (*Dactylis glomeratus*), Yorkshire Fog (*Holcus lanatus*), Paspalum (*Paspalum dilatatum*) and Parramatta Grass (*Sporobolus africanus*) most common. Exotic forbs present include Chickweed (*Stellaria media*), Sowthistles (*Sonchus oleraceus and Sonchus asper*), *Plantago lanceolata*, Cudweed (*Gamochaeta americana*), and Catsear (*Hypochaeris radicata*).

Two condition classes of derived native grasslands (DNG) occur within the study area. A small section in the north-east edge of the study area is in a poor to moderate condition and includes a higher diversity of native grass species, including primarily Weeping Grass (*Microlaena stipoides var. stipoides*), Paddock Lovegrass (*Eragrostis leptostachya*) and occasional



Kangaroo Grass (*Themeda triandra*), with native forbs including Swamp Dock (*Rumex brownii*), Oxalis perenans, Geranium solanderi var. solanderi, Climbing Saltbush (*Einadia nutans subsp. nutans*), Sprawling Bluebell (*Wahlenbergia gracilis*) and Common Cotula (*Cotula australis*), and native sedges Knob Sedge (*Carex inversa*) and *Carex longebrachiata*. Exotic species here include grasses Kikuyu (*Cenchrus clandestinus*), Yorkshire Fog (*Holcus lanatus*), Paspalum (*Paspalum dilatatum*) and Parramatta Grass (*Sporobolus africanus*), and exotic forbs Lesser Hawkbit (*Leontodon saxatilis*), Dandelion (*Taraxacum officionale*), *Plantago lanceolata*, Cudweed (*Gamochaeta americana*), and Catsear (*Hypochaeris radicata*). Poorer condition areas of DNG derived from PCT 3181 consist of mostly Weeping Grass (*Microlaena stipoides var. stipoides*) along with exotic grasses and only occasional native forbs.

A complete list of flora species recorded is provided in **Appendix D**.

PCT ID	3181			
PCT name	Bega Wet Shrub Forest			
Vegetation formation	Wet Sclerophyll Forests (Shrubby sub-formation)			
Vegetation class	South Coast Wet Sclerophyll Forests			
Per cent cleared value (%)	18.09			
Extent within study area (hectares)	3.4			
Plots completed	4			

Table 4-3: PCT 3181 - Bega Wet Shrub Forest

## 4.2.2.2 Condition

Two condition classes of derived native grasslands (DNG) occur within the study area. A small section in the north-east edge of the study area is in a poor to moderate condition and includes a higher diversity of native grass species. Poorer condition areas of DNG derived from PCT 3181 consist of mostly Weeping Grass (*Microlaena stipoides* var. *stipoides*) along with exotic grasses and only occasional native forbs.

## 4.2.2.3 Justification of PCT selection

The vegetation present, including Blue Box, occasional Rough-barked Apple, and River Peppermint canopy species, combined with landscape position and our professional opinion, was the justification for the PCT selection.

## 4.2.2.4 Alignment with TECs

Vegetation identified as PCT 3181 is not associated with a TEC.

## 4.2.2.5 Alignment with EPBC Act listed ECs

This PCT is not associated with an EC under the EPBC Act.





**Photo 4-1:** Corridor of mostly Bluebox (*Eucalyptus baueriana*) canopy along the western boundary of the study area forming PCT 3181



**Photo 4-2**: Derived native grasslands (DNG) from PCT 3181 in the north-western section of the study area

Draft September 2024



## 4.2.3 PCT 3192 – South Coast Riverflat Ribbon Gum Forest

PCT 3192 occurs along the Pambula River along the northern boundary of the study area, mostly as an island between two branches of the river. This PCT occurs as a variably dense canopy of mostly Ribbon Gum (Eucalyptus viminalis) and occasional River Peppermint (Eucalyptus elata), with a tall upper mid-storey of Black Wattle (Acacia mearnsii) and White Sally (Acacia floribunda). A lower mid-storey includes a diversity of shrubs including Cassinia trinervia, Beyeria lasiocarpa, Brush Currajong (Androcalva fraseri), Bracelet Honey-myrtle (Melaleuca armillaris), Burgan (Kunzea ericoides), Twin-flower Tea Tree (Leptospermum emarginatum), Hazel Pomaderris (Pomaderris aspera), Pomaderris cinerea and Native Peach (Trema tomentosa var. aspera). The ground layer is complex in this PCT as it includes periodically inundated sections adjacent to the main stream, with aquatic and semi-aquatic species including sedge Schoenoplectus validus, Carex longebrachiata and Isolepis sp, rush Juncus continuus, forbs Callitriche muelleri, Persicaria praetermissa, Australian Brooklime (Gratiola peruviana) and Swamp Stonecrop (Crassula helmsii), and grass Swamp Millet (Isachne globosa) present. More elevated sections include forbs Hydrocotyle tripartita, Hackelia latifolia, Fireweed Groundsel (Senecio linearifolius), Plectranthus parviflorus, Whiteroot (Lobelia purpurescens) and Forest Nightshade (Solanum prinophyllum), grasses Weeping Grass (Microlaena stipoides), Poa labillardierei and Bordered Panic (Entolasia marginata), ferns Bracken (Pteridium esculentum), Fishbone Water Fern (Blechnum nudum), Harsh Ground Fern (Hypolepis muelleri) and Sickle Fern (Pellaea falcata), and climbers Sicyos australis, Calystegia marginata, Snake Vine (Stephania japonica) and Wombat Berry (Eustrephus latifolius). Exotic species present in this PCT include scattered Willow trees (Salix spp.), Blackberry (Rubus fruticosus sp. agg.), and grasses including Kikuyu (Cenchrus clandestinus), Setaria parviflora and Paspalum (Paspalum dilatatum), and forbs Tradescantia fluminensis, Arum Lily (Zantedechia aethiopica) and Inkweed (Phytolacca octandra), and climbers Turkey Rhubarb (Acetosa sagittata) and Cape Ivy (Delairea odorata). Exotic aquatic species include Parrots Feather (Myriophyllum aquaticum), Watercress (Rorippa nasturtiumaquaticum), Blue Water-speedwell (Veronica anagallis-aquatica). This PCT intergrades with PCT 4061 to the west, where the canopy trees drop out.

A complete list of flora species recorded is provided in **Appendix D**.

PCT ID	3192
PCT name	South Coast Riverflat Ribbon Gum Forest
Vegetation formation	Wet Sclerophyll Forests (Shrubby sub-formation)
Vegetation class	South Coast Wet Sclerophyll Forests
Per cent cleared value (%)	8.26
Extent within study area (hectares)	1.75
Plots completed	1



#### 4.2.3.1 Condition

This vegetation zone is considered to be in moderate condition.

#### 4.2.3.2 Justification of PCT selection

The vegetation present, including Ribbon Gum, occasional River Peppermint, Black Wattle and White Sally canopy and tall upper mid-storey species, combined with landscape position and our professional opinion, was the justification for the PCT selection.

### 4.2.3.3 Alignment with TECs

PCT 3192 in the study area conforms to the NSW BC Act listed threatened ecological community River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions.

#### 4.2.3.4 Alignment with EPBC Act listed ECs

This PCT is not associated with an EC under the EPBC Act.



**Photo 4-3**: PCT 3192 in the north-east of the study area adjacent to the Pambula River main channel



## 4.2.4 PCT 4061 - Bega-Towamba Riparian Scrub

#### 4.2.4.1 PCT overview

PCT 4061 occurs along the western section of the northern boundary of the study area along Pambula River. This PCT exists on the study area as a patchy shrubland with shrubs becoming sparser as the zone becomes dominated by sedges and rushes towards the west. No canopy is present in this zone. The mid-storey includes shrubs Bracelet Honey-myrtle (*Melaleuca armillaris*), *Melaleuca parvistaminea*, *Callistemon subulatus* and occasional White Sally (*Acacia floribunda*). The ground-storey includes a matrix of sedgeland and grassland, including sedges *Carex longebrachiata* and *Schoenopectus validus*, rushes *Typha orientalis* and *Juncus continuus*, and grasses Swamp Millet (*Isachne globosa*) and Couch (*Cynodon dactylon*). Forbs present include River Buttercup (*Ranunculus inundatus*), Slender Knotweed (*Persicaria decipiens*), *Lomandra longifolia* and *Hydrocotyle acutiloba*, and fern *Pteridium esculentum*. Weeds are more common further away from the main stream and include grasses Kikuyu (*Cenchrus clandestinus*), Paspalum (*Paspalum dilatatum*) and *Setaria parviflora*, forbs Clustered Dock (*Rumex conglomeratus*), Goosegrass (*Galium aparine*) and Spear Thistle (*Cirsium vulgare*), and rush *Juncus bulbosus*.

A complete list of flora species recorded is provided in **Appendix D**.

	•		
PCT ID	4061		
PCT name	Bega-Towamba Riparian Scrub		
Vegetation formation	Forested Wetlands		
Vegetation class	Eastern Riverine Forests		
Per cent cleared value (%)	69.09		
Extent within study area (hectares)	1.85		
Plots completed	1		

#### Table 4-5: PCT 4061 - Bega-Towamba Riparian Scrub

#### 4.2.4.2 Condition

This vegetation zone is considered to be in poor-moderate condition.

#### 4.2.4.3 Justification of PCT selection

The vegetation present, including Bracelet Honey-myrtle, *Melaleuca parvistaminea*, *Callistemon subulatus* and occasional White Sally mid-storey species, combined with landscape position and our professional opinion, was the justification for the PCT selection.

#### 4.2.4.4 Alignment with TECs

Vegetation identified as PCT 4061 is not associated with a TEC.

Draft September 2024



## 4.2.4.5 Alignment with EPBC Act listed ECs

This PCT is not associated with an EC under the EPBC Act.



Photo 4-4: Bega-Towamba Riparian Scrub within the study area



Photo 4-5: Bega-Towamba Riparian Scrub within the study area



## 4.2.5 Exotic Grasslands

The large southern portion of the study area comprises heavily cultivated exotic grasslands. These areas are dominated by the exotic grass Kikuyu (*Cenchrus clandestinus*), with other exotic grasses Yorkshire Fog (*Holcus lanatus*), Cocksfoot (*Dactylis glomeratus*), Paspalum (*Paspalum dilatatum*), Browntop Bent (*Agrostis capillaris*), Phalaris (*Phalaris aquatica*) and Parramatta Grass (*Sporobolus africanus*) also commonly occurring. Exotic forbs are typically present but are low in cover, including Catsear (*Hypochaeris radicata*), Fireweed (*Senecio madagascariensis*), White Clover (*Trifolium repens*) and Hemlock (*Conium maculatum*). Native species are rare in this zone, however occasional patches of Weeping Grass (*Microlaena stipoides var. stipoides*) are present, along with scattered Swamp Dock (*Rumex brownii*) and *Geranium solanderi*. Very occasional scattered Blue Box (*Eucalyptus baueriana*) occur within the exotic grassland, indicating that the historical PCT in this area would likely have been PCT 3181. These areas are within vegetation zone 1, and given the low VI score of these area (0.2/100), they are best described as exotic grasslands.



Photo 4-6: Exotic grasslands in the south of the study area

## 4.3 FAUNA

#### 4.3.1 Species Richness

A total of 44 fauna species were recorded during the survey period within or adjacent to the study area. These comprised of:

- 36 bird species
- five mammal species
- three frog species



Appendix E provides a species list detailing these.

#### 4.3.2 Fauna Assemblages

Fauna assemblages were determined by pooling all data from each survey method within each habitat type. These can be summarised as follows:

#### Birds

The assemblage of birds recorded during this study is considered somewhat diverse and typical of agricultural environments with adjoining forests of south eastern NSW. Birds commonly recorded included the Australian Magpie, Australian Raven and Jacky Winter.

#### Mammals

Mammal assemblages of the study area comprised of five species, including one introduced species. The Eastern Grey Kangaroo were common within the study area due to abundant exotic grass cover. No microbats were recorded, which was surprising given the nearby riparian area and large area of forest to the south.

#### Frogs

The study area supports frog fauna both in the grassy areas and along Pambula River. The most common frog was the Clicking Froglet, closely followed by the Southern Brown Tree Frog. The Southern Leaf-green Tree Frog was only recorded in grass patches adjacent to the river and the Southern Brown Tree Frog was only recorded during the nocturnal survey.

#### Reptiles

No reptile species were recorded due to the winter season of survey. Reptiles are generally inactive during the colder months of winter. However, given that Pambula River crosses the study area, reptile species that could potentially inhabit the study area include the Gippsland Water Dragon and Yellow-bellied Water Skink.

#### 4.3.3 Fauna Habitats

Three broad habitat types were identified within the study area. These comprise of:

#### **Existing Clearings**

This habitat type corresponds with the vegetation mapped as exotic grassland. Of little value to threatened fauna species, existing clearings do provide an ecotone to adjoining habitats. This can be advantageous to some species that forage along the interface, while having a negative influence through edge effects such as predation and wind throw.

No threatened fauna were detected within existing clearings of the study area.





Photo 5-7 & Photo 5-8: Cleared land within the study area

#### **Scattered trees**

This habitat type consists of Blue Box (*Eucalyptus baueriana*), with occasional Rough-barked Apple (*Angophora floribunda*) and River Peppermint (*Eucalyptus elata*). One hollow-bearing tree containing one small hollow was recorded within the study area (**Figure 4-2**).

No threatened fauna were recorded within this habitat type and is considered of little value to threatened fauna species.



Photo 5-9 & Photo 5-10: Scattered trees within the study area

#### Water Bodies

One water body was identified within the study area. This being Pambula River crossing the northern section of the study area.

This water body is likely to provide some contribution to the fauna assemblages present and within adjoining habitats. Numerous avifauna were detected that are generally associated with this habitat type including Superb Fairy-wren, Grey Fantail and White-faced Heron.





Photo 5-11 & Photo 5-12: Pambula River within the study area

## 4.4 THREATENED ECOLOGICAL COMMUNITIES

PCT 3192 in the study area conforms to the NSW BC Act listed threatened ecological community River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions (**Figure 4-3**).

## 4.5 VEGETATION INTEGRITY (VEGETATION CONDITION)

## 4.5.1 Vegetation integrity survey plots

The minimum number of VI plots in accordance with BAM has been completed for this BAR. This level of survey effort was deemed appropriate given the relatively small area and high level of previous disturbance within the study area. BAM data sheets for the BAM-C is provided in **Appendix B**.

## 4.5.2 Scores

The Vegetation Integrity scores (VIS) of each vegetation zone within the study area was calculated using the BAM-C. The results of these are provided in **Table 4-4**. The areas mapped as PCT 3192 have a moderate VIS (43.2), while other vegetated areas of the study area (PCT 3183 - exotic grasslands etc) have an extremely low to low VIS (0.2 to 14.9) confirming they are of virtually no value to biodiversity. The vegetation zones are shown on **Figure 4-4**.

Vegetation zone ID	Composition condition score	Structure condition score	Function condition score (where relevant)	Vegetation integrity score	Hollow bearing trees present?
1 (PCT 3181 - exotic grassland)	0.6	0	15	0.2	No

Table 4-6: Vegetation integrity scores for the study area



Vegetation zone ID	Composition condition score	Structure condition score	Function condition score (where relevant)	Vegetation integrity score	Hollow bearing trees present?
2 (PCT 4061 - poor- moderate)	33.8	47.5	15	28.9	No
3 (PCT 3181 - scattered trees)	2.4	31	44	14.9	Yes (1)
4 (PCT 3181 - poor)	4.4	15.2	15	10	No
5 (PCT 3181 - moderate)	17.9	15.2	15	16	No
6 (PCT 3192 - moderate)	62.7	31.3	41	43.2	No

## 4.5.3 Use of benchmark data

During the preparation of this BAR, BAM-C calculations have not used any benchmark data but have relied upon data collected during field surveys.







Figure 4-1: Plant communities within the study area





Figure 4-2: Fauna habitat within the study area

Draft September 2024





Data Sources: Study Area: TA Projects TEC: EnviroKey Aerial Imagery: SIX Maps (NSW Govt)



Figure 4-3: Threatened Ecological Community within the study area

Draft September 2024

Bioregions

Threatened Ecological Community

River-Flat Eucalypt Forest on

Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner

44

N







Figure 4-4: Vegetation zones within the study area



## 5 HABITAT SUITABILITY FOR THREATENED SPECIES

# 5.1 IDENTIFICATION OF THREATENED SPECIES FOR ASSESSMENT

Section 5 of the BAM details the process for determining the habitat suitability for threatened species. Under the BAM, threatened species are separated into two categories; 'ecosystem' or 'species' credit species. Those threatened species where the likelihood of occurrence of a species or components of the species' habitat can be predicted by vegetation surrogates and landscape features, or for which a targeted survey has a low probability of detection, are identified as 'ecosystem' credit species. Targeted surveys are not required for ecosystem species and potential impacts to these species are assessed in conjunction with impacts to each PCT. Existing threatened species records within the locality were also reviewed (**Figure 5-1** to **Figure 5-3**). The BAM-C generates a list of ecosystem and species credit species.

Threatened species where the likelihood of occurrence of a species or elements of suitable habitat for the species cannot be confidently predicted by landscape features or vegetation surrogates and can be reliably detected by survey, are identified as 'species' credit species. A targeted survey or an expert report is required to confirm the presence or absence of these species in the study area.

For some threatened species, they are identified as both ecosystem and species credit species, with different aspects of the habitat and life cycle representing different credit types. Commonly, threatened fauna species may have foraging habitat as an ecosystem credit, while their breeding habitat represents a species credit.

The following sections outline the process for determining the habitat suitability for threatened species within the study area, and the results of targeted surveys for candidate threatened species.

## 5.1.1 Ecosystem credit species

Threatened species that require assessment are initially identified based on a specific set of criteria. These being:

- The distribution of the species includes the IBRA subregion of the study area (assessment area)
- The study area (assessment area) has geographic constraints of the species distribution within the IBRA subregion
- The species is associated with the PCTs of the study area (assessment area)
- Native vegetation cover within a 1500 metre buffer of the study area (assessment area) exceeds the minimum habitat required for the species
- Patch size exceeds the minimum required for the species



• The species is identified as an ecosystem or species credit species in the Threatened Biodiversity Data Collection.

Ecosystem Credit Species are defined by BAM as species for which the likelihood of occurrence or the presence of potential habitat can be predicted based on vegetation proxies and landscape features, or species for which targeted surveys have a low probability of detection (DPE, 2020). No ecosystem species were removed from the list generated by the BAM-C for the study area.

## 5.1.2 Species credit species

As with ecosystem credit species, species credit species are predicted in the BAM-C following an assessment of geographic and habitat features which include the IBRA subregion, PCT, patch size and native vegetation cover in the landscape context.

This section includes further assessment of species credit species to confirm if they will become candidate species for this BA. Section 5.2 of the BAM provides the opportunity to consider whether a predicted candidate species is unlikely to occur within the study area where habitat is substantially degraded to a point that they would be unlikely to utilise, or where an expert report identifies that the species is unlikely to be present. A predicted candidate species credit species that is not considered to have suitable habitat present does not require further assessment. However, the reasons for making these determinations must be documented.

To inform this assessment of how habitat degradation has impacted candidate threatened species, a search of the Atlas of NSW Wildlife (DPE/BCS, 2024a) was carried out for a 10 kilometre radius around the assessment area. Using these existing records, the likelihood of occurrence was assessed using the following methods:

- Species occurrence within the study area and locality
- Condition and extent of available habitats
- Application of the knowledge and experience of the EnviroKey Principal Ecologist.

**Table 5-2** outlines the predicted candidate species (from the BAM-C) and provides a justification for the decision by **EnviroKey** to either maintain or discard each species as a candidate species based on the presence of suitable habitat within the study area.



