

# Notice of Meeting

## Biodiversity Advisory Committee Meeting

An Biodiversity Advisory Committee Meeting of Byron Shire Council will be held as follows:

Venue	Byron Community College, Mullumbimby
Date	Thursday, 17 August 2023
Time	11:30am

Shannon Burt  
Director Sustainable Environment and Economy

*I2023/1202  
Distributed 10/08/23*



**BYRON**  
SHIRE  
COUNCIL

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## CONFLICT OF INTERESTS

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**What is a “Conflict of Interests”** - A conflict of interests can be of two types:

**Pecuniary** - an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person or another person with whom the person is associated.

**Non-pecuniary** – a private or personal interest that a Council official has that does not amount to a pecuniary interest as defined in the Code of Conduct for Councillors (eg. A friendship, membership of an association, society or trade union or involvement or interest in an activity and may include an interest of a financial nature).

**Remoteness** – a person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to a matter or if the interest is of a kind specified in the Code of Conduct for Councillors.

**Who has a Pecuniary Interest?** - a person has a pecuniary interest in a matter if the pecuniary interest is the interest of the person, or another person with whom the person is associated (see below).

**Relatives, Partners** - a person is taken to have a pecuniary interest in a matter if:

- The person’s spouse or de facto partner or a relative of the person has a pecuniary interest in the matter, or
- The person, or a nominee, partners or employer of the person, is a member of a company or other body that has a pecuniary interest in the matter.

N.B. “Relative”, in relation to a person means any of the following:

- (a) the parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descends or adopted child of the person or of the person’s spouse;
- (b) the spouse or de facto partners of the person or of a person referred to in paragraph (a)

**No Interest in the Matter** - however, a person is not taken to have a pecuniary interest in a matter:

- If the person is unaware of the relevant pecuniary interest of the spouse, de facto partner, relative or company or other body, or
- Just because the person is a member of, or is employed by, the Council.
- Just because the person is a member of, or a delegate of the Council to, a company or other body that has a pecuniary interest in the matter provided that the person has no beneficial interest in any shares of the company or body.

### Disclosure and participation in meetings

- A Councillor or a member of a Council Committee who has a pecuniary interest in any matter with which the Council is concerned and who is present at a meeting of the Council or Committee at which the matter is being considered must disclose the nature of the interest to the meeting as soon as practicable.
- The Councillor or member must not be present at, or in sight of, the meeting of the Council or Committee:
  - (a) at any time during which the matter is being considered or discussed by the Council or Committee, or



- (b) at any time during which the Council or Committee is voting on any question in relation to the matter.

**No Knowledge** - a person does not breach this Clause if the person did not know and could not reasonably be expected to have known that the matter under consideration at the meeting was a matter in which he or she had a pecuniary interest.

**Non-pecuniary Interests** - Must be disclosed in meetings.

There are a broad range of options available for managing conflicts & the option chosen will depend on an assessment of the circumstances of the matter, the nature of the interest and the significance of the issue being dealt with. Non-pecuniary conflicts of interests must be dealt with in at least one of the following ways:

- It may be appropriate that no action be taken where the potential for conflict is minimal. However, Councillors should consider providing an explanation of why they consider a conflict does not exist.
- Limit involvement if practical (eg. Participate in discussion but not in decision making or vice-versa). Care needs to be taken when exercising this option.
- Remove the source of the conflict (eg. Relinquishing or divesting the personal interest that creates the conflict)
- Have no involvement by absenting yourself from and not taking part in any debate or voting on the issue as of the provisions in the Code of Conduct (particularly if you have a significant non-pecuniary interest)

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## RECORDING OF VOTING ON PLANNING MATTERS

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### Clause 375A of the Local Government Act 1993 – Recording of voting on planning matters

- (1) In this section, **planning decision** means a decision made in the exercise of a function of a council under the Environmental Planning and Assessment Act 1979:
- (a) including a decision relating to a development application, an environmental planning instrument, a development control plan or a development contribution plan under that Act, but
- (b) not including the making of an order under that Act.
- (2) The general manager is required to keep a register containing, for each planning decision made at a meeting of the council or a council committee, the names of the councillors who supported the decision and the names of any councillors who opposed (or are taken to have opposed) the decision.
- (3) For the purpose of maintaining the register, a division is required to be called whenever a motion for a planning decision is put at a meeting of the council or a council committee.
- (4) Each decision recorded in the register is to be described in the register or identified in a manner that enables the description to be obtained from another publicly available document, and is to include the information required by the regulations.
- (5) This section extends to a meeting that is closed to the public.

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## **OATH AND AFFIRMATION FOR COUNCILLORS**

Councillors are reminded of the oath of office or affirmation of office made at or before their first meeting of the council in accordance with Clause 233A of the Local Government Act 1993. This includes undertaking the duties of the office of councillor in the best interests of the people of Byron Shire and the Byron Shire Council and faithfully and impartially carrying out the functions, powers, authorities and discretions vested under the Act or any other Act to the best of one's ability and judgment.