Common name	Scientific name	Listing status		Dual	Sources	Retain for	Reason for exclusion	PCT ID
		BC Act	EPBC Act	credit species		further assessment (Y/N)	from further assessment	
Australasian Bittern	Botaurus poiciloptilus	E	E	No	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	Yes	-	PCT 4061
Black Bittern	Ixobrychus flavicollis	V	-	No	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	V	V	No	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
Dusky Woodswallow	Artamus cyanopterus cyanopterus	V	-	No	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192

 Table 5-1: Predicted ecosystem credit species

FINAL September 2024



Common	Scientific name	Listing status		Dual	Sources	Retain for	Reason for exclusion	PCT ID
name		BC Act	EPBC Act	credit species		further assessment (Y/N)	from further assessment	
Eastern False Pipistrelle	Falsistrellus tasmaniensis	V	-	No	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	Yes	-	PCT 3181
Flame Robin	Petroica phoenicea	V	-	No	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
Gang-gang Cockatoo	Callocephalon fimbriatum	E	E	Yes	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
Greater Broad- nosed Bat	Scoteanax rueppellii	V	-	No	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181
Grey-headed Flying fox	Pteropus poliocephalus	V	V	Yes	<ul><li>☑ BAM-C</li><li>□ TBDC</li><li>□ Previous survey</li></ul>	Yes	-	PCT 3181, 4061, 3192



Common	Scientific name	Listing status		Dual	Sources	Retain for	Reason for exclusion	PCT ID
name		BC Act	EPBC Act	credit species		further assessment (Y/N)	from further assessment	
					□ Current survey			
Large Bent- winged Bat	Miniopterus orianae oceanensis	V	-	Yes	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181
Little Eagle	Hieraaetus morphnoides	V	-	Yes	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
Little Lorikeet	Glossopsitta pusilla	V	-	No	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
Purple- crowned Lorikeet	Glossopsitta porphyrocephala	V	-	No	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 3192



Common	Scientific name	Listing status		Dual	Sources	Retain for	Reason for exclusion	PCT ID
name		BC Act	EPBC Act	credit species		further assessment (Y/N)	from further assessment	
Regent Honeyeater	Anthochaera phrygia	CE	CE	Yes	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	Yes	No suitable foraging or breeding habitat present	PCT 3181, 4061
Scarlet Robin	Petroica boodang	V	-	No	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
South-eastern Glossy Black- Cockatoo	Calyptorhynchus Iathami lathami	V	V	Yes	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
South-eastern Hooded Robin	Melanodryas cucullata cucullata	E	E	No	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
Speckled Warbler	Chthonicola sagittata	V	-	No	<ul><li>☑ BAM-C</li><li>□ TBDC</li><li>□ Previous survey</li></ul>	Yes	-	PCT 4061



Common	Scientific name	Listing status		Dual	Sources	Retain for	Reason for exclusion	PCT ID
name		BC Act	EPBC Act	credit species		further assessment (Y/N)	from further assessment	
					□ Current survey			
Spotted Harrier	Circus assimilis	V	-	No	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 4061
Spotted-tailed Quoll	Dasyurus maculatus	V	E	No	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
Square-tailed Kite	Lophoictinia isura	V	-	Yes	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
Swift Parrot	Lathamus discolor	E	CE	Yes	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192



Common	Scientific name	Listing status		Dual	Sources	Retain for	Reason for exclusion	PCT ID
name		BC Act	EPBC Act	credit species		further assessment (Y/N)	from further assessment	
Turquoise Parrot	Neophema pulchella	V	-	No	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 4061
Varied Sittella	Daphoenositta chrysoptera	V	-	No	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
White-bellied Sea Eagle	Haliaeetus leucogaster	V	MA	Yes	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
White-throated Needletail	Hirundapus caudacutus	-	V MA MI	No	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	Yes	-	PCT 3181, 4061, 3192
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris	V	-	No	<ul><li>☑ BAM-C</li><li>□ TBDC</li><li>□ Previous survey</li></ul>	Yes	-	PCT 3181



Common name	Scientific name	Listing status		Dual	Sources	Retain for	Reason for exclusion	PCT ID
		BC Act	EPBC Act	credit species		further assessment (Y/N)	from further assessment	
					□ Current survey			

### Table 5-2: Predicted candidate species credit species

Common name	Scientific name	Listing status		Sources	Potential for further	
		BC Act	EPBC Act		assessment in BDAR (Y/N)	
Araluen Gum	Eucalyptus kartzoffiana	V	V	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Bega Wattle	Acacia georgensis	V	V	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Black Gum	Eucalyptus aggregata	V	V	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	

FINAL September 2024



Common name	Scientific name	Listing status		Sources	Potential for further	
		BC Act	EPBC Act		assessment in BDAR (Y/N)	
Bush Stone-curlew	Burhinus grallarius	E	-	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Cotoneaster Pomaderris	Pomaderris cotoneaster	E	E	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Gang-gang Cockatoo	Callocephalon fimbriatum	E	E	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
South-eastern Glossy Black Cockatoo	Calyptorhynchus lathami lathami	V	V	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Eastern Pygmy-possum	Cercartetus nanus	V	-	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	



Common name	Scientific name	Listing status		Sources	Potential for further	
		BC Act	EPBC Act		assessment in BDAR (Y/N)	
Large-eared Pied Bat	Chalinolobus dwyeri	V	E	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Chef's Cap Correa	Correa baeuerlenii	V	V	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
White-bellied Sea-Eagle	Haliaeetus leucogaster	V	MA	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Giant Burrowing Frog	Heleioporus australiacus	V	V	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Little Eagle	Hieraaetus morphnoides	V	-	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	



Common name	Scientific name	Listing status		Sources	Potential for further	
		BC Act	EPBC Act		assessment in BDAR (Y/N)	
Southern Brown Bandicoot (eastern)	lsoodon obesulus obesulus	Е	E	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Ralston's Leionema	Leionema ralstonii	V	V	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Regent Honeyeater	Anthochaera phrygia	CE	CE	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Swift Parrot	Lathamus discolor	E	CE	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Green and Golden Bell Frog	Litoria aurea	E	V	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	



Common name	Scientific name	Listing status		Sources	Potential for further	
		BC Act	EPBC Act		assessment in BDAR (Y/N)	
Square-tailed Kite	Lophoictinia isura	V	-	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Large Bent-winged Bat	Miniopterus orianae oceanensis	V	-	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Stuttering Frog	Mixophyes balbus	E	V	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Southern Myotis	Myotis macropus	V	-	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Barking Owl	Ninox connivens	V	-	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	



Common name	Scientific name	Listing status		Sources	Potential for further	
		BC Act	EPBC Act		assessment in BDAR (Y/N)	
Powerful Owl	Ninox strenua	V	-	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Southern Greater Glider	Petauroides volans	E	E	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Squirrel Glider	Petaurus norfolcensis	V	-	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Pink Robin	Petroica rodinogaster	V	-	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Brush-tailed Phascogale	Phascogale tapoatafa	V	-	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	



Common name	Scientific name	Listing status		Sources	Potential for further	
		BC Act	EPBC Act		assessment in BDAR (Y/N)	
Koala	Phascolarctos cinereus	Е	E	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Long-nosed Potoroo	Potorous tridactylus	V	V	<ul> <li>BAM-C</li> <li>TBDC</li> <li>Previous survey</li> <li>Current survey</li> </ul>	No	
Grey-headed Flying-fox	Pteropus poliocephalus	V	V	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Scrub Turpentine	Rhodamnia rubescens	CE	CE	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	
Masked Owl	Tyto novaehollandiae	V	-	<ul> <li>☑ BAM-C</li> <li>□ TBDC</li> <li>□ Previous survey</li> <li>□ Current survey</li> </ul>	No	



No predicted ecosystem credit species were removed from the BAM-C.

All 33 species credit species would not require further assessment if a biodiversity impact assessment was required to support a development application. The justification for these being removed is as follows:

- Araluen Gum site is well south of the Araluen, Bendethera and Majors Creek areas species does not occur in the region (DPE/BCS, 2024b)
- Barking Owl site does not contain woodland or forest vegetation, Pambula River that intersects the study area is not continuously timbered, with agricultural land use adjacent no suitable breeding habitat present (Kavanagh et al., 1995)
- Bega Wattle the site does not contain exposed rock no suitable habitat present (DPE/BCS, 2024b)
- Black Gum site is not within the South Eastern Highlands Bioregion species does not occur in the region (DPE/BCS, 2024b)
- Brush-tailed Phascogale site does not contain forest vegetation, nor does it contain abundant tree hollows no suitable habitat present (van der Ree et al., 2001)
- Bush Stone-curlew site is within the far south-east corner species does not occur in this region (DPE/BCS, 2024b)
- Chef's Cap Correa site does not contain forest vegetation or rocky areas no suitable habitat present (DPE/BCS, 2024b)
- Contoneaster Pomaderris site does not contain forest vegetation no suitable habitat present (DPE/BCS, 2024b)
- Eastern Pygmy-possum site does not contain forest or woodland vegetation, one small hollow-bearing tree was recorded, however this tree is isolated within agricultural land with no habitat connectivity no suitable habitat present (Ward, 1990)
- Gang-gang Cockatoo site does not contain box-gum or box-ironbark species, nor does it contain suitable hollows for nesting– no suitable habitat present (DPE/BCS, 2024b)
- Green and Golden Bell Frog site does not contain a marsh, dam, or stream no suitable breeding habitat present (Pyke & White, 1996)
- Giant Burrowing Frog site is degraded, does not contain heath, woodland, or forest vegetation, nor does it contain first or second order streams no suitable habitat present (Penman et al., 2006)
- Grey-headed Flying-fox site is within agricultural land absent of woodland or forest vegetation no suitable habitat present (DPE/BCS, 2024b)
- Koala site is within agricultural land absent of woodland or forest vegetation no suitable habitat present (DPE/BCS, 2024b)
- Large Bent-winged Bat site does not contain any caves, tunnels, mines, culverts, or other breeding structures no breeding habitat present (Baudinette et al., 1994; van Harten, 2020; White, 2011; Wilson, 2003)
- Large-eared Pied Bat site does not contain forest vegetation, caves, cliffs or mine shafts no breeding habitat present (Williams & Thomson, 2018)
- Little Eagle site does not contain forest or woodland vegetation no suitable habitat present (Debus et al., 2007)
- Long-nosed Potoroo site is within agricultural land absent of woodland or forest vegetation – no suitable habitat present (DPE/BCS, 2024b)
- Masked Owl site does not contain forest or woodland vegetation, nor does it contain any large hollow-bearing trees – no suitable breeding habitat present (Kavanagh, 1996)
- Pink Robin site does not contain forest vegetation or gullies no suitable habitat present (DPE/BCS, 2024b)
- Powerful Owl site does not contain forest or woodland vegetation, nor does it contain any large hollow-bearing trees – no suitable breeding habitat present (Webster et al., 1999)
- Ralston's Leionema site does not contain rocky areas or forest vegetation no suitable habitat present (DPE/BCS, 2024b)
- Regent Honeyeater site does not contain forest or woodland vegetation and is well south of the NSW breeding region – no suitable habitat present (DoE, 2016)
- Scrub Turpentine site is well south of its southern extent of Batemans Bay species does not occur in the region (DPE/BCS, 2024b)
- Southern Brown Bandicoot site does not contain forest or heath vegetation no suitable habitat present (NPWS, 2001)
- South-eastern Glossy Black Cockatoo site does not contain *Allocasuarina* species, nor does it contain nesting hollows no suitable habitat present (Clout, 1989)
- Southern Greater Glider site does not contain woodland or forest vegetation, nor does it contain any suitable hollow-bearing trees – no denning habitat present (DPE/BCS, 2024b)
- Southern Myotis site does not contain any caves, mine shafts, bridges or culverts site does not contain suitable roosting or breeding habitat (DPE/BCS, 2024b)
- Square-tailed Kite site does not contain woodland or forest vegetation, Pambula River that intersects the study area is not continuously timbered, with agricultural land use adjacent – no suitable breeding habitat present (NPWS, 1999)
- Squirrel Glider site does not contain woodland vegetation, nor does it contain abundant tree hollows no suitable breeding habitat (Ball, 2007)
- Stuttering Frog site is highly degraded with agricultural land use adjacent to the river section of the study area no suitable habitat present (Daly, 1998; Daly et al., 2002)
- Swift Parrot species breeds only in Tasmania, not the mainland no breeding habitat present (BirdsAustralia, 2011; Garnett & Baker, 2020)
- White-bellied Sea-Eagle site does not contain a large river or tall forest trees no suitable habitat present (PALEI et al.).



## 5.2 PRESENCE OF CANDIDATE SPECIES CREDIT SPECIES

This section outlines the determination of candidate species credit species occurrence within the study area. For all species, presence of candidate species was determined by field survey.

Table 5-3: Determining the presence of candidate flora species credit species within	the study
area	

Common name	Scientific name	Listing st	atus	Method used to determine	Present (Y/N)
		BC Act	EPBC Act	presence	
Araluen Gum	Eucalyptus kartzoffiana	V	V	Targeted threatened species survey	No
Bega Wattle	Acacia georgensis	V	V	Targeted threatened species survey	No
Black Gum	Eucalyptus aggregata	V	V	Targeted threatened species survey	No
Chef's Cap Correa	Correa baeuerlenii	V	V	Targeted threatened species survey	No
Cotoneaster Pomaderris	Pomaderris cotoneaster	E	E	Targeted threatened species survey	No
Ralston's Leionema	Leionema ralstonii	V	V	Targeted threatened species survey	No
Scrub Turpentine	Rhodamnia rubescens	CE	CE	Targeted threatened species survey	No

### 5.3 THREATENED SPECIES SURVEYS

Targeted threatened species survey efforts for flora and fauna were conducted over the following periods:

- 22 & 23 July 2024 (threatened fauna search) 1 person for 6 hours
- 22 & 23 July 2024 (BAM plots and threatened flora transects) 1 person for 10 hours

### 5.3.1 Flora

Targeted threatened species surveys for flora were carried out using one method, a targeted threatened flora transect across the study area. Threatened flora species searches were carried out in accordance with the TDBC and while surveys were conducted out of season, the Senior Botanist is highly experienced with threatened flora species of the locality and can accurately identify these species outside of their flowering period given their extensive experience within the Bega Valley.

### 5.3.2 Fauna

Targeted threatened species surveys were carried out during diurnal and nocturnal surveys. Bird surveys were carried out across the study area, and one nocturnal survey was carried out within the study area. No candidate fauna species credit species were confirmed due to no presence of breeding, foraging, or general habitat within the study area which is consistent with our analysis in section 5.1 of this BAR.

### 5.4 EXPERT REPORTS

No export reports were used for this BAR.





Figure 5-1: Existing threatened mammal records in the locality surrounding the study area

FINAL September 2024





FINAL September 2024



Figure 5-2: Existing threatened bird records in the locality surrounding the study area





Figure 5-3: Existing threatened plant records in the locality surrounding the study area

FINAL September 2024



# 6 IDENTIFYING PRESCRIBED IMPACTS

Section 6 of the BAM identifies the prescribed impacts that must be assessed per clause 6.1 of the BC Regulations. **Table 6-1** identifies these prescribed impacts and where they are relevant.

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature. Where relevant, threatened species or fauna that are part of a TEC or EC, that are at risk of vehicle strike
Karst, caves, crevices, cliffs, rocks or other geological features of significance	□Yes / ⊠No	-	n/a
Human-made structures	□Yes / ⊠No	While some human made structures are located within the study area (fences), none are of relevance to threatened biota.	n/a
Non-native vegetation	⊠Yes / □No	Those portions of the study area mapped as exotic are of virtually no value to threatened species given the VI score of 0.2.	n/a
Habitat connectivity	⊠Yes / ⊟No	Pambula River crosses the northern portion of the study area, the vegetation corridor along the river provides connectivity to the wider landscape.	No threatened species were recorded during the field survey. However threatened species that may use the habitat within the study area include the Greater Broad-nosed Bat, Spotted Harrier, Square-tailed Kite, Varied Sittella, White-throated Needletail and Yellow-bellied Sheathtail-bat.
Waterbodies, water quality and hydrological processes	⊠Yes / □No	Pambula River crosses the northern portion of the study area. The study area section of the river is	Australian Grayling adults (including pre spawning and spawning adults) inhabit cool, clear, freshwater streams with gravel substrate and areas alternating

#### Table 6-1: Prescribed impacts identified

FINAL September 2024



Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature. Where relevant, threatened species or fauna that are part of a TEC or EC, that are at risk of vehicle strike
		mapped as containing one Threatened Fish Habitat (Australian Grayling).	between pools and riffle zones. The section of Pambula River within and adjacent to the study area may contain habitat for this threatened species.
Wind turbine strikes (wind farm development only)	□Yes / ⊠No	n/a	n/a
Vehicle strikes	□Yes / ⊠No	n/a	n/a



# 7 CONCLUSION

This Biodiversity Assessment prepared by **EnviroKey** provides an overview of the study area, the vegetation communities present and threatened species recorded, and will be used to support a Planning Proposal for rezoning of the land to allow the potential for a residential subdivision of the land. This report is not a Biodiversity Development Assessment Report (BDAR) suitable for a development application. It follows Stage 1 of the BAM to allow decision makers to have a detailed understanding of the existing environment within the study area from a biodiversity perspective.

The southern portion of the study area is dominated by exotic grassland, very occasional scattered Blue Box (*Eucalyptus baueriana*) occur within the exotic grassland, indicating that the historical PCT in this area would likely have been PCT 3181 – Bega Wet Shrub Forest. The exotic grassland area is likely to have been derived from the past clearing of this PCT and for the purpose of calculating vegetation integrity scores (VIS), these areas were considered part of that PCT. Other portions of the study area comprise of PCT 3181 in poor-moderate condition, PCT 3192 – South Coast Riverflat Ribbon Gum Forest in moderate condition and PCT 4061 – Bega-Towamba Riparian Scrub in poor-moderate condition. The areas mapped as PCT 3192 have a moderate VIS (43.2), while the other vegetated areas of the study area (exotic grassland) have an extremely low VIS (0.2), confirming they are of virtually no value to biodiversity.

Targeted threatened flora and fauna species surveys were carried out during July 2024, where no threatened species were recorded. The absence of threatened species is not surprising given the highly degraded nature of the majority of the study area

Overall, the study area is of little value to the biodiversity of the Lochiel area. **EnviroKey** recommend that any subdivision design should avoid the riparian area and threatened ecological community which would support the "avoid and minimise" hierarchy as defined by the Biodiversity Offset Scheme.



## 8 **REFERENCES**



- Ball, T. (2007). The ecology and management of the squirrel glider (Petaurus norfolcensis) in a fragmented landscape, central Queensland CQUniversity].
- Baudinette, R. V., Wells, R. T., Sanderson, K. J., & Clark, B. (1994). Microclimatic conditions in maternity caves of the bent-wing bat, *Miniopterus schreibersii*: an attempted restoration of a former maternity site. *Wildlife Research*, *21*, 607-619.
- BirdsAustralia. (2011). National Recovery Plan for the Swift Parrot Lathamus discolor. *Prepared by Debbie Saunders and Chris Tzaros.*
- BOM. (2024). Bureau of Meterology. www.bom.gov.au
- Clout, M. N. (1989). Foraging Behavior of Glossy Black-Cockatoos. Australian Wildlife Research, 16, 467-473.
- Daly, G. (1998). Review of the status and assessment of the habitat of the Stuttering Frog Mixophes balbus (Anura: Myobatrachidae) on the south coast of New South Wales. *Herpetofauna*, 28(1), 2-11.
- Daly, G., Pennay, M., & Coombes, D. (2002). Surveys for the stuttering frog Mixophes balbus on the south coast of New South Wales. *Herpetofauna*, *32*(2), 110-130.
- Debus, S. J., Hatfield, T., Ley, A. J., & Rose, A. (2007). Breeding biology and diet of the Little Eagle Hieraaetus morphnoides in the New England region of New South Wales. *Australian Field Ornithology*, *24*(4), 137.
- DEC. (2004). Threatened Species Survey and Assessment: Guidelines for developments and activities (working draft). *NSW Department of Environment & Conservation, Hurstville, NSW.*
- DoE. (2016). National Reovery Plan for the Regent Honeyeater (*Anthochaera phrygia*). http://www.environment.gov.au/system/files/resources/286c0b52-815e-4a6c-9d55-8498c174a057/files/national-recovery-plan-regent-honeyeater.pdf.
- DPE. (2020). Biodiversity Assessment Method. Department of Planning, Industry and Environment for the NSW Government.
- DPE. (2024a). NSW State Vegetation Type Map: version C1.1.M1. http://data.environment.nsw.gov.au/dataset/.
- DPE. (2024b). NSW Vegetation Information System: Classification. http://www.environment.nsw.gov.au/NSWVCA20PRapp/default.aspx.
- DPE/BCS. (2024a). BioNET: The website for the Atlas of NSW Wildlife: A whole-ofgovernment system for flora and fauna sightings information. www.bionet.nsw.gov.au
- DPE/BCS. (2024b). Threatened species, populations and ecological communities of NSW. *NSW* Office of Environment & Heritage. , *www.threatenedspecies.environment.nsw.gov.au.*
- Garnett, S. T., & Baker, G. B. (2020). The Action Plan for Australian Birds: Swift Parrot. *CSIRO Publishing, Melbourne*, 427-430.
- Kavanagh, R., Debus, S., Rose, A., & Turner, R. (1995). Diet and habitat of the barking owl Ninox connivens in New South Wales. *Australian Bird Watcher*, *16*(4).
- Kavanagh, R. P. (1996). The Breeding Biology and Diet of the Masked Owl *Tyto novaehollandiae* Near Eden, New South Wales. *Emu*, *96*.
- NPWS. (1999). Square-tailed Kite: Threatened Species Information. *NSW National Parks and Wildlife Service, Hurstville*.
- NPWS. (2001). Threatened Species Information: Southern Brown Bandicoot Isoodon obesulus. *NSW National Parks and Wildlife Service, Hurtsville, NSW*.
- NPWS. (2003). The Bioregions of New South Wales: their biodiversity, conservation and history. *NSW National Parks and Wildlife Service, Hurstville*.



- PALEI, N., BAL, A., RATH, B., UDGATA, H., & ACHARYA, S. Distribution and nesting records of white-bellied sea-eagle, Haliaeetus leucogaster (Gmelin, 1788) in Balukhanda-Konark Wildlife Sanctuary, Puri. *Editorial Board*, 152.
- Penman, T., Lemckert, F., Slade, C., & Mahony, M. J. (2006). Description of breeding sites of the Giant Burrowing Frog Helioporus australiacus in south-eastern NSW. *Herpetofauna*, 36, 102-105.
- Pennay, M., Law, B., & Reinhold, L. (2004). Bat calls of NSW: A region based guide to echolocation calls of microchiropteran bats. *NSW Department of Environment & Conservation, Hurstville, NSW.*
- Pyke, G. H., & White, A. W. (1996). Habitat requirements for the Green and Golden Bell Frog Litoria aurea (Anura: Hylidae). *Australian Zoologist*, *30*(2), 224-232. Reprint No. AC1
- Thackway, R., & Creswell, I. D. (1995). An interim biogeographic regionalisation for Australia: a framework for establishing the national system of reserves. Version 4.0. *Australian Nature Conservation Agency, Canberra.*
- van der Ree, R., Soderquist, T. R., & Bennett, A. F. (2001). Home-range use by the brushtailed phascogale (*Phascogale tapoatafa*) (Marsupialia) in high-quality, spatially limited habitat. *Wildlife Research*, *28*, 517-525. Reprint No. F8
- van Harten, E. (2020). Cave-dwelling bats in Australia: ecology and conservation. *Population Dynamics of the Critically Endangered, Southern Bent-winged Bat Miniopterus orianae bassanii*, 38.
- Ward, S. J. (1990). Life History of the Eastern Pygmy-possum, *Caercartetus nanus* (Burramyidae: Marsupialia), in the South-eastern Australia. *Aust. J. Zool.*, *38*, 287-304.
- Watson, D. M. (2003). The 'standardized search' : An improved way to conduct bird surveys. *Austral Ecology*, *28*, 515:525. Reprint No. E8
- Webster, A., Cooke, R., Jameson, G., & Wallis, R. (1999). Diet, Roosts and Breeding of Powerful Owls Ninox sternua in a disturbed, urban environment: A case for Cannubalism? or a case of infanticide? *Emu*, 99, 80-83.
- White, A. W. (2011). Roosting dynamics of Eastern Bent-wing Bats Miniopterus schreibersii oceanensis in disused military sites in eastern Sydney. In *The Biology and Conservation of Australasian Bats* (pp. 471-484). Royal Zoological Society of New South Wales PO Box 20, Mosman NSW 2088.
- Williams, E. R., & Thomson, B. (2018). Aspects of the foraging and roosting ecology of the large-eared pied bat (Chalinolobus dwyeri) in the western Blue Mountains, with implications for conservation. *Australian Mammalogy*, *41*(2), 212-219.
- Wilson, P. D. (2003). Analysis of movements by Large Bent-wing Bats Miniopterus schreibersii based on 27 years of banding data. *The Australian Bat Society Newsletter*, 21, 18-20.



## **9 APPENDICES**



# Appendix A: Biodiversity Values map and Threshold tool report





Department of Planning and Environment

## Biodiversity Values Map and Threshold Report

This report is generated using the Biodiversity Values Map and Threshold (BMAT) tool. The BMAT tool is used by proponents to supply evidence to your local council to determine whether or not a Biodiversity Development Assessment Report (BDAR) is required under the Biodiversity Conservation Regulation 2017 (Cl. 7.2 & 7.3).

The report provides results for the proposed development footprint area identified by the user and displayed within the blue boundary on the map.

There are two pathways for determining whether a BDAR is required for the proposed development:

- 1. Is there Biodiversity Values Mapping?
- 2. Is the 'clearing of native vegetation area threshold' exceeded?

### **Biodiversity Values Map and Threshold Report**

Date of Report Generation

30/09/2024 3:31 PM

1. Bi	odiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation S	ection 7.3)
1.1	Does the development Footprint intersect with BV mapping?	no
1.2	Was <u>ALL</u> BV Mapping within the development footprinted added in the last 90 days? (dark purple mapping only, no light purple mapping present)	no
1.3	Date of expiry of dark purple 90 day mapping	N/A
1.4	Is the Biodiversity Values Map threshold exceeded?	no
2. Ar	rea Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Sectio	n 7.2)
2.1	Size of the development or clearing footprint	96,150.3 sqm
2.2	Native Vegetation Area Clearing Estimate (NVACE) (within development/clearing footprint)	1,671.4 sqm
2.3	Method for determining Minimum Lot Size	LEP
2.4	Minimum Lot Size (10,000sqm = 1ha)	1,200,000 sqm
2.5	Area Clearing Threshold (10,000sqm = 1ha)	10,000 sqm
2.6	<b>Does the estimate exceed the Area Clearing Threshold?</b> (NVACE results are an estimate and can be reviewed using the <u>Guidance</u> )	no
REP proj (You	ORT RESULT: Is the Biodiversity Offset Scheme (BOS) Threshold exceeded for the posed development footprint area? Ir local council will determine if a BDAR is required)	no



Department of Planning and Environment

### What do I do with this report?

• If the result above indicates the BOS Threshold has been exceeded, your local council may require a Biodiversity Development Assessment Report with your development application. Seek further advice from Council. An accredited assessor can apply the Biodiversity Assessment Method and prepare a BDAR for you. For a list of accredited assessors go to: <a href="https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor">https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor</a>.

• If the result above indicates the BOS Threshold <u>has not been exceeded</u>, you may not require a Biodiversity Development Assessment Report. This BMAT report can be provided to Council to support your development application. Council can advise how the area clearing threshold results should be considered. Council will review these results and make a determination if a BDAR is required. Council may ask you to review the area clearing threshold results. You may also be required to assess whether the development is "likely to significantly affect threatened species" as determined under the test in Section 7.3 of the *Biodiversity Conservation Act 2016*.

• If a BDAR is not required by Council, you may still require a permit to clear vegetation from your local council.

• If all Biodiversity Values mapping within your development footprint was less than 90 days old, i.e. areas are displayed as dark purple on the BV map, a BDAR may not be required if your Development Application is submitted within that 90 day period. Any BV mapping less than 90 days old on this report will expire on the date provided in Line item 1.3 above.

For more detailed advice about actions required, refer to the Interpreting the evaluation report section of the <u>Biodiversity Values Map Threshold Tool User Guide</u>.

### **Review Options:**

• If you believe the Biodiversity Values mapping is incorrect please refer to our <u>BV Map Review webpage</u> for further information.

• If you or Council disagree with the area clearing threshold estimate results from the NVACE in Line Item 2.6 above (i.e. area of Native Vegetation within the Development footprint proposed to be cleared), review the results using the <u>Guide for reviewing area clearing threshold results from the BMAT Tool</u>.

### Acknowledgement

I, as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature: \_\_\_

Date:

(Typing your name in the signature field will be considered as your signature for the purposes of this form)

30/09/2024 03:31 PM



Department of Planning and Environment

### Biodiversity Values Map and Threshold Tool

The Biodiversity Values (BV) Map and Threshold Tool identifies land with high biodiversity value, particularly sensitive to impacts from development and clearing.

The BV map forms part of the Biodiversity Offsets Scheme threshold, which is one of the factors for determining whether the Scheme applies to a clearing or development proposal. You have used the Threshold Tool in the map viewer to generate this BV Threshold Report for your nominated area. This report calculates results for your proposed development footprint and indicates whether Council may require you to engage an accredited assessor to prepare a Biodiversity Development Assessment Report (BDAR) for your development.

This report may be used as evidence for development applications submitted to councils. You may also use this report when considering native vegetation clearing under the State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

What's new? For more information about the latest updates to the Biodiversity Values Map and Threshold Tool go to the updates section on the <u>Biodiversity Values Map webpage</u>.

Map Review: Landholders can request a review of the BV Map where they consider there is an error in the mapping on their property. For more information about the map review process and an application form for a review go to the <u>Biodiversity Values Map Review webpage</u>.

If you need help using this map tool see our <u>Biodiversity Values Map and Threshold Tool User Guide</u> or contact the Map Review Team at <u>map.review@environment.nsw.gov.au</u> or on 1800 001 490.

## **Biodiversity Values Map**



# Appendix B: BAM sheets





	BAM	Site – Field Survey F	orm	Site Shee	et no:			
		Survey Name	Plot Identifier	Recorders				
Date	22/7/24	Lot 1+5 MtDar	Lot 185 BAMOI	James S.	James Schlube			
Zone	Datum	IBRA region	Photo #					
Easting	Northing	Dimensions	20 x 50 m	Orientation of mid from the 0m poin	dline t	196 °		
Vegetation Clas	s	Riparian Jovert	and the second			Confidence: H M L		
Plant Communit	у Туре	PCT 319	2		EEC:	Confidence: H M L		
Record easting and	northing from the plot	marker. If applicable, orient picket s	o that perforated rib points along di	irection of midline Dime	ensions (Shane)	of 0 04 ha base plot inside		

0.1 ha FA plot should be identified, magnetic bearing taken along midline.

BAM	Attribute	Sum	values								
(400	m² plot)		Valaco	BAM Attribut	te (20 x 50	m plot)	#	Tree Stems C	ount		1.4.25
	Trees	12		dbh		Euc*	Acad	Non Euc.	Hollows+	sed	Record number of living eucalypt*
Count of	Shrubs	17.		Large trees for Euc* & Non Euc	80 + cm	Ô		0	0		(Euc*) and living native non-eucalypt (Non Euc) stems
Native	Grasses etc.			50	) 79 cm	D		0	G	-	separately
Nichiless	Forbs	1 St		30 – 49 cm	HTT	5		0	0		of Eucalyptus, Corymbia.
	Ferns	1		20 – 29 cm	1	1		0	0		Angophora, Lophostemon and
	Other	-		10 – 19 cm		0		0	8	the o	*Record total
Sum of	Trees			5 - 9 cm		0		<u>^</u>	n/a	6.	number of stems by size class with
Cover of native	Shrubs	1.1		< 5 or 0		0		0	liva j		hollows (including dead stems/trees)
vascular plants by	Grasses etc.			< 5 cm		18+2+4+	14 + 2	0:	n/a $77 \pm 12$		total
growth from group	growth Forbs			(≥10cm diame	<b>is (m)</b> eter, >50cm	+ Much	t H		Image: Non-Second system       Record number of living eucalypt* (Euc*) and living native non-eucaly (Non Euc) stems separately $\bigcirc$ "includes all spector of Eucalyptics, Corymbia, Angophora, Lophostemon and Syncarpia $\bigcirc$ "Record total number of stems size class with hollows (including dead stems/trees) $n/a$ "Record total number of stems size class with hollows (including dead stems/trees) $n/a$ "Record total number of stems size class is $\leq 10$ . $n/a$ "Record total number of stems size class is $\leq 10$ . $n/a$ "Record total number of stems size class is $\leq 10$ . $n/a$ "Record total number of stems size class is $\leq 10$ . $n/a$ "Record total number of stems size class is $\leq 10$ . $n/a$ Reck cover (%) $n/a$ $1 & 4 & 3$ $n/b$ $1 & 3 & 4 & 80$ $m from the plot midline at the interes). Within these 1 m x 1 m plorently contribute to assessment         Zone (optional)       allest veg         3 & 4 & 80       "Mage: Stemp         3 & 7 & 8m       "Mage: Stemp   $	143	
	Ferns	2		Counts must ap	ply to each s	ize class when	the num	ber of living trees	stems within the	e siz	e class is ≤ 10.
1.1.1	Other			from the numbe For a multi stem	r series: 10, 1 med tree, or	20, 30, 100, 2 Ily the largest li	200, 300 ving sten	n is included in th	e count/estima	te. F	or hollows count only
High Threat	Weed cover		•	the presence of when the tree is	a stem conta multi-stemm	aining hollows, ied. The hollow	not count -bearing	t the hollows in th stem may be a d	at stem. Only o ead stem.	coun	t as 1 stem per tree
BAM Attrib	ute (1 x 1 m pl	ots)	Lit	ter cover (%)	Bare	ground cov	er (%)	Cryptogam	cover (%)		Rock cover (%)
Subplo	ot score (% in	each)	60 35	5 70 15 =	70 0	107	20	000	00	4	34801
Avera	ge of the 5 sul	plots						10000			1.40
Litter cover is a locations 5, 15, assessors may scores, they ho	ssessed as the av 25, 35, and 45m a also record the co Id potential value f	erage per along the r over of roc	centage grou midline. Litter k, bare grour vegetation int	and cover of litter reco r cover includes leave and and cryptogam so regrity assessment at	orded from five es, seeds, twig I crusts. Colle	e 1 m x 1 m plots gs, branchlets ar ction of these da enchmarks, and	s located nd branch ata is optio	on alternate sides es (less than 10cm onal – the data do	and 5 m from th n in diameter). W not currently cor	ie plo Vithin ntribu	t midline at the these 1 m x 1 m plots ite to assessment
for the second second second	hysiograph	y + sa	fe featur	es that may h	elp in det	termining F	PCT ar	nd Managem	nent Zone	(op	tional)
Morphological Type	Creek	Hat	Landform Element	Flo	at Landfo	orm Patter	13.4	Heig	ht of tallest veg	3	20m
Lithology	Mingline	inter	Soil Surface	ce Sandy	Soil C	olour		Heig	ht of shrub laye	er	8m
Slope	BAM Attribute (400 m² plot)         Trees         Shrubs         Count of Native         Shrubs         Count of Native         Grasses etc.         Richness         Forbs         Ferns         Other         Trees         Sum of Cover         Sum of Cover         Sum of Cover         Sum of Cover         Sum of Cover         Sum of Cover         Grasses etc.         Jants by growth om group         Ferns         Other         igh Threat Weed cover         tAM Attribute (1 x 1 m plots         Subplot score (% in ea         Average of the 5 subpl         itter cover is assessed as the average         cations 5, 15, 25, 35, and 45m alon         ssessors may also record the cover         cores, they hold potential value for f         Physiography         lope       O         Other         learing (inc. logging)         ultivation (inc. pasture)         oil erosion         'razing (identify native/stock)         ire damage         /eediness         ther	11	Aspect	-	Site D	rainage	<u> </u>	Heig	ht of ground lag	yer	In
Plot Distu	rbance	Severity Code	Age Code	Observational	evidence						
Clearing (inc.	ogging)	2	05	Probaboly	histe	rically	(18	aved - y	ungel	Sta	nj
Soil erosion	, pasture)	ā	NP			/	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		0		
Firewood/CWI	) removal	A	1.00	Ł	10-						
Grazing (identit	y native/stock)							1			and the second s
Fire damage	1992 A CONTRACT OF THE	-		and the second							
Storm damage	)	2	R	Flooding	al and the second second	and the second second					
Weediness			VR			Constant and the					
Other	/: 0=no evidence	1=light	2=moderate	3=severe	Age	- R=recent (<3		-not recent (2, 10	ura) Orald (>1	0.00	

Uyrs)



400 m	<sup>2</sup> plot: Sheet ( of <b>3</b> Survey Name Plot Identifier	a patricter	R	ecorders	\$	
Date	22/7/24 Count Barrage Rd Lotiles BAMO1	Jan	nes	Sul	hub	و
GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species. Full species name where practicable	N, E or HTE	Cover	Abund	stratu m	vouch er
	Enc. vininalis		8	2	V	1.000
	Acacia Novibuda		12	50	M	
J M I	Melalenta asmillariz asmillary		3	10	eastor	olistioppe
eurephini	Leptospermun 'engrate' emargination	TNY	0.5	\$5	a ginara	1-5
	Knyzea ericoider		0.3	1	5	
	Melicytus dentarty		0.2	1		
	Melalium revierfolin parristaminen	a) 1.24	0.2	1	tolog <sup>1</sup> ea 9	-31)
	Kuzen aubjour	d0-	0.2	1	08617	
uper de la	Pomaduris asper		0 - 1	1	Sprife	
j.	Serverio li-englohy		0.2	20	elarið.	n naiste Dertreiste
n all 10960 NAC	Sigesbechia one one		0.5	100	actora -	en an
$\sim$	Hadelin tatyphing	$\sim$	$\sim$	$\langle$		
97 a	2mtedechia actuicping		0.1	2		
tsist Contract	'Capetry' Delairea odorata	01	0.1	4		
ntwis Generation	Tradesconfile House ency	-2	0.1	10		10 (pq2)
12.457 2/9	Stellaria Hacidda		0.2	50		of the first
istol	Hackelia latific		0.3	100		nd structure Marine br
13	Lopelia puppinesiens		0.1	2		unio mo
51.2	Ranculus mundates	3	0.3	500	enter	
é tribue a	Parin cubus IP. repens		0-1	10	449G	1-1
nini sa fi	Vidta hederacco		0-1	4	beauv to	96778 <u>9</u> 8
liker adare	Lysimathic avery		0.2	50	c the during	
102	"Avillars flores" Callichtriche muellevil		0.1	5		1-2
	Ehsharte erecty		0.3	001	the same	WS
, 200 2010 (2010) 2010 (2010)	Microlance Stip Stip.		0.3	500	1.000	1988 - 1988) North Color
	"Aquetic Peric' Isachne globosa	an login and	3	500	neturi bion	1-4
	Plectranther paristons	1 South	0.1	7	1	- Specification
	Rubus puticism Sr. ag3,		0.1	Ň		Second Second
	Optismenns inbeatis		0.1	10	2	6253
	Tigetes monte		0.2	20	2015-015-0	
	"Verenica "Kanadar" anazallis-aquatica	a tana hingh	0.1	1	an tao an tao An tao an tao	1-3
	Grafida D. perusiana		0.1	1	1.20%	

**Cover:** 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); **Note:** 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m **Abundance:** 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

400 m	2 plot: Sheet 2 of 3 Survey Name Plot Identifier	iski vaviu	8	Recorder	earl 2 H	ata San
Date	22 (7124 Mt Darragh Rd Lot 185 BAMON	Jam	es (	Schly	te	<u>(  s</u>
GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species. Full species name where practicable	N, E or HTE	Cover	Abund	stratu	vou
	Etnembers by' Schoenoplectus V	alidus	0.1	5		1-1
21-	Jusin Zusitutes continuous	Augo	0.3	50	19 X.	1-0
· (4) ·	Persicarios decipions		0.2	8		1 0
	tomen broud topy Bolboschoeney	5p.	0.1	5	i conservatione de la conserva	1-1
	Pluntage lancevlade		0.1	20		T
	Solarin preudo capsicus		0.1	2	t j	
-	Senecio ma Jagas carcenny	il. A.k.	0.1	10		
	Acetosa sagitate		0.2	50		
	halim againe	1.00	0.1	10		
	(hundred Calystigia N	larginates	0.1	5		1-
	Physalis peruviana	5	0.1	3		
	Modiola carolining		0.1	5		
	Dacty in glomerates		0.2	20	(1. n.)	
	Conchus clandestrung	Parente 1	Ch 15	1000		
	Funais sp. muraliz		0.1	1		1-10
	Agrestin capillans	(	0.3	500		
-1	Conjeg o		0.3	500	1	
_	Mar Polycarpon tetraphyllun		0.1	10		
	Easy aquak Myriophyllum aquatic	m	0.3	500		1-11
	opphof aguntic Crassvila helingii		0.1	50		1-17
	tydracotyle sibtherpiontes autilopa		0.1	20		10
	Lunex co-glomeraty		0.1	5		
1	Heart tent Viola odorata	event afril	0.1	3		1-17
L	omandre longAplia	(	0.3	20		<u> </u>
K	hom pavillong	C	0.1	6		
Ē	ntolazia magnata	(	0.1	5		
	avex plongebrachimta	25	50	1000		1-1I
	Dolam nign	(	0.1	2		
0	janochrefe 50.	0	).1	5		
T	-ythrun thyssopifilos hyssopifolum	0	.1	)	1	-16
	interior and the					
- Code	see Growth Form definitions in Annahdir 1	0	. 1	10		

Odside plot: Prostu time to incisa,

Date 20121212 Wet 1+5 201 1	NA Vev	us I	Recorder	S	ola <sup>s</sup> tri
1 11/1100 Mt Darragh M Lot 1+5 BAULS	1 3	mes	Sch	hahe	0
Core         Top 3 native species in each growth form group: Full species name mandatory           Code         All other native and exotic species. Full species name where practicable	N, E or HTE	Cove	r Abund	stratu m	vouc
Oxah g.	· 1	0.1	5		- 1-
Persican's analy praetomisso	-	0.2	- 100		1-1
DEastricace Kojippa nastulion - agratia	h	0.2	50		1-12
Acarling unlgance		0.7	2 50	1.2.4.5	
Al Plana Sedici Java		0.1	2		
Phytolacca octandre		0.1	. 1		
ravietaria debilio		0.1	3		-
transit Silvos anotralis	in and	0.2	20		1-1-
Lotus analyter ulingosus		0.1	8	- 104	
Veronien plebig	1	0.1	2		
- lyclosporm leptophyllum		0.1	3		
Jonders agon		0.2	20		
11 d 12 1 gomeration		0.1	6		
Hydracotyle Ligertite	0	0.1	5		
Bauley bergia gradit	PH.	0.1	2		
The couly		0.1	)		
Typha yountery		0.1	2	~ Ť	
Verbena bonariensig		0.1	2	- mileta	
lecatedon sagraticus	whit	0.1	5		
log lay. lab.	Sea )	0.1			
(ypens eragrasty		0.1	2		
Aver in secon,		0.1	20		
1X0 rolling (163) John	9	0.1	-10-	13	
Horrow Contractor 150/2017 3p.		0.3	500		1-20
	1 mars				
	1			5	
			Ê,	-	
				S.e.	
1 - 51 19132 UN					
	-				
Code: see Growth Form definitions in Appendix 1	Gra C.		10 x 13	. 2	

Dutside plot: Sananthe pluffora, Solann prugkyllum



and the second second second second	et no:								
		Survey Name	Plot Ident	ifier	Recorders	James S	icht	nebe	
Date	22/7/24	cotits at Darragh Road	L0+1+5	BAM02		yê şer şerîn perk	an El Operation	1	
Zone	Datum	IBRA region		Photo #	· · · · · · · · · · · · · · · · · · ·	Zone ID			
Easting	Northing	Dimensions	20×	som	Orientation of m from the 0m poi	idline nt	70	) 0	
Vegetation Clas	S						···· /···	Confid H M	ence: I L
Plant Communit	у Туре	PCT 3181 -	- DN	a - ne	derafe	EEC:	· · · · ·	Confid H M	ence: I L
Record easting and 0.1 ha FA plot shou	northing from the pla Id be identified, mag	ot marker. If applicable, orient picket so netic bearing taken along midline.	o that perforate	d rib points along di	rection of midline. Din	nensions (Shape)	of 0.04 ha	base plo	ot inside
BAM Attri	ibute								