# BYRON SHIRE COUNCIL

## BUSINESS OF MEETING

### 1. APOLOGIES

### 2. DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

### 3. ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

- 3.1 Confirmation of minutes from 20 April 2023 Biodiversity Advisory Committee Meeting..... 6

### 4. STAFF REPORTS

#### **Sustainable Environment and Economy**

- 4.1 Brunswick Valley Landcare Support Officer quarterly reports, October 2022 to June 2023..... 13
- 4.2 Biodiversity and Agriculture Projects and Operations Update ..... 21
- 4.3 Future Discussion Items for Biodiversity Advisory Committee..... 111

**ADOPTION OF MINUTES FROM PREVIOUS MEETINGS**

**Report No. 3.1 Confirmation of minutes from 20 April 2023  
Biodiversity Advisory Committee Meeting**

5 **Directorate:** Sustainable Environment and Economy  
**Report Author:** Michelle Wilde, Project Support Officer  
**File No:** I2023/775

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**RECOMMENDATION:**

**That the minutes of the Biodiversity Advisory Committee Meeting held on 20 April 2023 be confirmed.**

15 **Attachments:**

1 Minutes 20/04/2023 Biodiversity Advisory Committee, I2023/563 , page 8  

## Report

The attachment to this report provides the minutes of the Biodiversity Advisory Committee Meeting of 20 April 2023 .

### Report to Council

- 5 The minutes were reported to Council on 25 May 2023.

### Comments

In accordance with the Committee Recommendations, Council resolved the following:

**23-190 Resolved** that Council notes the minutes of the Biodiversity Advisory Committee Meeting held on 20 April 2023

## Minutes of Meeting

### Biodiversity Advisory Committee Meeting

Venue	Conference Room, Station Street, Mullumbimby
Date	Thursday, 20 April 2023
Time	2.00pm



**BYRON SHIRE COUNCIL**

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

3.1 - ATTACHMENT 1

# BYRON SHIRE COUNCIL

## ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

## 3.1 - ATTACHMENT 1

### BYRON SHIRE COUNCIL

BIODIVERSITY ADVISORY COMMITTEE MEETING MINUTES

20 APRIL 2023

#### **Minutes of the Biodiversity Advisory Committee Meeting held on Thursday, 20 April 2023**

**File No:** I2023/563

**PRESENT:** Cr S Ndiaye, Cr S Balson, Cr P Westheimer, Cr Lyon

Staff: Shannon Burt (Director Sustainable Environment and Economy)  
Sharyn French (Manager Environmental and Economic Planning)  
Chloe Dowsett (Coast & Biodiversity Coordinator) joined at 2:38pm  
Liz Caddick (Biodiversity Team Leader)

Community: Dave Rawlins (Brunswick Valley Landcare)  
Lindsay Murray  
Leonard Cronin  
David Milledge  
James Jackson  
Stephen Millard

Guest: Gerard Bisshop joined at 2:50pm

Cr Westheimer (Chair) opened the meeting at 2.06pm and acknowledged that the meeting was being held on Bundjalung Country.

**APOLOGIES:** Liana Joseph, Caitlin Weatherstone (Project Officer-Koala), Pete Boyd (Biodiversity and Agricultural Projects Officer), Claudia Caliarì (Biodiversity Projects Officer), Martin Brook

#### **DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY**

There were no declarations of interest.



# BYRON SHIRE COUNCIL

## ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

3.1 - ATTACHMENT 1

### BYRON SHIRE COUNCIL

BIODIVERSITY ADVISORY COMMITTEE MEETING MINUTES

20 APRIL 2023

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#### ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

**Report No. 3.1**      **Confirmation of minutes from Biodiversity Advisory Committee meeting held on 16 February 2023**  
**File No:**            I2023/382

#### Committee Recommendation:

**That the minutes of the Biodiversity Advisory Committee Meeting held on 16 February 2023 be confirmed with a correction to add Cr Balson to the present list.**

(Balson/Westheimer)

The recommendation was put to the vote and declared carried.

*Note: The minutes of the meeting held on 16 February 2023 were noted, and the Committee Recommendations adopted by Council, at the Ordinary Meeting held on 23 March 2023.*

#### BUSINESS ARISING FROM PREVIOUS MINUTES

There was no business arising from previous minutes.