(400 m² plot) Trees Shrubs Count of Native Richness Forbs Forbs Ferns Other Trees Sum of Cover Sum of Cover Sum of Cover Sum of Cover Sum of Cover Shrubs of native vascular plants by growth from group Forbs Forbs Ferns Other High Threat Weed cover BAM Attribute (1 x 1 m r Subplot score (% in Average of the 5 s Litter cover is assessed as the locations 5, 15, 25, 35, and 45r assessors may also record the scores, they hold potential valu Physiograp Morphological Type Lithology Slope Clearing (inc. logging) Cuttivation (inc. pasture) Soil erosion Firewood/CWD removal Grazing (identify native/stock) Fire damage Storm damage Weediness Other Severity: 0=no evider <i>Outer</i> <i>Subplet Score</i> (% in <i>Average of the 5 s</i> Litter cover is assessed as the locations 5, 15, 25, 35, and 45r assessors may also record the Soil erosion Firewood/CWD removal Grazing (identify native/stock) Fire damage Storm damage Weediness Other <i>Severity: 0=no evider</i> <i>Severity: 0=no evider</i>	) m <sup>2</sup> plot) Sum value	BAM Attribute (20 x 50 m plot)						#	# Tree Stems Count								
	Trees	414		dbh				Euc*	1	Ion Euc		Hollows	s†	Realivit	cord nu	mber of alypt*	ŧ
	Shrubs		1	Large tr Euc* &	rees for Non Euc	80 + cm	•	0		0		0		- (Eu nat (No	ic*) and ive non on Euc)	-eucaly stems	pt
Count of Native	Grasses etc.		1		50	- 79 (	cm	0		0		0	0		arately	allenec	ios
Richness	Forbs			30 - 4	19 cm		11	0	- der	0		0		of Eucalyptus, Corymbia,		ntus,	63
	Ferns			20 - 2	29 cm			0	11 - 11 - 1 	0		0		Loj Sy	gophori ohoster ncarpia	a, <i>non</i> and	ł
	Other			10 - 1	19 cm			0		0		O		†Ri	ecord to	otal	by
Sum of	Trees	1		5-9	cm			0		0		n/a		size	e class llows (ir	with	Jy
Cover of native	Shrubs	1.		< 5 cr	m			0		0		n/a		- dea	ad stem	is/trees)	ł
plants by	Grasses etc.			Leng	th of loo	us (m)				Sec. 1	I				tc	tal	-
growth from group	Forbs	1		(≥10c in len	m diame	eter, >{	50cm	-	0					0			
	Ferns		1	Counts	s must ap ates can b	ply to e	ach s when	ize class whe	n the numl of living tre	per of living e stems w	g tree ste ithin a cl	ems within ass is > 10	the s ). Esti	ize cla imater	ass is ≤ s shoul	10. d draw	-
	Other			from th For a r	ne numbe multi stem	med tr	ee, on	20, 30, 100, ly the largest	, 200, 300 living stem	is include	ed in the	count/estir	nate.	For h	ollows	count o	nly
(400 m <sup>2</sup> plot)       Joint Names         Image: Interstance of the state of the s	per liet	,															
BAM Attrib	h Threat Weed cover		Lit	ter cove	er (%)		Bare	ground co	ver (%)	Crypte	ogam c	over (%)		Ro	ck co	ver (%)	)
Subple	Subplot score (% in each			5 60	75	701	0	0 1	00	00	) 0	00	) (	2 (	00	0	
Avera	ge of the 5 sul	oplots	-2.1							A			1				
locations 5, 15 assessors may scores, they ho	, 25, 35, and 45m a also record the co old potential value to Physiograph	ver of roo or future	midline. Litter k, bare grour vegetation int ife featur	r cover incl nd and cryp tegrity asso es that	ludes leave ptogam so essment at may h	es, seed il crusts ttributes	ds, twig . Colle and b	gs, branchlets ction of these penchmarks, ar termining	and branch data is option of for enhance PCT at	es (less that onal – the d noing PCT nd Mana	an 10cm i lata do no descriptic ageme	n diameter) ot currently n. ent Zon	e (0	in the to bute to ptio	se 1 m : p asses nal)	( 1 m plo sment	ots
Morphologica		1	Landform				Landf	orm Pattern			Heigh	of tallest	veg		-		
Туре	Lower	lope	Element Soil Surfa	0 40	f /		0.11.0		0 1 1	(D = 1A							_
Lithology	!sh	ale	Texture	6	lay 10	an	Soll C	olour	Ked- 2	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Heigh		ayer				
Slope	6		Aspect	1	290		Site D	Irainage	Exa,	mod	Heigh	of ground	a laye	r	0.	6-	_
Plot Distu	rbance	Code	Code	Obser	rvational	levide	nce		*								-
Clearing (inc.	logging)	3	0														
Soil erosion	c. pasture)	-															-
Firewood/CW	D removal	-															
Grazing (ident	ify native/stock)	2	MAR	Sheep	0			40. N	1.1.5	anna in					ingle.		_
Fire damage	a ana a			-	19-11-14-14-14-14-14-14-14-14-14-14-14-14-			the second second	6653		135	<u> </u>		1.11	1.100	Contraction of	-
Storm damag	e	-													and the		
Other									and the state of the second					-			-
Severi	ty: 0=no evidence	, 1=light	, 2=moderate	e, 3=seve	re		Ag	e: R=recent (	<3yrs), NR	=not recer	nt (3-10y	rs), O=old	(>10)	yrs)	(		
ower has	Slope	9600	Cip	parian	2	A	2.	Adja	dur	to	be	Her	J	an	e	cose	~
alu h	ist or	etic.	Jon	inati	d h	L	Jo	to	Sw.	und		Con.	5	1#		-15	0
)																	

		4.5		
	200000	ŵ		* *
1 11. 1	James M	1/1	Y /2	VAN
N/ O.I	S 3 3	V I	1. 🔾	NCV.

Date	22/7/24 Mar Lot 1 + She for (1+1+5 Ramm T	-	F	Recorders	6	
GF	Top 3 native species in each growth form growth 5	ames	Se	Much	e	
Code	All other native and exotic species. Full species name mandatory	, E or HTE	Cover	Abund	stratu m	voud
3	Kragrostis leptostachya		20	3000		
Section 1	Microthena Stipcides Stipcides		35	3000		
() () Handidaa	hende trimdra		0-1	3	Utasi ()	Sci Sci B
14	Cotala anglials	7	0.1	20	l viouro	10.0 **
1010 38	Hance bronned	1	0.2	100		220.00
	Hypochnems radicate		3	1000	an a	
ector a	12 John Norm	1.25	•3	1000	lillig her (	
	Ganochaeta americana		05	500	iterati	
	Centaurium crythrea		0.1	5	10112	
	Ver Dascon thoppens thoughing	1	0.(	6	SALO	
	Spora Solus terms africancy		2	500		2-1
100 100000	Paspalnas dilate tun		0.2	50		
5.	Eragrastic curverla		0.2	20		
	Partyles boursers Phalaing Enquatica		0.2	50		2-2
	blontodon I saxatin		0.3	500	0K40.1	ia mai
	Casex intersa	1	).(	3	20116	newo.
1.1.2	Audropagon virginicus	(	2.1	1	BUT	
_	Plantage Inceolaty	(	0.B	100	101	i dicen Second
01 2 8 0 1 4	Holcus Innatus	(	0.2	50	They is a	
<u> </u>	Verberen banariensis		0.1	7	lio	
	Vactures glonerates	0	). 7	500		
	Juncus filenty ? sp. usitely	C	). (	1		
/	Modiola caroliniana		0.1	3		
	Nahlenbergia gracilis	0	0.1	(anle dia 1	C CALLES	
ł	teridium esculentur	1	0.2	50	eneros S. Billion -	
k	txoropus tissidation		0.1	1	en fair i	
	aroundria brazilium	0	5 - 1	1		 hertige
		1997 1997 - 1997 1997 - 1997			1	1
1	and the second of second of another second of another second					adar
	an and a state of the state of					



Date Zone Easting Vegetation Class Plant Community Record easting and ne 0.1 ha FA plot should BAM Attrib (400 m <sup>2</sup> plot Tree Shru Count of	12     7/2       Datum       Northing       Type       orthing from the identified, n       ute       ot)       es	E plot marker. I Sum value:	Pasragh region D CT rapplicable, o g taken along	FJ imensions 3 ( 8 1 orient picket s g midline.	Plot lc Lo+ 1+ 2.C	Photo X 50m S Ca	# #	Recorde Jame Orientatio from the o	rs S Schluch Zone ID on of midline Om point c EEC:	2e 5°	Confidence
Date Zone Easting Vegetation Class Plant Community Record easting and m 0.1 ha FA plot should BAM Attrib (400 m <sup>2</sup> plot Tree Shru Count of	22     72       Datum       Northing       Type       orthing from the identified, n       ute       ot)       es	Lot 14     Mt     IBRA     IBRA     P     P     P     P     P     Sum value:	Pasragh region D CT rapplicable, o g taken along	FJ imensions 3 ( 8 I rient picket s g midline.	LOT 1+ 2.C	SBAMO3 Photo X50m Sca	# #	Jame Orientatic from the o	S Schurt Zone ID on of midline Om point	<u>s</u>	Confidence
Easting Vegetation Class Plant Community Record easting and n. 0.1 ha FA plot should BAM Attrib (400 m <sup>2</sup> plot Tree Shru Count of	Datum Northing Type orthing from the be identified, n ute ot) es	IBRA P e plot marker. I nagnetic bearin Sum value:	region D C1 - f applicable, o g taken along	3 ( 8 ) grient picket s	2.C	Photo ) × 50m Sca	# Hed	Orientation from the o	Zone ID on of midline Om point	5°	Confidence
Easting Vegetation Class Plant Community Record easting and n 0.1 ha FA plot should BAM Attrib (400 m <sup>2</sup> plot Tree Shru Count of Native	Northing Type orthing from the be identified, n ute ot) es	e plot marker. I nagnetic bearin Sum value:	D CT - f applicable, o g taken along	3 ( 8 ) grient picket s	2.C	) × 50m Sca	Hed	Orientation from the o	c EEC:	5°	Confidence H M L Confidence
Vegetation Class Plant Community Record easting and n 0.1 ha FA plot should BAM Attrib (400 m <sup>2</sup> plot Tree Shru Count of Native Grou	Type orthing from the be identified, n ute ot) es	e plot marker. I nagnetic bearin Sum value:	f applicable, o g taken along	3 ( 8 ) prient picket s midline.	so that perfo	Sca	Hed	troe			Confidence H M L Confidence
Plant Community Record easting and n 0.1 ha FA plot should BAM Attrib (400 m <sup>2</sup> plot Tree Shru Count of	Type orthing from the be identified, n ute ot) es	e plot marker. I nagnetic bearin Sum value:	f applicable, o g taken along	3 ( 8 ) prient picket s midline.	so that perfo	Sca	Hed	tree	EEC:	<u>- 02880</u>	H M L Confidence
Record easting and n 0.1 ha FA plot should BAM Attrib (400 m <sup>2</sup> plot Tree Shru Count of	orthing from thi be identified, n ute ot)	e plot marker. I nagnetic bearin Sum value:	f applicable, o g taken along	3 ( 8 ) prient picket s midline.	so that perfo	Sca	Hed	tree	C EEC:		Connuence
0.1 ha FA plot should BAM Attrib (400 m² plot Tree Shru Count of Nativo	be identified, n ute ot)	Sum value	g taken along	midline.	so that perto	rated rib points		1.00.	2		HML
BAM Attrib (400 m² pla Tree Shru Count of Nativo	ute ot) es	Sum value				rated fib points	along dire	×oti C	line. Dimensions (Sha	ape) of 0.04	ha base plot insid
Count of	es							C	,		
Count of Count of Count	es		BAN	Attribut	e (20 x 50	m plot)		# Tree Ste	ems Count		
Count of Grow			dbh			Euc*		Non Euc	Hollows	* Red livin	ord number of g eucalypt*
Nativo Gro	ubs		Large Euc* a	trees for & Non Euc	80 + cm	' l		0		(Eu nati	c*) and living ve non-eucalyp n Euc) stems
Richness	sses etc.			50	79 cm	"'' 4		0		sep	arately
Fort	os		30 -	49 cm	4471	Ĺ		0		*inc of E	ludes all species lucalyptus,
Ferr	IS		20 -	29 cm	11(1	4		0		Ang Lop	ophora, hostemon and
Othe	er			19 cm		6		0		Syn	carpia
Tree Sum of	S		5-9	l cm				0		num num	ber of stems by class with
Cover Shru of native	ibs					0	-	0	n/a	hollo dead	ows (including d stems/trees)
vascular Gras	ses etc.		< 5 C			0	7+7	0	n/a		
growth Forb from group	s		(≥100	cm diamet	er, >50cm	1	7 - 7				total
Fern	s		Count	ts must app	ly to each s	ize class whe	n the num	ber of living	tree stems within th	ne size clas	s is ≤ 10.
Othe	r		from t For a	he number multi stemn	series: 10, : ned tree, or	20, 30, 100, ly the largest	, 200, 300 living sten	e stems wi	thin a class is > 10.	Estimates :	should draw
High Threat Weed	cover		the pr when	esence of a the tree is n	stem conta nulti-stemm	aining hollows ed. The hollow	, not coun w-bearing	t the hollow stem may b	in that stem. Only be a dead stem.	count as 1	stem per tree
BAM Attribute (1	x 1 m plots		Litter cove	er (%)	Bare	ground co	ver (%)	Crypto	gam cover (%)	Roc	k cover (%)
Subplot scor	re (% in eac	ch) 25	30 90	70 90	30	0 0	00	00	000	00	000
Average of t	the 5 subple	ots									
locations 5, 15, 25, 35, assessors may also rec	and 45m along	the midline. Lipf rock, bare gr	tter cover incl bund and cryp	of litter record ludes leaves ptogam soil c	led from five seeds, twig rusts. Colle	e 1 m x 1 m plo is, branchlets a ction of these d	its located and branch lata is optic	on alternate es (less than onal – the da	sides and 5 m from the 10cm in diameter). V	ne plot midlin Within these	ne at the 1 m x 1 m plots
scores they hold noton	ography +	safe feat	ures that	may he	butes and be Ip in det	enchmarks, an ermining	d for enhar PCT ar	ncing PCT de	escription.	(ontion:	
scores, they hold poten Physic	J	Landfor	m t	hillslope	Landfo	orm Patter			Height of tallest ve	g	18~
scores, they hold poten Physic Morphological Type	lidslope	Elemer		1	0.110	blour	Bri		Height of shrub law	er	1.
scores, they hold poter Physic Morphological Type Lithology	lidslope	Elemer Soil Su Texture	face (	lay-le	AN SOIL CO		VION	m	ricight of shirub lay		VIA
scores, they hold poter Physic Morphological Type Lithology Slope	To To	Elemen Soil Su Texture Aspect	face (	lay-11, 5°	Soli Co Site Dr	ainage	Diam	m	Height of ground la	yer	0 35m
scores, they hold poter Physic Morphological Type Lithology Slope Plot Disturbanc	e sec	Elemer Soil Su Texture Aspect Perity Age Code	face ( Obser	Jay-1. 5° vational ev	Site Dr Vidence	ainage	010-	m	Height of ground la	yer	0.35m
scores, they hold poter Physik Morphological Type Lithology Slope Plot Disturbanc Clearing (inc. logging) Cultivation (inc. pastur	e Ser P	Elemen Soil Su Texture Aspect Perity Age Code	face ( Obser	vational ev	Site Dr vidence	ainage	Dien		Height of ground la	yer	0.35m
scores, they hold poter Physic Morphological Type Lithology Slope Plot Disturbanc Clearing (inc. logging) Cultivation (inc. pastur Soil erosion	e Sec 2 2 2 2 2 2 2 2 2 2 2 2 2	Elemen Soil Su Texture Aspect erity Age Code	face ( Obser	vational ev	Site Dr vidence	ainage	Diem		Height of ground la	yer	0.35m
scores, they hold poter Physic Morphological Type Lithology Slope Plot Disturbanc Clearing (inc. logging) Cultivation (inc. pastur Soil erosion Firewood/CWD remov	e Sec P e Sec al	Elemen Soil Su Texture Aspect Perity Age Code Code Code Code Code Code Code Cod	face ( Obser	vational ev	Site Dr vidence	ent	0100		Height of ground la	yer	0.35m
scores, they hold poter Physic Morphological Type Lithology Slope Plot Disturbanc Clearing (inc. logging) Cultivation (inc. pastur Soil erosion Tirewood/CWD remov Grazing (identify native/s Tire damage	e Sev P e Co re)	Elemen Soil Su Texture Aspect Code Code Code NC	face ( Obser	vational en	Site Dr Vidence	ent sh	eep	dung	Height of ground la	yer	0.35m
scores, they hold poter Physic Morphological Type Lithology Slope Plot Disturbanc Clearing (inc. logging) Cultivation (inc. pastur Soil erosion Firewood/CWD remov Brazing (identify native/s Fire damage Storm damage	e Sev P e Co re) al 7 stock) 2	Elemen Soil Su Texture Aspect Code Code Code Code Code Code Code Code	face ( Obser	lay-li 5° vational en (ogs	Site Dr Vidence	enf	eep	dug	Very high	yer	0.35m
scores, they hold poter Physic Morphological Type Lithology Slope Plot Disturbanc Clearing (inc. logging) Cultivation (inc. pastur Soil erosion Firewood/CWD remov Brazing (identify native/s Fire damage Storm damage Veediness	e Sev e Co re) al 7 slock)	Elemen Soil Su Texture Aspect Pode Code Code Code N C	face ( Obser	lay-la 5° vational en (ogs	site Dr vidence	enf	eep	dug	Very high		0.35m



GF	Top 3 native species in each arouth t		s occ	marke		
ode	All other native and exotic species. Full species name mandato.	ny N, E or HTE	Cover 45	Abund	stratu m	vo
	the baueriang		B	6		
in.	Cerchnes clandesting		70	1000		
N. 3 Achora	Enchanta execta		3	1000	ensil i	pter
	Stellan's media	</td <td>0.3</td> <td>1000</td> <td></td> <td></td>	0.3	1000		
210 232	Daitylis glomeratus	in britan park	0.1	10		
	Knuex brownii	}	0.1	10		
0.011	Congra g.	A CALL SE	01	5	ala na al	19.53 Mar
1000	Sonchus ager		0.1	10		
10.00	Sonchuy devacus		0.	8		
1	Einedig nutary		0.	0		0.000
	Cirsium Vulgare		0.1	2		5 3 4 5 125 - 511
1	halary aquatica		0.1		666	
	Urtica doica	· · · · · · · · · · · · · · · · · · ·	0-1	7		
		- 01	0.1	T		
	An and				-	
	116.50					1 1 1 1 1
						12.16
		+				
1000	1. Contractor of the state o			192	10	
				1640. žes	evil in period	7 64
		Constant of		ig mit e n	1000	1. 15 0
		1		an di ma	<ul> <li>1(2), (3)</li> </ul>	6
			and the second		Seren a s	
	in the second	**************************************				
1					9.1911.en ant	
					15 226	
1						
	Respective Control					4.4
				ans		101
ode:	see Growth Form definitions in Arrow Visit					

															n Sm																
						-																									
vouc tec	ulatia m	Abund.	Cover				úS.	oup. Full s les came						Top 3 I																	
			BAM	Site – F	ield Survey F	orm			19	Site Sh	eet no.		- anda	Parts 1																	
		1 7		Survey	Name	Plot Id	entifier		Reco	rders		1	1																		
70	Date	22/-	7/24	Lot 1.	+5 Mf Darrach	Lot1-	+5BAn	104	Je	mes	Schle	uler	e																		
Fas	sting	Not	hine	IBRA reg	jion		Phot	to #	1000		Zone II	5	T		-																
			ining		Dimensions	20:	x 50r	n	Orient from t	ation of m ne Om poi	nidline	Τ	30	0	-																
Vegetat	tion Clas	s										1		Co	nfidenc																
Plant C	Communit	у Туре		Fx	atic aca		1				1	4		H	M L																
Record ea	easting and	northing fro	m the plot	marker. If ap	plicable, orient picket so	that perfor	ated rib poi	nts along di	ection of	nidlino Dim	EEC:			н	M L																
B	AM Attri	bute	ea, magne	Lic bearing ta	ken along midline.			ine along all	COLOT OF	niunne. Din	iensions (Si	hape) o	of 0.04	ha base	plot ins																
(4	400 m <sup>2</sup> p	lot)	Sum	values	BAM Attribute	(20 x 50	m niot)		# Trees	04				1																	
	Tre	es			dbh		Euc*		Non E	uc	Hollow	/s†	Rec	ord nur	mber of																
	Sh	rubs	-		Large trees for Euc* & Non Euc	80 +	0	,											-						0				- (Eu	g euca c*) and	ypt* living
Native	of Gra	asses etc.			50 -	79 cm	0		(	0	C		(Nor sep	n Euc): arately	stems																
lichne	Foi	bs			30 - 49 cm		0		(		C	)	+incl	udes a	Il speci																
	Fer	ns	-				0			2	C		Cory	ucarypt /mbia, ophora	us,																
	Oth	er			20 - 29 cm		0		C	2	0		Lopf Sync	nostem carpia	o <i>n</i> and																
	Tre	es			10 – 19 cm		0		0	フ	0		†Rec	cord tot	al teme b																
Cover	r Shr	ubs			5 – 9 cm		0		С	)	n/a		size hollo	class w ws (inc	ith luding																
ascula	ar Gra	sses etc.			< 5 cm		0		С	)	n/a		dead	stems	trees)																
growth om grou	Forl	os			Length of logs ( (≥10cm diameter	<b>m)</b> , >50cm								tota	ıl																
4	Ferr	ns			Counts must apply	to each siz	e class wh	en the nun		ing tree etc	mo within t			C	)																
					Estimates can be us	sed when t	the number	r of living th	ee stems	within a al	ans within	ne siz	e class	$s$ is $\leq 11$	).																
	Othe	ər			from the number se.	nes: 10, 20	0, 30, 10	0, 200, 300	)	within a Cla	ass is > 10.	Esun	nates s	hould c	iraw																
gh Thr	Othe	er d cover			For a multi stemmer the presence of a st when the tree is multi	d tree, only em contair Iti-stemme	0, 30, 10 the larges ning hollow d. The holl	0, 200, 300 st living ster /s, not coun	) m is inclu It the holl	ded in the o ows in that	count/estim stem. Only	ate. F	nates s <sup>;</sup> or holl t as 1 s	hould c ows co stem pe	unt only																
gh Thr AM Attr	Othe reat Weed tribute (1	er d cover x 1 m ple	ots)	Litte	from the number se For a multi stemmer the presence of a st when the tree is mul	d tree, only tem contair Iti-stemme	0, 30, 10 y the larges ning hollow d. The holl round co	0, 200, 300 st living ster /s, not cour low-bearing	) m is inclu- it the holl- stem ma	ded in the o bws in that by be a dea	count/estim stem. Only d stem.	ate. F	For holi t as 1 s	hould constant	unt only tree																
gh Thr AM Attu Sub	Othe reat Week tribute (1 oplot sco	er d cover x 1 m pla re (% in	ots) each)	Litte	For a multi stemmed the presence of a st when the tree is mu Fr cover (%)	d tree, only tem contair Iti-stemme Bare gr	0, 30, 10 / the larges ning hollow d. The holl round co	00, 200, 300 st living ster /s, not courn low-bearing /ver (%)	m is incluit the hold stem ma	ded in the o ows in that y be a dea	count/estim stem. Only d stem.	nate. F	For holl t as 1 a	should constempt	unt only ar tree (%)																
gh Thro AM Attu Sub Ave	Othe reat Week tribute (1 oplot sco erage of	er d cover x 1 m pla re (% in the 5 sub	ots) each) pplots	Litte	For a multi stemme For a multi stemme the presence of a st when the tree is mu Fr cover (%) 65 80 70	d tree, only tem contair Iti-stemmer Bare gr	0, 30, 10 v the larges ning hollow d. The holl round co	00, 200, 300 st living ster /s, not cour low-bearing /ver (%)	m is inclu the hold stem ma <b>Crypt</b>	ded in the constraints in that by be a deal ogam correction of the constraints of the con	ass is > 10. count/estim stem. Only d stem. ver (%)	coun	For holl t as 1 t Rock	should c ows co stem pe cover	unt only r tree																
gh Thro AM Attr Sub Ave er cover ations 5, sessors n ores, they	Othe reat Week tribute (1 oplot sco erage of f 'is assesse , 15, 25, 35, may also re whold note	d cover x 1 m pla re (% in the 5 sub d as the ave and 45m a cord the coo	each) ( polots) erage perculong the m ver of rock,	Little 6555	For a multi stemme For a multi stemme the presence of a st when the tree is mu Fr cover (%) 65 80 70 d cover of litter recorder over includes leaves, se and cryptogam soil crus	I from five 1 from five 1	0, 30, 10 the larges ning hollow d. The holl round co 1 m x 1 m p branchlets ion of these	00, 200, 300 st living ster rs, not courr low-bearing <b>ver (%)</b> O lots located and branch data is optic	on alterna on alterna	ded in the o ows in that y be a dea ogam co O	ass is > 10. count/estim stem. Only d stem. ver (%) 0 0 0 0 0 0 0 0 0 0 0 0 0	coun	ror holl t as 1 : Rock	cover	unt only r tree (%)																
gh Thn AM Attu Sub Ave er cover ations 5, ressors n res, they	Othe reat Week tribute (1 oplot sco erage of the is assesse , 15, 25, 35, 15, 25, 35, may also re y hold poter Physi	ar d cover x 1 m pla re (% in the 5 sub d as the ave and 45m a and 45m a cord the con- ntial value for Ograph	each) each) plots erage perce long the m ver of rock, or future ver / + Safe	Little	For a multi stemme the presence of a st when the tree is mu <b>F cover (%)</b> 65 80 70 d cover of litter recorded over of litter recorded over includes leaves, se and cryptogam soil crua grity assessment attribut s that may help	Bare gi Bare gi C C I from five 1 beds, twigs, sts. Collecti is ad ben in dete	0, 30, 10 ( the larges hing hollow d. The holl round co ) ( ) ( ) 1 m x 1 m p branchlets ion of these armining	00, 200, 300 st living ster vs, not courr low-bearing <b>ver (%)</b> 0 0 lots located and branch data is optie nd for enhau	on is inclu to the holl stem ma Crypt G C on alterna on alterna ses (less th onal – the noing PCT od Maar	ded in the o ows in that y be a dea ogam co O O	ass is > 10. count/estim stem. Only d stem. ver (%) d 5 m from t diameter). currently co	estin rate. F r coun 0 he plo Within within	Rock	e at the line 1 isessme	m plots																
gh Thr AM Attu Sub Ave er cover ations 5, sessors n res, they rphologine	Other reat Week tribute (1 oplot sco erage of fi is assesse 15, 25, 35, may also re y hold poter Physi ical	ar d cover x 1 m plo re (% in the 5 sub d as the ave and 45m a cord the con- tial value for ography 1 J S log	each) plots arage perce long the m ver of rock, or future ve / + safe	Little	For a multi stemme, for a multi stemme, the presence of a st when the tree is mu <b>Fr cover (%)</b> 65 80 70 d cover of litter recorder over includes leaves, se and cryptogam soil crus grity assessment attribut s that may help	d tree, only tem contain Iti-stemme Bare gu C C I from five 1 peds, twigs, sts. Collectives and ben in deter Landform	0, 30, 10 the larges ning hollow d. The holl round co ) () () 1 m x 1 m p branchlets ion of these ichmarks, a rmining Pattern	00, 200, 300 st living ster vs, not cour low-bearing <b>ver (%)</b> 0 0 lots located and branch data is option <b>PCT ar</b> 4, //(<	on is incluit the hold stem ma Cryptic	ded in the dows in that y be a dea ogam co D D D D te sides an inan 10cm in description aggeme Height of	ass is > 10. count/estim stem. Only d stem. ver (%) d 5 m from ti diameter). currently co nt Zone tallest ven	he plo Within antribu	rates s For holl that as 1 s Rock t midlin these f ite to as tiona	e at the isessme i)	maw unt only r tree (%)																
gh Thr MM Attu Sub Ave er cover ations 5, essors n res, they rphologi e ology	Other reat Week polot sco erage of f is assesse 15, 25, 35, may also re y hold poter Physi ical	ar d cover x 1 m pla re (% in the 5 sub d as the ave and 45m a coord the coord thic 0 coord the coord thic 0 coord the coord ograph 1 J S log 7 S L	each) ( pplots arage perculations of the first of the fir	Little 65 50 entage ground getation inter 5 feature Landform Element Soil Surface Fexture	For a multi stemme For a multi stemme the presence of a st when the tree is mu <b>F cover (%)</b> 65 80 70 d cover of litter recorded over includes leaves, se and crybogam soil crue grity assessment attribut <b>s that may help</b> Clay I cam	d tree, only tem contain lti-stemme Bare gu Bare gu C C I from five 1 eeds, twigs, sts. Collecti Landform Soil Color	0, 30, 10 the larges ning hollow d. The holl round co ) () () 1 m x 1 m p branchiets ion of these ichmarks, a rrmining n Pattern ur	10, 200, 300 st living stea ver (%) ver (%) 0 0 10ts located and branch data is option nd for enhan PCT ar H 1/(s R 100 400	on is inclu it the holid stem ma Crypt O C O C O O O O O O O O O O O O O O O O	ded in the dows in that y be a dea ogam co 0 0 0 0 10 0 10 0 10 0 10 0 10 0 10 0	ass is > 10. count/estim stem. Only d stem. ver (%) d 5 m from t diameter). currently co nt Zone tallest veg	he plo	Rock	cover	maw (%)																
gh Thr M Attu Sub Ave er cover ations 5, essors m res, they rphologi e ology pe	Other reat Week tribute (1 oplot sco erage of f is assesse 15, 25, 35, may also re y hold poter Physi ical	ar d cover x 1 m plot re (% in the 5 sub d as the ave and 45m a coord the coord tital value for Ography $1 \le \log_2(2 + 1)$	ots)       each)       plots       arage percentions the more of rock, or future very       / + safe       0 2       1	Little 65550 entage ground getation integ se feature Landform Element Soil Surface Texture Aspect	For a multi stemme For a multi stemme the presence of a st when the tree is mu Fr cover (%) 65 80 70 d cover of litter recorded over includes leaves, se and cryptogam soil crue grity assessment attribut s that may help Clay lama 10 0	d tree, only tem contain liti-stemme Bare gu C C d from five 1 aeds, twigs, sts. Collecti- tes and ben in dete Landform Soil Colou Site Drain	0, 30, 10         the larges         ning hollow         d. The holl         round co         0       0         1 m x 1 m p         branchlets         ion of these         chmarks, a         rmining         n Pattern         ur         hage	00, 200, 300 st living ster vs, not cour low-bearing ver (%) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	on alterna Crypt O C O C O C O C O C O C O C O C	ded in the dows in that y be a dea ogam co ogam co oga	ass is > 10. count/estim stem. Only d stem. ver (%) d 5 m from t diameter). currently co mt Zone tallest veg shrub laye ground lay	r er	t midlin these titiona	cover cover cover a the 1 m x 1 isessme l)	(%)																
gh Thr AM Atta Sub Ave er cover ations 5, essors n res, they ology phologic e ology be ot Dist	Other reat Week tribute (1 pplot sco erage of 1 is assesse, 15, 25, 35, may also re y hold poter Physi ical //	ar d cover x 1 m plo re (% in the 5 sub d as the ave and 45m a cord the co ography 1 d S log 7 sh 6° e	each)   plots erage percr long the m /er of rock, or future ver / + Safe ) &   M C   Sevenity Code	Little 65 5 entage ground getation inter 5 feature Landform Element Soil Surface Fexture Age Code	For a multi stemme For a multi stemme the presence of a st when the tree is mu For cover (%) 65 80 70 d cover of litter recorder sover includes leaves, se and cryptogam soil crus grity assessment attribut s that may help Clay land 10 0 Observational evide	d tree, only tem contain lti-stemme Bare gi C C d from five 1 eeds, twigs, sts. Collecti tes and ben in dete Landform . Soil Colou Site Drain ence	0, 30, 10 the larges ning hollow d. The holl round co D O ( 1 m x 1 m p branchiets in on of these achmarks, a rmining n Pattern ur nage	00, 200, 300 st living ster vs, not cour low-bearing <b>ver (%)</b> 0 0 lots located and branch data is option ref ar soption <b>PCT ar</b> <i>H</i> 1/(s <i>B</i> 1000	on is incluit the hold stem ma Crypto	ded in the dows in that y be a dea ogam co ogam co oga	ass is > 10. count/estim stem. Only d stem. ver (%) d 5 m from n diameter). currently co nt Zone tallest veg shrub laye ground lay	hate. F cour	rates s For holl at as 1 Rock t midlin these tite to as	e at the lisessme biological sets biological s	(%)																
gh Thr AM Attu Sub Ave er cover ations 5, ressors n res, they rphologi be pology pe ot Dist aring (inc tivation (	Other reat Week tribute (1 oplot sco erage of f is assesse 15, 25, 35, may also re y hold poter Physi ical // turbanc nc. logging) (inc. pastu	ar d cover x 1 m plot re (% in m the 5 sub d as the ave and 45m a coord the coord that a value for coord the coord tital value for Ography 1: $J > Jog$ c e re)	ots)       each)       plots       arage percention on the more of rock, or future vere of	Little 65550 entage ground getation intege entage ground getation intege feature Litter of bare ground getation intege feature Landform Element Soil Surface Texture Aspect Age Code O	For a multi stemme, For a multi stemme, the presence of a st when the tree is mu Fr cover (%) 65 80 70 d cover of litter recorder over includes leaves, se and cryptogam soil crus grity assessment attribut s that may help Clay lagan 10 0 Observational evide	d tree, only tem contain liti-stemme Bare gi C C d from five 1 eeds, twigs, sts. Collecting tes and ben in deter Landform Soil Colou Site Drain ence	0, 30, 10         the larges         ning hollow         d. The holl         round co         D       O         I m x 1 m p         branchlets         branchlets         branchlets         prining         Pattern         ur         hage	00, 200, 300 st living ster vs, not cour low-bearing ver (%) 0 0 lots located data is opti- nd for enhar PCT ar H : I (s	on alterna on alterna on alterna on alterna es (less th onal – the ncing PCT nd Mar 10p2 1 m	ded in the dows in that y be a dea ogam co ogam co oga	ass is > 10. count/estim stem. Only d stem. ver (%) 1 5 m from t diameter). currently co nt Zone tallest veg shrub laye ground lay	countribution (op)	ror holl t as 1 Rock t midlin these to as tiona	e at the iseesment iseessment iseesment	inaw unt oni r tree (%) D C m plots int																
gh Thr AM Attr Sub Ave er cover ations 5, seesors n res, they rphologi- be ology pe ot Dist aring (in tivation ( erosion)	Other reat Week polot sco erage of ( is assesse to be a seesse y hold poter Physi ical // turbanc t. logging) (inc. pastu	ar d cover x 1 m plot re (% in the 5 sub d as the ave and 45m a coord the coord ography $1 (J_5) op$ $7 \le 1$ $6^{\circ}$ e re) al	ots)       each)       plots       arage percentions the more of rock, or future very       / + safe       0 R       1 / + safe       0 R       1 / Severity       Code       3	Little 65550 entage ground idline. Litter of bare ground getation inte- s feature Landform Element Soil Surface Fexture Aspect Age Code O	For a multi stemme For a multi stemme the presence of a st when the tree is mu Fr cover (%) 65 80 70 d cover of litter recorder xover includes leaves, se and cryptogam soil cru grity assessment attribut s that may help CIAY Can 10 0 Observational evide	d tree, only tem contain lti-stemme Bare gu C C d from five 1 eeds, twigs, sts. Collecti- tes and ben in detei Landform Soil Colot Site Drain ence	0, 30, 10 the larges ning hollow d. The holl round co D O O O 1 m x 1 m p branchlets ion of these tchmarks, a rmining n Pattern ur hage	00, 200, 300         st living ster         vs, not cour         low-bearing         ver (%)         O         O         Itots located         and branch         data is optimed for enhant         PCT ar         H1/(s         B1000	m is inclu m is inclu the hold stem ma Crypt 6 6 6 6 6 6 6 6 6 6 6 6 6 6 7 7 7 7 7 7	ded in the dows in that y be a dea ogam co ogam co ogam co ogam co ogam co ogam co ogam co ogam co data do nol description lageme Height of Height of	ass is > 10. count/estim stem. Only d stem. ver (%) 0 0 15 m from diameter). currently count tallest veg shrub laye ground lay	C Court	rates s For holl t as 1 Rock t midlin t midlin t these t to as	ihould c       ows co       stem pr       cover       č       č       č       im x 1       issessme       j)       č       č	(%)																
gh Thn AM Attu Sub Ave ter cover ations 5, sessors n pres, they rphologion pe ot Dist aring (int tivation (i erosion wood/Cr zing (ide cdamac	Other reat Week tribute (1 pplot sco erage of 1 is assesse y hold poter physi ical //) turbanc nc. logging) (inc. pastu h wWD remov	ar d cover x 1 m plot re (% in the 5 sub d as the ave and 45 m a coord the coord ography $1 \cdot d \leq low$ $2 \cdot d + c$ e re) re) re) re) re) re) re)	pots)       each)       pplots       arage percention       long the m       ver of rock, or future vertige       ver of rock, or future vertige	Little 65 5 entage ground igetation inter 5 feature Landform Element Soil Surface Fexture Aspect Age Code O O C	from the number se For a multi stemme, the presence of a st when the tree is mul- <b>PT COVER (%)</b> 65 80 70 d cover of litter recorder sover includes leaves, so and cryptogam soil cru- grity assessment attribut <b>S that may help</b> Clay land 10 ° Observational evide	d tree, only tem contain lti-stemme Bare gu C C d from five 1 eeds, twigs, sts. Collectine tes and ben in dete Landform Soil Colou Site Drain ence	D, 30, 10 the larges ning hollow d. The holl round co D O O I m x 1 m p branchiets on of these achmarks, a rmining n Pattern ur nage	10, 200, 300 st living ster ver (%) 0 0 10ts located 10ts located 10ts located 10ts located 10ts located 10ts located 10th located	m is inclu m is inclu t the holid stem ma Crypt C C C C C C C C C C C C C C C C C C C	ded in the dows in that y be a dea ogam co ogam co oga	ass is > 10. count/estim stem. Only d stem. ver (%) 0 0 d 5 m from n diameter). currently ca nt Zone tallest veg shrub laye ground lay	er	nates s for holl it as 1 in the set of the s	ihould c ows co stem pr cover cover c e at the l m x 1 isessme l)	(%)																
igh Thr AM Attu Sub Ave ter cover ations 5, sessors m pres, they rphologi ce nology pe ot Dist aring (intivation ( erosion wood/CV zing (idea damage m dama	Other reat Week tribute (1 pplot sco erage of 1 is assesse, 15.25.35, may also re y hold poter Physi ical // turbanc tc. logging) (inc. pastur WD removemitly native/ e age	ar d cover x 1 m plot re (% in the 5 sub d as the ave and 45m a cord the co ography $1 (d S) ography 2 (d S) (d S) (d S) (d S)ere)alalstock$	ots)       each)       pplots       arage percellong the may       or of rock, or future very       / + safe       of	Little 65550 entage ground idline. Litter ( bare ground getation integetation integetation bare ground getation integetation bare ground getation bare ground getatio	from the number se For a multi stemme the presence of a st when the tree is mu Fr cover (%) 65 80 70 d cover of litter recorder cover includes leaves, se and cryptogam soil cru- grity assessment attribut s that may help Clay loam 10 0 Observational evide	d free, only it d free, only it d free, only it d free, only it d free gu C C C C C C C C C C C C C C C C C C	0, 30, 10 the larges ning hollow d. The holl round co 0 0 0 0 1 m x 1 m p branchlets ion of these ichmarks, a rmining n Pattern ur hage	00, 200, 300 st living ster vs, not cour low-bearing ver (%) 0 0 lots located and branch data is opti ind for enha PCT ar H i I (s	on alterna crypt on alterna es (less the noing PCT nd Mar 10pe	ded in the dows in that y be a dea ogam co D D D D D D D D D D D D D D D D D D D	ass is > 10. count/estim stem. Only d stem. ver (%) 15 m from t diameter). currently co- nt Zone shrub layee ground lay	the plo	rates s	ihould c         ows co         stem pr         cover         cover <td>m plots</td>	m plots																

400 m	<sup>2</sup> plot: Sheet   of   Survey Name Plot Identifie	r	Re	corders		
Date	22/7/24 Lot 1 tomp Rd Lot 1+5 BAMO.	4 Jam	28	Schlu	whe	
GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species. Full species name where practicable	N, E or HTE	Cover	Abund	stratu m	vou
	Cenchury dandesting	a - Field Sun	90	1000	alaren de contra de la casa de la	
	Dactylis glonovates solumetical	urvey Name	2	500		
	Trifolium repens	a sa sa sa	1	500	Date	
	Paspalum dilatatum	RA region	0.1	5	enos	
	Holcus Imatus	Dimer	<b>\$</b> 3	1000	Bunse	
idence:	Hypochaeris sadicate		0.1	8	tation Cla	Vage
idence:	Conium Maculation		0.1			
J M	Sonchur asper,	C-84 14	0.1	3	Commu	nsi4
	Phalains Paquetica	bini gnola inviti along bini gnola inviti bini gnola inviti	0.2	50	r oksien) a FA plot six	2-
	hermin Sol. Sol.	89U161	0.1	aiydh ttole	BAM At	
to tech	Microlanena stip. Stip.	ddh	.O·1	6		
Ming watyp	(Euc') and and a set of the set	gad proz 1		~~~~~		
tems	o Euc Crn (Non Euc)	Euc' & No		3/3/1114	ni of	Ca
i specie	50 - 79 cm			6 6588636	tiva iness 🗠	N/ Rici
	cm Carymita	30 - 49		9010 -	a	
bns nr	Cm Coposien	20 ~ 29		emo		
ter Namei	Phone in the second be	0F0F		priner		
nth Altriding	922 Chief V			2991		
(8961)	duad stem			aduntia	10 01	36 Q
	[0]	< 6 cm	.5	Grasses e	nalua	110 28V
2	i of logs (m) i diamater. >50cm	Length (210cm		adia	- ૧૦ દગ નાંપ્રય	ng ge
	ה) הישה הנוצע לא ישטלי איניי בערבי שינים אוניי ווני רינוניסטי וול איניים לעים שלאינים זו וונירותי שנגי בושטי ש יי	Ignai ni			- dhous	CLOH .
Ciresy	ss can be used when the number of juing trae stems webut a class is > 10. Estimates should number strike 10, 20, 30, 30, 200, 200.	lonită		19:110		
9811 751	ub stammad bee only the ladgest twing stam is included in the contribution in a routine stammat. Anne of a stam containing final down, find count the holious in that stam. Only count as 1 stam the stammater of the tother beat when the may be a dead stam.	For a new state or a				
(30) 10	e lieb is numer control cover (%) Command cover (%) ROCK COV	ni nadiv		100 00019	10.2111	.8
10		10105 10113	01015) 01015)	20 anno 1		BAI
			solution	0 5/1 10 5	USIOVA	
lee CECEPIO	hiter recended from tive T m x 1 m piots located on attemate aides and 5 m from the piot midline at 1 day mewer, yaever mays "previnente and pratiques mare yourn round no dan letter", when direb 110 X	centage grout distant of		11 28 0 82 20 11 11 28 0 8 20 11	10 61 19700 10 61 19700	istli.]
n valan	egam soù cruste. Coluccion of tivese data is optional - Ine data do net cumently commoure to assess entre soù cou con terrori e la contracente SET descrittion en la contracente en la contracente en la contracente	k, bare groon Fand crypt	00110-19900-	aso recold fi	seens may	8256 9003
	may help in determining PO I and Management 2016 (0pt/01at)	te featurnis that I	ippy + sa	angoisy is	1 Instantion	10101
	Son Could Son Could State Sta	Elemeni Best Suctors				Typ
	Site Dramage Height of ground layer	516/181 779927				1010
	strong cradnos	608 Calls Obsort	May SS			193
GF Cor	de: see Growth Form definitions in Annendix 1 N: notive Er evote LITE: h	igh throat avatio		(0/16) 0	200 200	ato ]
Cover: a circle	0.1, 0.2, 0.3,, 1, 2, 3,, 10, 15, 20, 25, 100% (foliage cover); Note: 0.1% cover about 71 cm across, 0.5% cover represents an area of anomylinoitable 4 and 4	represents an area o	GF – C	ely 63 x 63	t 'top 3'.	
a circle Abund	about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and ance: 1, 2, 3,, 10, 20, 30, 100, 200,, 1000,	d 1% = 2.0 x 2.0 m, 5	% = 4 x 5 m,	ely 63 x 63 25% = 10 x	cm or (10 m	

									0										
									AXI	9					129101 5916	eqple & eviti			
			2001	BAM	Site - Fi	ielc	Survey	For	m			IS	ite Sh	eet r	0.				
			2001	1.00	Survey M	lam	8	F	Plot Iden	tifier		Recon	ders		10.				
	D	ate	22/3	7/24	Lot 1+5	M	+ Darragh	Rd i	otits	R han (	15	Ter	Ma		5	64	. [		
	Zone		Da	tum	IBRA reg	ion		14		Photo	 h#	1000	-3	170			T		
E	Easting		Nor	thing	1		Dimensions	1			J#	Orienta	tion of	ZO	ne ID			23	
						-			20×	eso.		from th	e Om po	oint			11	5	
Vege	etation	Clas	S													I		Conf	idence:
				4 0							(							H	ML
Plant	t Comn	nuni	у Туре	.0.	E>	<0	tic .	75	ass	m	ds			EE	C:			L	dence:
Recon 0.1 ha	d easting FA plot	g and shou	northing fro	om the plot fied, magn	marker. If app etic bearing tal	licab ken a	le, orient picket. long midline.	so tha	at perforate	ed rib poin	its along di	rection of n	nidline. Di	mension	ns (Sh	ape) of	f 0.04 h	a base p	olot inside
	BAM	Attr	ibute	T															
	(400	m <sup>2</sup>	olot) '	Sur	n values	F	BAM Attribut	e (20	0 x 50 m	plot)	1	# Troo	Stome (	Count					
		Tr	ees			d	lbh		F	Fuc*		Non El	JC	H	ollow	st	Reco	rd num	ber of
Date         12/7/1/4         Lot 11×5 M F Murduel         Lot 11×5 G Am 0.5         James         Sch Murduel           Zone         Datum         IBRA region         Photo #         Zone ID		pt* ving																	
Cou	nt of		11005	_		E	uc* & Non Euc	cn	n	C			0		0		nativ (Non	e non-e Euc) st	ucalypt ems
Nat	tive	G	asses et	C.			50	- 79	9 cm	C	3	(	0		0		sepa	rately	
. don	1000	Fo	orbs			3	0 - 49 cm	1		0					0		*inclu of Eu	des all calvotu	species s.
		Fe	rns			F				0		0	·	ļ	0		Cory	nbia, phora	
					-	2	0 – 29 cm			0		0			0		Loph	ostemo	n and
		01	her			1	0 – 19 cm		1	2		0		1			tDee	anglia	
~		Tn	ees			-					_	0			0		numb	er of st	ems by
Co	n of ver	Sh	rubs			5	– 9 cm		(	)		0			n/a		hollow	vs (inclu	.n Jding
of na	ative				-	<	5 cm		(	)		0			n/a		dead	stems/t	rees)
plant	s by		asses ell			L	enath of loa	s (m	a					1				tota	
from g	group	Fo	rbs			(2	10cm diame	ter, >	>50cm				0					tota	•
		Fe	ms			C	ounts must app	ly to	each size	class wh	en the nu	mber of liv	ing tree	stome	a citibin d			(	2
		Ot	her			E	stimates can be	use	d when th	e number	r of living	tree stems	within a	class is	s > 10.	. Estin	e class lates s	$10 \le 10$	raw
						Fo	or a multi stem	ned t	ree, only i	the larges	st living st	em is inclu	ded in th	e count	t/estim	nate. F	or holl	ows cou	int only
High	Threat	We	ed cover			w	nen the tree is i	multi-	stemmed	. The holi	low-bearin	int the hold	ows in th ay be a d	ead ster	n. Only em.	/ coun	tas 1 s	stem pe	r tree
BAM	Attrib	ute (	1 x 1 m p	olots)	Litte	er co	over (%)	T	Bare gro	ound co	over (%)	Crypt	ogam o	over	(%)		Rock	cover	(%)
5	Subplo	t sc	ore (% in	each)	55 80	9	75 8	51	60		00	00	20	0	0	0	0		10
	Avera	ge o	f the 5 su	bplots		-		-	<u> </u>	<u>I I</u>	010		- 10	101			01	010	10
Litter co	over is a	ssess	sed as the a	average pe	rcentage groun	nd co	ver of litter recor	ded f	rom five 1	m x 1 m p	olots locate	d on altern	ate sides	and 5 m	n from	the plo	t midlin	e at the	
assess	ors may	also Id po	record the c	cover of ro	ck, bare ground	d and	cryptogam soil	crusts	s. Collectio	n of these	e data is op	ches (less t	data do	n in dian	neter). ently c	Within	these to as	m x 1 i sessme	n plots nt
	F	Phy	siograp	hy + sa	ife feature	es ti	nat may he	lp i	n deter	mininc	PCT a	and Ma	nager	tion. 1ent 2	Zone	(00	tiona	0	
Morpho Type	ological	1	oner	Slape	Landform			1	Landform	Pattern	Hills	1000	Height	t of talle	est veg		-	.,	
Litholog	gу	1	9	6	Soil Surface	9	ilan loa	ms	Soil Colou	r	Rea	in	Height	t of shru	ub laye	er	-	-	i
Slope			3°		Aspect		355°	-	Site Drain	age			Height	t of grou	und lay	yer	1	7-3	m
Plot I	Distur	bar	nce	Severity	Age Code	Ob	servational e	vide	nce				<u>L</u>		-		0		
Clearin	g (inc. I	oggir	ng)	3	0														
Soil ero	osion	. pas	iure)	5	0	5000 0020	Lugar STM -	Nova N voi	18 outle	n M	1000	abpated 50.00	0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	uniter et	annai.	(itere)	al ana	interior a	ar)
Firewoo	od/CWE	) rem	ve/stock)	3	2	C = 1	stone mail	v h	i vjetemi	icopos 3:	0. <u>1999</u> 199	270.02613	60.38400.	257.6	22535	2.03 54.03 74.03	Ni tun	0.2769.0 16.0100	20 2.0
Fire da	mage			0							0001	000	100.0	<u>n: n:</u>	(3.3. <sub>1</sub> .	2.5	<u>) biskog</u>	anha	ri A
Weedin	ness			3	R														
Other	De     3     Aspect     355     Site Drainage     Height of ground layer       ot Disturbance     Severity Code     Code Code     Observational evidence       aring (inc. logging)     3     0       ivation (inc. pasture)     3     6       erosion     -       wood/CWD removal     -       cing (identify native/stock)     3       damage     0       m damage     0       Severity     3																		

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

00 m <sup>2</sup> plot: Sheet   of   Survey Name Plot Identifier		Re	corders		
ate 22/7/24 Lot 1+5 mt Darran et Lori+5 BAMOS	James	Schl	mbe		
GF Top 3 native species in each growth form group: Full species name mandatory Code All other native and exotic species. Full species name where practicable	N, E or HTE	Cover	Abund	stratu m	vou hei
Cenching clandestury	ite - Field	90	1000		
Tritolina repensional velicitation	Survey Nam	\$3	1000		
Hokus lanaky	20 (2 A V 1/4 )	5	1000	Date	
Day tylis and glomerating totals	IBRA region	0.4	5000	Zone	
Paspalnun dilatatuan		0.1	5	Suitser.	
Agrostiz Capillaris		0.2	100	alC) opitet	
Phalaris aquatica		0.2	20		
Microlneno Strp. Strp.	X.J	0.1	3	Conmu	nsis
ле точно роки за постранително по роки, акону обранот и пробла селениони (браре) от осла на весе рок изи. siong midhe.	ic bearing taken i	ien ere pior fed, magne	weisten of the stern	FA plot she	900)97 91 1 1
	Beister	nu2	etude	BAM AS	
DAM Adhibute (20 X 90 m plot) # free States Count					
Signed Strangebread Strangebrea				·>+-	
Euor & Non Euo (Non Euo) (Kon Euo)			940 URS	to tri	Con
50 - 79 cm			0.688865 (	tive ness —	Na Nois
30 – 49 cm O Cotymbia:			003		
20 – 29 cm (.ophosterium and			ame		
Ourseine			Other	1	
			2991	-	
	_		shrubs	io n ver	010
< 5 cm C Na			9 ลอยลอน์	6V(18 15(00	1110 338V
Length of logs (m)			adas.	is oy wth	11819 8110
z han manaec. 2500m n lengtri)				dorug	no
Courts must supply to each as a case when the normal of fulling near stand within the each date to a 0 stimular can be used when the number of living tree stems within a class is > 10. Estimates should traw					1
even the available secure 10, 20, 30, 300, 200, 300. For a route stemmed thes only the largest tiving stem is included in the countrestimate. For hollows sound on			10110		1
teurs elevents of a south comparing hollows, not count the hollows in that state, using count as 1 state, the when the tree is multi-stammed. The hollow-bearing state may be a dead start.		1	1700 D091	6.115017(1	180
cover (%) Bare ground cover (%) Cryptogam cover (%) Rock cover (%)	1(2)] ]	(arolq	ntxt) e	Attribut	BA8
	103160	(dose n	ə?) @1004	Supplot	
a the anti-interview and more than 2 million approach on allocates such as the the from the contraction of the	biumo sentinsci	alohphola aversos or	10 onli 70 Inil sa basze	PERSONA Las ai souco	o letti
er motodes reaves, sueds, banchook and branches reas man trompy readenes, when under this of of cryptopam and crusts. Collection of mass data is optional – the data do not currently contribute to assess mint	mound: <u>Citter 101</u> k, bare ground a	n along the cover of soc	a, 35, ano 46 to record the	ns o, to, z sors may a	00200 18888
that may help in determining PCT and Management Zone (optional)	te features	ue + yric	iysiogra	<u> </u>	
Candidum Parsem Fill Storm Haight of tablest yeg	Element			180180101	s (new lagy)
Boot of State and State an	ender for the former of the fo			yge.	x prin.
Star C at type	Reingerk Contraction				squis
and the second	824 8590	BUILD BUILD	90116	Disturi	
GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high thr	eat exotic	GF -	circle cod	e if 'top 3'.	

						A9 0	rast data					
						Axi	Sega III 3					
		<u>S</u>	BAM	Site – Field	Survey F	orm		Site She	et no:			
	1			Survey Nam	e	Plot Iden	tifier	Recorders				
	Date	22/7	124	Lot 1+5 DR	At Davray & Fd	Lotits B!	40106	Jamer C	1 h.h.			
	Zone	Dar	tum	IBRA region		L	Photo #	Jerring J	Zone ID			
E	asting	Nort	hing		Dimensions	20×5	50	Orientation of m from the 0m poi	idline nt	33	5°	
Vege	tation Class	s	t.						L_		Confid	lence:
Plant		y Type	um the plat	Ex	stic	gra	sslmd	45	EEC:		H N Confid H M	lence:

Record easing and norming from the plot marker. If applicable, orient picket so that perforated rib points along direction of midline. Dimensions (Shape) of 0.04 ha base plot inside 0.1 ha FA plot should be identified, magnetic bearing taken along midline.

BAM Attribute

BAM (400	Attribute	Su	m values										
(+00				BAM Attribute	e (20 x 50	m plot)	T	# Tree St	ems Count		1		
	Trees			dbh		Euc*		Non Euc	: Hollow	/S <sup>†</sup>	Record	l numbe sucalypt*	r of
Count of	Shrubs			Large trees for Euc* & Non Euc	80 + cm	C	>	0	0		- (Euc*) native	and livin	ig alypt
Native Richness	Grasses et	с.		50	– 79 cm	С	)	0	0		separa	tely	15
	Forbs			30 – 49 cm		0		0	0		of Euce	es all sp alyptus, bia	ecies
	Ferns			20 – 29 cm		0		0	0		- Angopl Lophos	nora, stemon a	and
	Other			10 – 19 cm		0		0	0		*Recor	pia d total	
Sum of	Trees			5 – 9 cm		0		0			number size cla	of stem	ns by
of native	Shrubs			< 5 cm				0	1/4		hollows dead st	(includi ems/trea	ng es)
plants by	Grasses etc	S.		Length of logs	(m)			0	n/a			total	
from group	Forbs			(≥10cm diamete in length)	er, >50cm			C	$\sim$			0	
	Ferns			Counts must appl	y to each siz	ze class wi	hen the nun	nber of livin	g tree stems within	the siz	ze class is	s ≤ 10.	
	Other			from the number s For a multi stemm	series: 10, 2 led tree, only	0, 30, 10 y the large	00, 200, 300 st living ste	ee stems w ) m is include	ithin a class is > 10	. Estin	nates sho	uld draw	V
High Threat	Weed cover			the presence of a when the tree is m	stem contai nulti-stemme	ning hollow ed. The hol	ws, not cour llow-bearing	nt the hollow stem may	vs in that stem. Only be a dead stem.	y cour	nt as 1 ste	m per tr	ee
BAM Attribu	ute (1 x 1 m p	olots)	Litt	er cover (%)	Bare g	round co	over (%)	Crypto	gam cover (%)		Rock co	over (%	6)
Subplo	t score (% in	each)	85 80	70 65 65	50 c	0 0	00	00	000	0	00	0	0
Litter cover is a locations 5, 15, assessors may scores, they hol	ssessed as the a 25, 35, and 45m also record the o d potential value	average per along the cover of ro for future	rcentage groun midline. Litter ck, bare groun vegetation inte	nd cover of litter record cover includes leaves, d and cryptogam soil c egrity assessment attril	led from five seeds, twigs rusts. Collect putes and be	1 m x 1 m j , branchlet tion of these nchmarks,	plots located s and branch e data is opti and for enha	on alternate nes (less tha ional – the d incing PCT (	e sides and 5 m from in 10cm in diameter). ata do not currently o description	the plo Withir	ot midline a n these 1 n ute to asse	at the n x 1 m p essment	vlots
Morphological	hysiograp	hy + sa	ife feature	es that may hel	p in dete	ermining	PCT a	nd Mana	agement Zone		tional)		
Туре	Midelo	pe	Landform Element		Landforr	n Pattern	Hills	lope	Height of tallest veg	9		-	
Lithology			Soil Surface Texture	e Claylon	Soil Cold	bur	Brone	m	Height of shrub lay	er		-	
510pe	3	Councibu	Aspect	320	Site Drai	nage	<u> </u>		Height of ground la	yer	0	. 35	m
Plot Distur	bance	Code	Code	Observational ev	idence								
Clearing (inc. lo	ogging)	3	0										
Soil erosion	. pasiure)	-	0	ne. HTE: high three	oke 7 avi	Nr nai	1	etanenio A.o	e socializadado consola	rhwm	D aga ta	h00 35	5
Firewood/CWD	removal	1 x 2 - 34	8 m.0.2 v.0	CARENCES SEVEN ST (	1 tetrain (he	voo ageik	100% Ac	8 20 25	1 0 E C F	0.0	1 2 0 2 0	nevol	2
Grazing (identify	native/stock)	3	R	<u>o</u>	<u>ch Pulatan</u>	anonan p	0.8808.88.0	Noo anost	ninss 0.6% cover	ie moi	17 Mondo	almin r	
Fire damage		-		and the second se				19615 (16)	17 DF 06 01	5.5	L lanni	shounda	1
Storm damage		5	+										
Other			1 m										
Souaritu	Onno ouidenee	. d											

Severity: 0=no evidence, 1=light, 2=moderate, 3=severe

Age: R=recent (<3yrs), NR=not recent (3-10yrs), O=old (>10yrs)

400 m	2 plot: Sheet 1 of 1 Survey Name Plot Identifier	-	Re	ecorders		
Date	22/7/24 Lot 1+5 Mt Varrage Lot 1+5 BAMOG	Jame	s S	Schlu	mber	_
GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species. Full species name where practicable	N, E or HTE	Cover 70	Abund	stratu m	vou
	Cenchurs clandestinus	ite - Fie	80	1000	an tara di mangana ang kan	
	Holas anatus approved petitient of	Survey Na	20	3000	en anger er er er	-
	Trifolium repeas		2	500	Date	
	Microlaen a stip. Stip. adods	IBRA regic	0.1	5	Sone	
	Knonex browning of an and an		0.1	or j	grazen	
idence:	Phalaric Saquatics		A	500		2.2
M Line	Dactylis glomeratus		0.3	50	si Lanusi	actia\/
JM	H DEE J	3		00	Commu	11685]
	ה אניטים העופרו היוסאפר גם אוכם האניטיבוצאים אני ליסו זה הוציט" סוגורניסא מי הצמאותא. "האנאראניטים לא מספר אי הא האניטים אופרות היוסאפר גם אוכם האניטיבוצאים אני ליסו זה הוציט" מינורניסא מי הצמאותא. "באניאראניטים לא מספר אי ה	ninkar it appe ic bearing lais	10kg trai niti Miglam, bok	nabi ad blua	i (chinese ) rie solo an	0.041 0.1.0
		Constant of the second		oludh	A MAS	
to teda	BAM Attribute (20 x 50 m prot) # 1 tee Steme Count	85016V	1998	(tester)	<del>m 008) -</del>	
Buind State	ddb			0301		
iterns.	Electric and the all the second terms and terms			subme		
specie	50 ~ 79 cm ( )		.3	3735566 9	to in: avit	00   M
2.45,	30 – 49 cm O C Corymbia			echa	0.0855	Rie
brug-racio	Anggljøster Lophoster			2ma		
	20 - 28 cm					
d ameti	d trace 2			Unter		
e Auding Pribula	zavici zavici zavi Na wolici zavi zavici wolici zavi			1668	10 m	
10000000				30000	18V/	0
leit	(m) and to dense t		0	3(33565)	nsluo 14 mu	ISV
-	kangur or rege (ng (> 10 million dem)			adioj	(15 we	10
0 ddaw	It engro			erne	- dowifi	101
o triuco	Estimates can be used when the cumber of living the storts when a class is " to transmission from the owners research of the one of the stort is provided in the countractimate. For holeway			100		
<u>(6)) (6) (</u>	For a mail stammed tree, only the largest starty and in molecular the holdes in that stem. Only pouch as 1 start the researce of a start canterior tholews, not could the holdes in that stem. Only pouch as 1 start					
(29) 7 14	where the set must be a manual cover (%) Control and cover (%) Rock co	l		100 00015	3920.111.1	gin
101		F.J	n piots)	(1 x 1) elu	distA III	BA
		S.L.SojA	11.21529 111 0	C) 91038 R	Suppre	
( 1) (C X 1 (C) (C)	und cover of litter muonied from tive 1 m x 1 m othis located on alternate sides and 5 m from the plot midline a	no sectore de	l sgistavis int	ge on the l	a i 10voj is	LINI
1190-313 	ini and cryptogram sea crusts. Coasction of bress data is optional – the data do not currently contribute to asser In and cryptogram seatchess and termination and the provided of the contribute to assert	Ang tenden of an	A m along a the cover of	25, 35, 868   386 (80016)   386 (80016)	61 2 anoa (80) 21031 a alumbi	1301 898
	res that may help in determining PCT and Management Zone (optional)	safe featu	+ yrigs	Physiogr		
	Sava danda to ingen	monal3			eorgorus (1	NT.
	see a second to second a second secon	Texture			10007	9.J
	Sae Deanage	DBQ8A BQA	Save			98
	Building Ishore (Bagg)	la Code	bell.	gons in	uaith u	19
SF Code Cover: (	e: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat e: 0.1, 0.2, 0.3,, 1, 2, 3,, 10, 15, 20, 25, 100% (foliade cover): Note: 0, 1% cover correction	kotic	GF - cir	cle code if	'top 3'.	
a circle a Abunda	bout 71 cm across, 0.5% cover represents an area of approximately $1.4 \times 1.4 m$ , and $1\% = 2.0 \times 10^{-10}$	(2.0 m, 5% =	= 4 x 5 m, 2	ly 63 x 63 c 25% = 10 x	m or 10 m	

						101 JUL 1018			NY				
						- ()	C						
						XFA							
		ang tang tang tang tang tang tang tang t	BAM	Site – Fi	eld Survey F	orm			Sit	e Sheet	no:		
BAM Site – Fie         Survey Na         Date       23/7/74       J&+1+5 /         Zone       Datum       IBRA region         Zone       Datum       IBRA region         Easting       Northing       Vegetation Class         Plant Community Type       P.C.T.         Record easting and northing from the plot marker. If appli       0.1 ha FA plot should be identified, magnetic bearing take         BAM Attribute         (400 m² plot)       Sum values         Trees       Shrubs         Count of       Grasses etc.         Richness       Forbs         Ferns       Other         Trees       Grasses etc.         Sum of       Cover         Shrubs       Grasses etc.         Plants by       Grasses etc.         plants by       Grasses etc.         plants by       Forbs         Ferns       Other         High Threat Weed cover       Other		lame	Plot Ide	ntifier		Recorde	ers						
BAM Site - Field Survey Form         Site Sheet no:           Date         23/7/24         L+1+5         Plot Identifier         Recorders           Zone         Datum         IBRA region         Photo #         Zone ID           Easting         Northing         Dimensions         20 × 50         Orientation of midline           Vegetation Class         Plant Community Type         PCT         31 & S1         - DN Q         Pco/         ECC:         C           Plant Community Type         PCT         31 & S1         - DN Q         Pco/         ECC:         C           Plant Community Type         PCT         31 & S1         - DN Q         Pco/         ECC:         C           Record easing and northing from the pict marker. It applicable, other picket so that perforated mb points along direction of midline. Dimensions (Shape) of 0.04 ha bits         1 ha F2 Applicable, intermitting the marker. It applicable, intermitting the mark		the											
	one	Da	tum	IBRA regi	ion		Photo #	¥		Z	one ID		
Eas	sung	Non	thing		Dimensions	20	) x 50		Orientati	ion of midlir Om point	ie	100	¢
Zone       Datum       IBRA region       Photo #       Zone ID         Easting       Northing       Dimensions       20 × 50       Orientation of midline from the 0m point       1000         Vegetation Class       Plant Community Type       PCT       31 %1		nfidenc											
												н	MI
Plant C	Communi	ity Type		PCT	3181	- [	)NG	Po	01	E	EC:	н	M
0.1 ha F/	asting and A plot shou	d northing fro uld be identif	om the plot fied, magne	marker. If app etic bearing tak	licable, orient picket so en along midline.	that perfora	ted rib points	along dire	ection of mic	dline. Dimensi	ons (Shape)	of 0.04 ha base	e plot in
B	BAM Att	ribute	Sur	n values									
	(400 m-				BAM Attribute	(20 x 50 r	n plot)	11	# Tree St	tems Coun	t		1
		rees		-	dbh		Euc*		Non Euc	;   I	lollows*	Record nu living euca	mber o lypt*
Count	S of	hrubs			Large trees for Euc* & Non Euc	80 + cm	Ø		0		0	native non	-eucaly
Nativ	G	rasses et	c.		50 -	79 cm	0		0		0	separately	Sterns
Renne	F	orbs			30 – 49 cm						0	<ul> <li>*includes a of Eucalyp</li> </ul>	all spec tus,
	F	erns ·			20 - 29 cm		0	-	0		0	Corymbia, Angophora	a,
	0	ther	ier		20 - 29 Cm	0			0	0 0		Syncarpia	<i>ion</i> and
	Т	rees			10 – 19 cm		0		0		C	<sup>+</sup> Record to	tal stems i
Sum o	of — Ir Sl	hrubs	-		5 – 9 cm	1	0		0		n/a	size class v hollows (inc	with cluding
of nativ	ve —				< 5 cm		0		0		n/a	- dead stems	s/trees)
Zone       Data       IBRA region       Photo #       Other S       Dome         Easing       Northing       Dimensions       20 × 50       Orientation of mitiline from the 0m point         Vegetation Class       Plant Community Type       PCT       31 & 51		tot	al										
from gro	oup	orbs	_		(≥10cm diameter in length)	r, >50cm			0				0
	Fe	erns			Counts must apply Estimates can be	to each siz	class when	n the num	ber of livin	ng tree <b>stem</b> s	within the s	ize class is ≤ 1	10.
	Of	ther			from the number se For a multi stemme	eries: 10, 20	), 30, 100,	200, 300	n is include	od in the cou	18 > 10. Est	mates should	draw
High Th	nreat We	ed cover			the presence of a s when the tree is mi	tem contain	ning hollows,	, not coun	t the hollo	ws in that ste	m. Only cou	int as 1 stem p	ount on per tree
BAM A	ttribute	(1 x 1 m p	olots)	Litte	17 cóvet (%)	Bare g	round cov	er (%)	Crypto	cover	14963	Rock cove	- 10/ 1
Su	ibplot so	core (% in	each)	90,80	90 95 85	00	TITO	0	0 C	000	00	00	(/0)
A	verage c	of the 5 su	bplots	1 49900	the second s		1.19		0	1-10	1010	10101	0 0
Litter covi ocations issessors	6 15 asses 5, 15, 25, s may also	sed as the a 35, and 45m record the o	along the cover of root	rcentage grour midline. Litter ck, bare ground	nd cover of litter records cover includes leaves, a 1 and cryptogam soil cri	ed from five seeds, twigs usts. Collect	1 m x 1 m plo , branchiets a ion of these d	ts located ind branch lata is option	on alternations (less that onal - the c	e sides and 5 an floom in dia data do not cu	m from the p meter). With rently contri	plot midline at the	ie 1 mplot
1 <u>1</u>	Phy	siograp	hy + sa	fe feature	is that may help	o in dete	rmining l	PCT ar	nd Man	agement	Zone (o	ptional)	-
могрпою Гуре	ogical	Flat		Landform		Landform	n Pattern	River 1	Flat	Height of tal	lest veg	-	
Lithology		? AV	win	Soil Surface Texture	long day	Soil Cold	iur	Brow	n	Height of sh	rub layer	-	
Slope	1	0	Severity	Aspect	-	Site Drai	nage	510-		Height of gro	ound layer	0.3	m
Plot Di	(inc. logo	nce	Code	Code	Observational evi	dence							
	n (inc. pa	sture)	3	O sites a	eands digid <u>1976</u> - 1		an th		Concernant of	ninen Marina Ser	me à disa	and and and a	0.80
Cultivatio Boil erosi	/CWD ren	noval		- <u></u>	A day and the second second			n alde a generation	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	and and the	2 4 2 2 2000 0	90 6 6 6 6 9 6 10 10 10 10 10 10	augo No s
Cultivatio Soil erosi Firewood Grazing (1	identify nafi		-					A CONTRACTOR		all and the	01 1	C. L. Constanting	NICLA.
Cultivatio Soil erosi Firewood Grazing (i Fire dama Storm dama	identify nati age mage		-						and the second	40 M			
Cultivatio Soil crosi Firewood Grazing (i Fire dama Storm dan Veedines Other	identify nati age mage ss		2	E		diterent and a							

Dete	plot: Sheet 1 of 1Survey NamePlot Identifier23/7/24Lot 1+5 MT Damgh Lot 1+5B AMO7				Recorders James Schliebe										
Date															
GF Code	Top 3 native species in All other native and exot	each growth form group: Full ic species. Full species name	species name mandatory e where practicable	N, E or HTE	Cover	Abund	i strat	u vo							
	Condivis	dan Sestin	Survey Form	hai? - at	35	1000	0								
	Microlang	stip. styp	Plot Identifier	Survey Name	40	5000									
	Holcus Im	- sty	MAR AND A COMM		20	300	Dated	N- and a straight stars							
	Trifo ling of	epung to	Phot	RRA region	0.2	500	90	20							
	Doctylin 9	Jonevaty	Dimensions		0.2	100	2 8/10	88:							
idance:	Stellin's use	lia			0.1	3									
Idenou	Paspalan di	latation			0.2	100	Hen Class	st may							
J M	Hypochaar	aficita la	Flabra	1.04	0.1	20	) Unimo	Plan.C							
	Rumex bro	mii	ore, certen pecket so their performent in pr blong mediate.	a hagan a hayan a a hasanag iaken	0.1	2	C st grings A pict she	0.1 to F							
	Cissium 1	Inlane			0.2	10	INA MAE	3							
hber of	Sonchus a	sper	BAR ABTIDUIS (20 X BUTT DIOI)		01	Q	400 011								
gaivi	Coninon mac	ulation,	202 1		0.1	4									
emes	Phalain Jago	dieg	Euch & Non Euc		0.2	20									
al specie	Cavex 20	onessa loral	brachialy		000	- 20	to to sv	D M							
,EX II	Oxali, per	erans 0	30 - 49 cm		0.1	acho	- 8891	niolSi							
bos ner	Laphoster		an 25 - 01-		0.1	2006									
lain	t boosg?	tenter de la construcción de	Mile C.S D.S.					+							
r dams i vitti		and a second	Antonia and Antonia an												
n/trees)	i) avolicit 541 hale besh	0	mo e - e			65 <b>9</b> 1	10.0	110							
	តវិវា		< 6 cm			adunità	107 	40 s110 **							
1810	8		Langth of logs (m)	Strate out State	0	¥185583	sular Is Dy	2SV - I							
			(≥nûcm diameter, >60cm			adaa?	div	90							
la draw	clase le > 10. Estimates shou	nan sauce to see an anno sauce anno	- Albert Server 2018 Albert of youngs SM 471 parties basis and pass released												
o trauco i	he countratimete, For Malavie	ino #ori, 900 projest living stem is included in t	For a multi stemical cardian 10 % 20			Ionic									
	nal siam, Chivi cour and t and coad share.	colories not count the holiows to en notice been of the second starts the second starts they be se	the presence of a stem containing in when the trep is fight -stemmed. Th				0 sate								
(N) 114	cover (%) Rock co	Stopping () to you be	websar (%) Bare groun	Harris Manufacture	(stals a										
1.5212		101011	To lot all all all all all all all all all al	and the second s	1369 0 4		LIGHTIA &	19.43							
- States of the second	Company of Company		and an and a second	orienter and a	uoluda	01010	nonquiro nonquiro								
1 8 1 10 10 1 8 1 10 10 100 1001	MAR 2	Vis okinete no belecit tolg m ha Record along rectanged that creater	n in a server of most because when to server be cover	NAL PERMIT	Digitality is in	an board as	20. 2 <i>1 194</i> 700	reter 1							
			and crysteration soil crusts. Collection b	NARIQ GIBCI, JOSE PO VERSESSES	to rever of	bioden da s	्यः १२२४) १९२० - अन्त्रेष्ट्	NECTOR NECTOR							
	int of tallect veg		es that may help in determ	nuiseit eine	+ yrlgs	poley	7								
	Have during to the	nel a vizio della persona esercita e el como		Inernel B				Lyn							
	interest browing to log	and the second		*acure	125 al che esta	and the second second		1001							
			and a second sec	egg in	svač 1	n ser norden gen	an in star of a star	1018 1018							
F Code	: see Growth Form doffer	en nachter eine Sternen er eine sternen eine sternen eine sternen eine sternen eine sternen eine sternen eine s		900.2 50	Coc	Constant)	A Serie a	AN MACTION							
over: 0.	.1, 0.2, 0.3,, 1, 2, 3,, 10	), 15, 20, 25, 100% (foliage of	native, E: exotic, HTE: high threat (	exotic	GF - cir	cle code i	f 'top 3'.	950							
									ey Na						
---	---	--------------------------------	--------------------------------	------------------------------------	-----------------------------	-----------------------------	-----------------------	-------------------------------	----------------------	--	--	--	--	----------------------------	--------------
							5								
n hor liner	la brind	A 19voC	E or TE			ald manager	as.						avertish B San sert		
	<u></u>	BAM	Site -	<b>Field Su</b>	rvey F	orm	ar sin sig			Site She	et no:		1.1.1		
	21	18.0	Surve	y Name	Selver and	Plot Id	entifier		Reco	orders					
	ate 23	17/24	lot 1+	s mt Da	wayh f	120+1+	5 BAN	408	Ta	mes	Sela	had	w/		
Zone	10.50	Datum	IBRA r	egion	0	*	Pho	to #			Zone II	7	T		
Easting	N N	lorthing		Dim	ensions	702	50	1	Orien	tation of m	idline		90	0	
Vegetation	Class	11.5								ne um poi		1	10	Confi	iden
		10		0						<u>. 8895)</u> 6	<u>Andri</u>			Н	M
Pacord coatin	nunity Type			PCT	4	061				<u> </u>	EEC:			Confi	den
.1 ha FA plot	and northing should be ide	from the plo ntified, magn	t marker. If a etic bearing	pplicable, orier taken along mi	nt picket so dline.	that perform	ated rib poi	ints along di	rection of	midline. Dim	ensions (St	nape) o	f 0.04 ha	H I base p	M lot ir
BAM	Attribute		m unluss	7											
(400	m² plot)	Su	n values	BAMA	ttribute	(20 x 50	m plot)		# Tree	Stems Co			1		
	Trees			dbh			Euc*		Non E	Luc	Hollow	IS <sup>†</sup>	Reco	rd numt	per c
	Shrubs	-		Large tree	es for	80 +	(1)						living (Euc*	eucalyp ) and liv	ot* ving
Count of Native	Grasses	etc.			STI EUC	cm	0		(		0		(Non	Euc) ste	ems
tichness	Forbs				50 -	· 79 cm	0			0	0		*inclu		
				30 - 49	cm		0		(	0	0		of Euc	alyptus alyptus	, ,
Ferns			20 - 29	cm		0		1				Angophora, Lophostemon ar		and	
	Other			10 - 19	cm		0				0		- Syncarpia		
Sum of	Trees			5-9 cm	n		0		0	,	0		'Reco numbe	rd total or of ste	ms
Cover of native -	Shrubs						0		0		n/a		hollow dead s	s (includ	ding ees)
ascular lants by	Grasses e	tc.					0		0		n/a				
growth m group _	Forbs			(≥10cm	diameter	<b>m)</b> , >50cm			lin		•			total	
	Ferns			Counts m	ust apply	to each size	e class wh	nen the nun	nber of liv	ving tree ste	O me within 4	the size			C
	Other			Estimates from the n	can be us number se	sed when th ries: 10, 20	he numbe ), 30, 10	r of living tr	ee stems	within a cla	iss is > 10.	Estim	e class i ates sho	$s \le 10$ , ould dra	w
h Threat	Need cove	r		For a mult the preser	ti stemme nce of a st	d tree, only em contain	the large	st living ste vs, not cour	m is inclunt the hol	ded in the clows in that	ount/estim	ate. Fo	or hollow	vs coun	t on
M Attribu	(1 v 1 m	mlata)	]	when the	tree is mu	lti-stemmed	d. The hol	low-bearing	stem ma	ay be a dead	d stem.	count	ds 1 50	em per t	ree
Subplot	score /%		icle	ter cover (%	6)	Bare gr	ound co	over (%)	Crypt	ogam cov	ver (%)	F	Rock c	over (%	%)
Averag	of the 5 s	ubplote	0 0	5 65 80	15	30	0	00	DC	000	00	20	00	0	0
r cover is as	essed as the	average per	centage grou	ind cover of litte	er recorder	from five 1									
essors may a	so record the	n along the r cover of rock	nidline. Litter	cover includes	s leaves, se	eds, twigs,	branchle	and branch	ies (less t	han 10cm in	5 m from ti diameter).	he plot Within I	midline these 1 r	at the n x 1 m	plot
Pl	1VSiogram	hv + saf	egetation int	egrity assessm	ent attribut	tes and ben	chmarks, a	and for enha	ncing PC	data do not description	currently co	ontribut	e to asse	essment	
phological	Flat		Landform	Co triat me	ay neip	Landform	Pattern	PCTa	nd Mai	nagemer	nt Zone	(opt	ional)	1	
ology	MNR	I	Soil Surfac	e Dieco	im .	0-11-0-1		Kiver	7 at	Height of	tallest veg		-	-	
	0		Texture Aspect	arau	re(	Soli Colou		,		Height of	shrub laye	r	2	.Su	(
e	ance	Severity	Age	Observer		Sile Drain	age			Height of	ground lay	er	0.	3m	
e t Disturb		Code	Code	Observatio	onal evide	ence								+	
e t Disturb ring (inc. loc	ging)														
e t Disturb ring (inc. loc vation (inc. j erosion	ging) pasture)	30/-	-10	pendi dala -3	West minerar	A . B. maile	A. 6								
e t Disturb ring (inc. log vation (inc. j erosion vood/CWD r	ging) pasture) emoval	1	NR	nendi ripid ja nengenai neng	1714 - 5155 20-283 - 0-4	e të evite Stell (seu	n (A Do egolici	<u>е е</u> 100% (1	ac ne	Ti proited 23. at	n Egent de	2000	000010	602.31	-
be aring (inc. log ivation (inc. j erosion wood/CWD r cing (identify n demose	ging) pasture) emoval ative/stock)	1 1 203440 1	NR	Stock -	- sher	-1P .	OLAN	nona	- 100 1	<del>71 (1916) 33 (1916)</del> 8-1916) (193	<mark>in Comunitado S. C. N.</mark> O <u>r Concesso</u>	0-9-9- 	- 000-0 0-0-1-0 0-0-0-0	667 31 113491	2
e aring (inc. log ivation (inc. log ivation (inc. r erosion wood/CWD r ing (identify n damage n damage	ging) pasture) emoval ative/stock)	1 1 203,040 1	NR R	Stech -	- sher	10.	Ocar	siona	1	<u>24 000000000000000000000000000000000000</u>	6 0 0 0 0 6 0 0 0 0 0000 0 0 0000	91010 - 210 - 910 - 10 - 910 - 10		bel) as novo: plove.	
ve t Disturb ring (inc. log vation (inc. j erosion vood/CWD r ing (identify r damage n damage liness	ging) pasture) emoval ative/stock)	1 2000 1 	NR R	Stoch -	- shec	-p .	Ocen	ziona	<u>ac oc</u> 1	01 0000000 31 01 200 000 200 000	12 10 10 10 10 10 10 10 10 10 10 10 10	9,99,9 , 0, 9 , 0, 19 , 0, 19 , 0, 19 , 0, 19 , 19 , 19 , 19 , 19 , 19 , 19 , 19	C C A A A C A A A A C A A A A A A C A A A A	be 0-31 Hovo Olovo	

Data	22/2 Plot Identifier		R	ecorders	·	
Dale	US 7/24 Let 1+SMAT Darright Lot 1+5 BAMO8	Jan	is S	chuch	e	
GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species. Full species name where practicable	N, E or HTE	Cover	Abund	stratu m	vo
	Melaleuca arnullary awriting	te - Fie	0.3	4		
	The average parvistamined	Survey Na	0.2	2		
1.	1 ypha prienfalls		0.8	50	Date	
natio	Parian Jachne globosa	IBRA regio	15	1000	6006	1-
sonobi	(arek longebrachints) energener		60	3000	Bunet	1-
J 10	Junan Martabady continuous:		0.2	20	12 noviet	1-
idence.	Persicuia decipiens		0.1	5		
a ni <del>Talan</del> i tala	Conchird Candestonis		8	1080	umm <del>o.</del> .)	0619
	Hydrocotyle sibtlerasidos acutilabe	iel pañasó si	0.1	50	FA plot sh	0.1 m
	Agrostic Capillaris	asulay	nto2	strondi i s	A MAG	
In their of	Cynoder Jactylon		0.2	100	m uusi	
n nerig , exercise tecros	funex conglomeraly		0.2	100	-	
an coppe	Hypochaens glabre		0.1	5	-	~~~
a i speciel	Sonchus asper		0.1	8	0V13	NI NI
	Persicula (vector paetermissa maea-oc		0.1	10	46911	1-)
ons rem	tolcus lanaty mores-os		0.2	50		. ,
is or	Trifolium repens		0.1	20		
199110-0) 1981 1980-00	Sporaboly sp. 7 feet apricancy		0.1	13991		7
(2093)(11	Modiola aroliniana		DI	7-	10 110	2-
	all has septite setze' Schopropectus validus	**************************************	0.3	50	1000	9.
R	annuculus inundating (m) egos or iteres		0.1	70	(J 6741	0-1
-	Tuncus bruchet, bulbosus		Du	5	group	8
wishb bly	aspalun dilatatum		0.1	7	2	5-2
1	ysimachia arvencis		0.1			
1	otre dasa uliginosus		0.1	R	in Three	111
1	Plantage lanceolates	T	0.1	5x 1) elui	linnA III	8
0	raling apare		AI	1 1000000	gauz	
0	nawochaefz one asprandia no belacid dala m / x m , and man papa as and be		0.1	7	tova.	
nonaas	into the model is also being the second of the second second second to the data do not currently contribute to ass more the model of the second of these data is optional - the data do not currently contribute to ass	o men ven 2 alanaen en	0.1	831 8356 215 0 8 7 367 910	ter cover is all one 5, 1	hii Act
(	the seture of the set of head made and to grow and the seture of the set		no covor en mi mi ar av	ly also record	so stos os Lynch - no	88 28
	Height of talket vag	on Acd	- (ngs)	POISVIM	signiani ra	
	the second secon	2 Hall			VP4 VP0	
	Constant of Transmission Constant of Transmission	hoped				2
	Oscanistianai avidence	0A 1 558	Nag U	Sonain	NiG OF	4
F Code:	see Growth Form definitions in Appendix 1 N: native, E: exotic. HTE: high threat evo	tic	GE altr		(ii) gris sel	27
circle ab	out 71 cm across, 0.5% cover represents an area of approximately $1.4 \times 1.4 \text{ m}$ , and $1\% = 2.0 \times 1.4 \times 1.4 \text{ m}$ .	area of ap	proximatel	63 x 63 cn	op 3'. 1 or	

y

		erebroo										
						0						
						Ax						
		1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	BAM S	ite – Fie	d Survey F	orm			Site	Sheet no:		
			2.02	Survey Na	ime	Plot Ide	ntifier		Recorders			
	Date	23/7	124	Lot 1+5 v	ut Darragh R.	Lot 1+5	BAMO	7	James	Schl	mhe	
Z	one	Da	atum	IBRA regio	in	<u> </u>	Photo #	1	and the second	Zone ID	ante personi	
Ea	sting	No	rthing		Dimensions	20	x 50		Orientation from the On	of midline n point	19	0°
/egeta	ation Cla	ISS										Confidence
Plant ( Record ).1 ha F	Commur easting ar A plot sho	ity Type Ind northing fould be ident	rom the plot i ified, magnet	PC marker. If appli ic bearing take	cable, orient picket so en along midline.	3   that perfora	Ch ated rib points	DN C along direc	h Poo	EEC: e. Dimensions (Sha	pe) of 0.04 ha	Confidence H M L base plot ins
1	BAM At	ribute	Sum	values								
	(400 m <sup>2</sup>	piot)	Juli		BAM Attribute	(20 x 50	m plot)	1	Tree Sten	ns Count	Recor	d number of
		Frees			dbh		Euc*	-	Non Euc	Hollows	Iiving (Fuc*)	eucalypt*
Cour	t of	Shrubs			Large trees for Euc* & Non Euc	80 + cm	O		0	· 0	(Non I	non-eucaly Euc) stems
Nati Richn	ive (	Grasses e	tc.		50 -	- 79 cm	0		0	0	*includ	des all speci
		orbs			30 – 49 cm		0		O	0	Coryn Angor	caryptus, nbia, ohora,
		-erns	 		20 – 29 cm		0		0	0	Lopho Synca	ostemon and arpia
					10 – 19 cm		0		0	0	*Reco	ord total er of stems
Sum Cov	of —	Shrubs			5 – 9 cm		0		0	n/a	size c hollow dead	lass with vs (including stems/trees)
of nativasci	tive — ular (	Grasses e	etc.		< 5 cm		0		0	n/a	uouu	
plants grow	sby vth <sub> </sub>	Forbs			Length of logs (≥10cm diamet	s (m) er, >50cm			M			total
rom g	roup	Ferns			in length) Counts must app	ly to each s	ize class whe	en the nun	nber of living	tree stems within	the size class	is ≤ 10.
		Other			Estimates can be from the number	e used wher series: 10,	the number 20, 30, 100	of living tr ), 200, 300	ree stems wit D m is included	hin a class is > 10	. Estimates st	hould draw
High 1	Threat V	Veed cov	er		the presence of a when the tree is r	a stem conta multi-stemm	aining hollows ed. The hollo	s, not cour ow-bearing	nt the hollows	s in that stem. Online a dead stem.	y count as 1 s	stem per tree
BAM	Attribut	e (1 x 1 n	n plots)	Litt	er cover (%)	Bare	ground co	ver (%)	Cryptog	am cover (%)	Rock	cover (%)
9	Subplot	score (%	in each)	70 55	55 75 80	01	10	00	00	000	00	00
	Average	of the 5	subplots									
Litter co location assess	over is ass ns 5, 15, 2 ors may a they hold	essed as th 5, 35, and 4 so record th	e average pe 5m along the le cover of ro	rcentage grou midline. Litter ck, bare groun	nd cover of litter recor cover includes leaves d and cryptogam soil	rded from fiv s, seeds, twi crusts. Colle	e 1 m x 1 m pl gs, branchlets ection of these	and branc data is op	d on alternate thes (less than tional – the da	sides and 5 m from 10cm in diameter) ata do not currently	the plot midlin . Within these contribute to as	e at the 1 m x 1 m plo ssessment
	P	nysiogra	aphy + sa	afe featur	es that may he	elp in de	termining	PCT a	and Mana	igement Zon	e (optiona	l)
Morpho Type	ological	Flat		Landform Element		Landfo	orm Pattern	Rive	er flati	Height of tallest ve	g –	
Litholo	gy	Allu	rial	Soil Surfac	e Long de	ay Soil Co	olour	Bran	n	Height of shrub lay	/er	
Slope		6	m O°	Aspect		Site D	rainage			Height of ground la	ayer (	J. 3 m
Plot	Disturk	ance	Severity Code	Age Code	Observational e	evidence						
Cles !	ng (inc. lo	gging)	3	0						-		
Cultivo	osion	pusiuis)	-		anari ngin 1374 . Manara na 287	nigua II.a 10. easta	wige de Nineco contri	10006-10	antinacqua a As as a	nan anan anan Ngtana ang	10210012 Sup 2.0.2.0	Conten O.4
Cultiva Soil ere	001011	removal			S - 397 bed mit i	toy s dow 1	<del>Connorddo P</del>	0.000.00	ato se chajen	10100-383-0-030	nn ma 28 aig	the eight o
Cultiva Soil ero Firewo	od/CWD	notive fet1 '	1 2					nant	0.00 0.0	10 20 20 0	2. 5. 5.15	
Cultiva Soil en Firewo Grazin Fire da	od/CWD g (identify amage	native/stock)	3	P-								3 <del></del>
Cultiva Soil en Firewo Grazin Fire da Storm	od/CWD g (identify amage damage	native/stock)	3	In the second se								Strated and Street
Cultiva Soil en Firewo Grazin Fire da Storm Weedin	ood/CWD g (identify amage damage ness	native/stock)	3 2	NR								

00 m <sup>2</sup> plot: Sheet / of / Survey Name Plot Identifier		Re	corders		
ate 23/7/24 Lot 1+5 mt Durryh Lot 1+5 BAMO 9	Jame	s Su	him	re	
GF Top 3 native species in each growth form group: Full species name mandatory Code All other native and exotic species. Full species name where practicable	N, E or HTE	Cover	Abund	stratu m	vou hei
Miliolaena St. p. Stp.	ite - Fie	35	5000		
Time Plot identifier Recorders reams	Survey Nd	0.3	500		
Horas Janatas		40	3000	Date	
Passa (un di atatin # 00019	iBRA regio	0.4	100	Zone	
Husochaevis radicats enormal		0.2	100	Ginner	
Capcinny dandesthins		15	1000	alO noiteti	deV
Cilina Valaare		0.2	50		
Hugodhamis alabra	21	0.1	20	Munuo).	18/9
Plataric Inquestion aquatica	c beering taker	0.3	100	PA plot dhe	2-
Sachely nextity advicancy	zaulas	0.(	3	BAMAB	2.
Junion Musite continuous		0.1	3	an an ann an an an Anna an Anna	
Aprostio (apillasins		0.1	10		1-
	·	0,1	2	- lo In	Col
Geranium Sol. Sol.		0.1	0.0082610	ilve ness –	Na Noish
Taraxacuas officionale		0.1	210		
20-23 cm Runner hierardi		0.1	ame		
Serveria madagas cartengia		0.1	York		
funct conglomerating	-	0.1	selat		
Party in dimenation	-	2	500	10 II 10 V	10
< 6 cm			0 8822616		QCD 4 Val 6
Length of logs (m) (>10cm diameter >50cm			ano	is by wth	piaid C( )
n length)				- daale	100
Estimates can be used when the number of inving tree stems within a class (a > 10, Estimates should draw					
For a multi-state set at so, but you have been as a set of the countiestimate. For notices count only the test wing stem is included in the countiestimate. For notices count only the test wing stem is included in the countiestimate at the set of the set	·				
when the tree is mult-storbined. The hollow-bearing stem may be a dead stem.			0703 040	19 JULI 11 1	1811
cover (%) Bare ground cover (%) Cryptogam cover (%) Rock cover (%)	Litter	piots)	(1 x 1 m)	Attribute	BAIN
		(11580-1	1 er) 9103	3000102	
eaver of litter recorded from trive 1 m x 1 m plats located on allemate sides and 5 m from the plot midline at the	antiaga ground	energe o	as are as the	OVER IS USE	o isli.
vor antiados eares, soota, maja mendrars and branches (less man 100m in diatreter). Ender tasse Fair A im part and cryptogen ad crussa. Collector of these data is optional – the data do not currently controllede to assess rent	euros cines a Line graun I	and galets o Con 10 16460 V Stade 1 and	edi moder o rov kotrook	na 6, 10, 27 8013 Pray 86 Pray paid	0.000 0 1550 15 1000 15
that may help in determining PCT and Management Zone (optional)	e features	tisa + yrt	ysiograp	19	
Eansteam Planae	Element				233
Son Colour Preight of arrund layer	Texture				23 DATES.
Olla Exempto	aga 1	l hisvois l			
-constitue lanousvio.co		51250	Donta Quing)	2013/0119 80 (8%) [08	101
GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high three	at exotic	GF -	- circle coo	le if 'top 3'	to lip?

Age: R=racent (<3yrs), NR=not recent (3-10yrs), 0=old (>10yrs)

Age: R=racent

## Appendix C: Vegetation survey data



## Table 9-1: Vegetation survey data and locations

plot	pct	area	patch size	condition class	zone	easting	northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic
4	3181	5.91	15	Exotic grassland	55	-36.941153	149.814514	30	0	0	1	1	0	0	0.0	0.0	0.1	0.1	0.0	0.0	0	0	66.0	0.0	0	0	0	0	0	0	90.1
5	3181	5.91	15	Exotic grassland	55	-36.941227	149.815759	115	0	0	1	0	0	0	0.0	0.0	0.1	0.0	0.0	0.0	0	0	76.0	0.0	0	0	0	0	0	0	90.3
6	3181	5.91	15	Exotic grassland	55	-36.941149	149.817134	335	0	0	1	1	0	0	0.0	0.0	0.1	0.1	0.0	0.0	0	0	73.0	0.0	0	0	0	0	0	0	70.0
8	4061	1.85	5	Poor-mod	55	-36.939668	149.815027	90	0	2	6	4	0	0	0.0	0.5	76.5	0.4	0.0	0.0	0	0	58.0	0.0	0	0	0	0	0	0	8.1
3	3181	0.65	1	Scattered tree	55	-36.940893	149.813404	5	1	0	0	2	0	0	45.0	0.0	0.0	0.2	0.0	0.0	1	0	71.0	24.0	0	0	1	1	1	0	73.0
7	3181	2.30	3	DNG_poor	55	-36.940483	149.813969	100	0	0	2	2	0	0	0.0	0.0	40.1	0.2	0.0	0.0	0	0	88.0	0.0	0	0	0	0	0	0	35.2
9	3181	2.30	3	DNG_poor	55	-36.940236	149.816148	190	0	0	2	2	0	0	0.0	0.0	35.1	0.2	0.0	0.0	0	0	67.0	0.0	0	0	0	0	0	0	15.6
2	3181	0.42	1	DNG_mod	55	-36.939533	149.817811	170	0	0	5	3	1	0	0.0	0.0	70.3	0.4	0.2	0.0	0	0	64.0	0.0	0	0	0	0	0	0	0.6
1	3192	1.74	3	Moderate	55	-36.93895	149.81696	196	1	9	12	19	0	2	8.0	16.6	29.8	3.1	0.0	0.3	0	0	50.0	143.0	0	0	1	1	0	0	16.9



## Appendix D: Flora species recorded



Scientific name	Common Name	Family
*Conium maculatum	Hemlock	Apiaceae
*Cyclospermum leptophyllum	Slender Celery	Apiaceae
Hydrocotyle acutiloba	-	Apiaceae
Hydrocotyle tripartita	Pennywort	Apiaceae
*Araujia sericifera	Moth Vine	Apocynaceae
*Zantedeschia aethiopica	Arum Lily	Araceae
*Bidens pilosa	Cobbler's Pegs	Asteraceae
Cassinia trinerva	-	Asteraceae
*Cirsium vulgare	Spear Thistle	Asteraceae
*Conyza spp.	-	Asteraceae
Cotula australis	Common Cotula	Asteraceae
*Delairea odorata	Cape Ivy	Asteraceae
*Gamochaeta americana	Cudweed	Asteraceae
*Gamochaeta spp.	-	Asteraceae
*Hypochaeris glabra	Smooth Catsear	Asteraceae
*Hypochaeris radicata	Catsear	Asteraceae
*Leontodon saxatilis	Lesser Hawkbit	Asteraceae
Senecio linearifolius	Fireweed Groundsel	Asteraceae
*Senecio madagascariensis	Fireweed	Asteraceae
Sigesbeckia orientalis subsp. orientalis	Indian Weed	Asteraceae
*Sonchus asper	Prickly Sowthistle	Asteraceae
*Sonchus oleraceus	Common Sowthistle	Asteraceae
*Tagetes minuta	Stinking Roger	Asteraceae
*Taraxacum officinale	Dandelion	Asteraceae
Blechnum nudum	Fishbone Water Fern	Blechnaceae
Hackelia latifolia	-	Boraginaceae
*Rorippa nasturtium-aquaticum	Watercress	Brassicaceae
Callitriche muelleri	-	Callitrichaceae
Lobelia purpurascens	whiteroot	Campanulaceae
Wahlenbergia gracilis	Sprawling Bluebell	Campanulaceae
*Cerastium glomeratum	Mouse-ear Chickweed	Caryophyllaceae



Scientific name	Common Name	Family		
*Paronychia brasiliana	Chilean Whitlow Wort, Brazilian Whitlow	Caryophyllaceae		
*Polycarpon tetraphyllum	Four-leaved Allseed	Caryophyllaceae		
Stellaria flaccida	-	Caryophyllaceae		
*Stellaria media	Common Chickweed	Caryophyllaceae		
Einadia nutans subsp. nutans	Climbing Saltbush	Chenopodiaceae		
*Tradescantia fluminensis	Wandering Jew	Commelinaceae		
Calystegia marginata	-	Convolvulaceae		
Crassula helmsii	Swamp Stonecrop	Crassulaceae		
Sicyos australis	-	Cucurbitaceae		
Bolboschoenus spp.	-	Cyperaceae		
Carex inversa	Knob Sedge	Cyperaceae		
Carex longebrachiata	-	Cyperaceae		
*Cyperus eragrostis	Umbrella Sedge	Cyperaceae		
Isolepis spp.	Club-rush	Cyperaceae		
Schoenoplectus validus	-	Cyperaceae		
Hypolepis muelleri	Harsh Ground Fern	Dennstaedtiaceae		
Pteridium esculentum	Bracken	Dennstaedtiaceae		
Leucopogon juniperinus	Prickly Beard-heath	Ericaceae		
Beyeria lasiocarpa	-	Euphorbiaceae		
*Euphorbia peplus	Petty Spurge	Euphorbiaceae		
*Lotus uliginosus	Birds-foot Trefoil	Fabaceae (Faboideae)		
*Trifolium arvense	Haresfoot Clover	Fabaceae (Faboideae)		
*Trifolium repens	White Clover	Fabaceae (Faboideae)		
Acacia floribunda	White Sally	Fabaceae (Mimosoideae)		
Acacia mearnsii	Black Wattle	Fabaceae (Mimosoideae)		
*Fumaria muralis subsp. muralis	Wall Fumitory	Fumariaceae		
*Centaurium erythraea	Common Centaury	Gentianaceae		
Geranium solanderi var. solanderi	-	Geraniaceae		



Scientific name	Common Name	Family
*Myriophyllum aquaticum	Parrots Feather	Haloragaceae
*Juncus bulbosus	-	Juncaceae
Juncus continuus	-	Juncaceae
Plectranthus parviflorus	-	Lamiaceae
Prostanthera incisa	Cut-leaved Mint-bush	Lamiaceae
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae
Eustrephus latifolius	Wombat Berry	Luzuriagaceae
Lythrum hyssopifolia	Hyssop Loosestrife	Lythraceae
Androcalva fraseri	Brush Kurrajong	Malvaceae
*Modiola caroliniana	Red-flowered Mallow	Malvaceae
Stephania japonica	Snake vine	Menispermaceae
Angophora floribunda	Rough-barked Apple	Myrtaceae
Callistemon subulatus	-	Myrtaceae
Eucalyptus baueriana	Blue Box	Myrtaceae
Eucalyptus elata	River Peppermint	Myrtaceae
Eucalyptus viminalis	Ribbon Gum	Myrtaceae
Kunzea ambigua	Tick Bush	Myrtaceae
Kunzea ericoides	Burgan	Myrtaceae
Leptospermum emarginatum	Twin-flower Tea-tree	Myrtaceae
Melaleuca armillaris subsp. armillaris	Bracelet Honey-myrtle	Myrtaceae
Melaleuca parvistaminea	-	Myrtaceae
Sannantha pluriflora	-	Myrtaceae
Oxalis perennans	-	Oxalidaceae
Oxalis spp.	-	Oxalidaceae
*Passiflora edulis	Common Passionfruit	Passifloraceae
Phyllanthus gunnii	-	Phyllanthaceae
*Phytolacca octandra	Inkweed	Phytolaccaceae
*Plantago lanceolata	Lamb's Tongues	Plantaginaceae
*Veronica anagallis-aquatica	Blue Water-speedwell	Plantaginaceae
Veronica plebeia	Trailing Speedwell	Plantaginaceae
*Agrostis capillaris	Browntop Bent	Poaceae



Scientific name	Common Name	Family
*Andropogon virginicus	Whisky Grass	Poaceae
*Axonopus fissifolius	Narrow-leafed Carpet Grass	Poaceae
*Axonopus fissifolius	Narrow-leafed Carpet Grass	Poaceae
*Cenchrus clandestinus	Kikuyu Grass	Poaceae
Cynodon dactylon	Common Couch	Poaceae
*Dactylis glomerata	Cocksfoot	Poaceae
*Ehrharta erecta	Panic Veldtgrass	Poaceae
*Ehrharta erecta	Panic Veldtgrass	Poaceae
Entolasia marginata	Bordered Panic	Poaceae
*Eragrostis curvula	African Lovegrass	Poaceae
Eragrostis leptostachya	Paddock Lovegrass	Poaceae
*Holcus lanatus	Yorkshire Fog	Poaceae
Isachne globosa	Swamp Millet	Poaceae
Microlaena stipoides var. stipoides	Weeping Grass	Poaceae
*Paspalum dilatatum	Paspalum	Poaceae
*Phalaris aquatica	Phalaris	Poaceae
Poa labillardierei var. labillardierei	Tussock	Poaceae
*Setaria parviflora	-	Poaceae
*Sporobolus africanus	Parramatta Grass	Poaceae
Themeda triandra	-	Poaceae
*Acetosa sagittata	Rambling Dock	Polygonaceae
Persicaria decipiens	Slender Knotweed	Polygonaceae
Persicaria decipiens	Slender Knotweed	Polygonaceae
Persicaria praetermissa	-	Polygonaceae
Rumex brownii	Swamp Dock	Polygonaceae
*Rumex conglomeratus	Clustered Dock	Polygonaceae
*Lysimachia arvensis	Scarlet Pimpernel	Primulaceae
Lomatia myricoides	River Lomatia	Proteaceae
Adiantum aethiopicum	Common Maidenhair	Pteridaceae
Pellaea falcata	Sickle Fern	Pteridaceae
Ranunculus inundatus	River Buttercup	Ranunculaceae



Scientific name	Common Name	Family
*Ranunculus repens	Creeping Buttercup	Ranunculaceae
Pomaderris aspera	Hazel Pomaderris	Rhamnaceae
Pomaderris cinerea	-	Rhamnaceae
*Rubus fruticosus sp. agg.	Blackberry complex	Rosaceae
Rubus parvifolius	Native Raspberry	Rosaceae
*Galium aparine	Goosegrass	Rubiaceae
Opercularia aspera	Coarse Stinkweed	Rubiaceae
*Salix spp.	-	Salicaceae
Gratiola peruviana	Australian Brooklime	Scrophulariaceae
*Verbascum thapsus subsp. thapsus	Great Mullein	Scrophulariaceae
*Physalis peruviana	Cape Gooseberry	Solanaceae
Solanum linearifolium	Mountain Kangaroo Apple	Solanaceae
*Solanum nigrum	Black-berry Nightshade	Solanaceae
Solanum prinophyllum	Forest Nightshade	Solanaceae
*Solanum pseudocapsicum	Madeira Winter Cherry	Solanaceae
Pimelea axiflora	-	Thymelaeaceae
Typha orientalis	Broad-leaved Cumbungi	Typhaceae
Trema tomentosa var. aspera	Native Peach	Ulmaceae
Parietaria debilis	Native Pellitory	Urticaceae
*Urtica urens	Small Nettle	Urticaceae
*Verbena bonariensis	Purpletop	Verbenaceae
Melicytus dentatus	Tree Violet	Violaceae
Viola hederacea	Ivy-leaved Violet	Violaceae
*Viola odorata	Sweet Violet	Violaceae

\* denotes introduced species



## Appendix E: Fauna species recorded



Таха	Scientific Name	Common Name
Amphibia	Crinia signifera	Clicking Froglet
Amphibia	Litoria ewingii	Southern Brown Tree Frog
Amphibia	Litoria nudidigitus	Southern Leaf-green Tree Frog
Aves	Acanthiza lineata	Striated Thornbill
Aves	Acanthiza pusilla	Brown Thornbill
Aves	Anas superciliosa	Pacific Black Duck
Aves	Anthochaera carunculata	Red Wattlebird
Aves	Aquilla audax	Wedge-tailed Eagle
Aves	Cacatua galerita	Sulphur-crested Cockatoo
Aves	Colluricincla harmonica	Grey Shrike-thrush
Aves	Coracina novaehollandiae	Black-faced Cuckoo-shrike
Aves	Cormobates leucophaea	White-throated Treecreeper
Aves	Corvus coronoides	Australian Raven
Aves	Cracticus tibicen	Australian Magpie
Aves	Cracticus torquatus	Grey Butcherbird
Aves	Dacelo novaeguineae	Laughing Kookaburra
Aves	Egretta novaehollandiae	White-faced Heron
Aves	Eolophus roseicapillus	Galah
Aves	Eopsaltria australis	Eastern Yellow Robin
Aves	Falco berigora	Brown Falcon
Aves	Grallina cyanoleuca	Magpie-lark
Aves	Leucosarcia picata	Wonga Pigeon
Aves	Lichenostomus chrysops	Yellow-faced Honeyeater
Aves	Lichenostomus leucotis	White-eared Honeyeater
Aves	Malurus cyaneus	Superb Fairy-wren
Aves	Manorina melanophrys	Bell Miner
Aves	Meliphaga lewinii	Lewin's Honeyeater
Aves	Microeca fascinans	Jacky Winter
Aves	Neochmia temporalis	Red-browed Finch



Таха	Scientific Name	Common Name
Aves	Pachycephala pectoralis	Golden Whistler
Aves	Pardalotus striatus	Striated Pardalote
Aves	Platycercus elegans	Crimson Rosella
Aves	Platycercus eximius	Eastern Rosella
Aves	Psophodes olivaceus	Eastern Whipbird
Aves	Ptilonorhynchus violaceus	Satin Bowerbird
Aves	Rhipidura albiscapa	Grey Fantail
Aves	Rhipidura leucophrys	Willie Wagtail
Aves	Strepera graculina	Pied Currawong
Aves	Threskiornis spinicollis	Straw-necked Ibis
Aves	Trichoglossus haematodus	Rainbow Lorikeet
Aves	Vanellus miles	Masked Lapwing
Mammalia	Macropus giganteus	Eastern Grey Kangaroo
Mammalia	Pseudocheirus peregrinus	Common Ringtail Possum
Mammalia	Vombatus ursinus	Common Wombat
Mammalia	Vulpes vulpes	Fox