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BYRON SHIRE COUNCIL

BIODIVERSITY ADVISORY COMMITTEE MEETING MINUTES

20 APRIL 2023

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

**Report No. 4.1 Biodiversity and Agriculture Projects and Operations Update**  
**File No: I2023/74**

**Committee Recommendation:**

**That the Biodiversity Advisory Committee notes the update on current projects and programmes being undertaken by Council staff.**

(Ndiaye/Westheimer)

*The recommendation was put to the vote and declared carried.*

*Cr Balson voted against the motion.*

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**Report No. 4.2 Future Discussion Items for Biodiversity Advisory Committee**  
**File No: I2023/499**

**Committee Recommendation:**

**That the Biodiversity Advisory Committee notes the report.**

(Ndiaye/Westheimer)

*The recommendation was put to the vote and declared carried.*

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**Report No. 4.3 Community Member Presentation - Gerard Wedderburn-Bishop - Carbon Sequestration for Byron Bay**  
**File No: I2023/310**

**Committee Recommendation:**

- 1. That the Biodiversity Advisory Committee notes the report and thanks Gerard Wedderburn-Bisshop for his presentation.**
- 2. That the Biodiversity Advisory Committee notes that the Nature Repair Market Bill 2023 and the Nature Repair Market (Consequential Amendments) Bill 2023 has been referred to the Federal Environment and Communications Legislation Committee for inquiry and report by 1 August 2023.**
- 3. That the Biodiversity Advisory Committee supports a Notice of Motion on point 2 to the May Council Planning Meeting and seek stakeholder feedback to include in Council's submission prior.**

(Ndiaye/Westheimer)

*The recommendation was put to the vote and declared carried.*

*There being no further business the meeting concluded at 4.02pm.*

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

**Report No. 4.1 Brunswick Valley Landcare Support Officer quarterly reports, October 2022 to June 2023.**

5

**Directorate:** Sustainable Environment and Economy

**Report Author:** Michelle Wilde, Project Support Officer

**File No:** I2023/963

**Summary:**

10 This report tables the activities of the Landcare Support Officer in three quarterly reports, from October 2022 to June 2023.

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15 **RECOMMENDATION:**

**That the Biodiversity Advisory Committee note the report.**

**Attachments:**

- 20
- 1 Landcare Support Officer report - 1 Oct - 31 December 2022, E2023/62885 , page 15 [↓](#) 
  - 2 Landcare Support Officer report - 1 Jan - 31 March 2023, E2023/62887 , page 17 [↓](#) 
  - 3 Landcare Support Officer report - 1 April - 31 June 2023, E2023/62890 , page 19 [↓](#) 

## **Report**

Council provided an allocation of funds in the 2022/23 budget to continue to support the Brunswick Valley Landcare, Landcare Support Officer position for 1 day per week to deliver the Land for Wildlife Program and respond to customer enquiries.

- 5 Attached are the quarterly reports October 2022 to June 2023, from the Brunswick Valley Landcare Support Officer, for the Committee's reference.

## **Strategic Considerations**

### **Community Strategic Plan and Operational Plan**

<b>CSP Objective</b>	<b>CSP Strategy</b>	<b>DP Action</b>	<b>Code</b>	<b>OP Activity</b>
<b>3: Nurtured Environment</b> We nurture and enhance the natural environment	3.2: Deliver initiatives and education programs to encourage protection of our environment	3.2.2: Environmental education and awareness - Coordinate and support environmental education to the community	3.2.2.1	Support Brunswick Valley Landcare to deliver the Land for Wildlife Program and biodiversity enquiries.

## **Recent Resolutions**

- 10 N/A

## **Legal/Statutory/Policy Considerations**

N/A

## **Financial Considerations**

Funding allocated in 2022/23 budget.

- 15 **Consultation and Engagement**

N/A



## Landcare Support Officer Report for Byron Shire Council

1<sup>st</sup> October – 31<sup>st</sup> December 2022

### LFW

**Total of 148 properties registered in Byron Shire**

84 registered by BVL, 64 registered by BSC

### LANDCARE GROUPS

- 23 BVL locality groups – 16 working on council owned land (one has become inactive due to illness of coordinator, council regen team now manage this site).
- 3 BVL special interest groups.
- 10 Incorporated Landcare groups working in Byron Shire (not under BVL's umbrella).
- Held an open day at Yallakool Reserve Ocean Shores with guided walk and BBQ. 22 people attended.
- Distributed new tools to groups purchased using a volunteer grant from the Federal Government.

### PROJECTS

- **ET Broken Head Coastal Corridor Restoration Stage 3** \$170,000 over 4 years working on 7 properties, 10.18ha of restoration and 4.9ha of planting.
- **LLS Landslip Recovery** – regional project across 4 northern Landcare networks. BVL liaised with landholders and soil conservation experts to arrange site visits to assess 15 priority slides that were identified in Byron Shire. (98 EOI's with 206 individual slides across the 4 northern Landcare networks).

### COUNCIL

- Liz was co presenter with Jo Green for a Plant ID workshop for 14 Landcare staff.



- BVL moved all their resources into the council depot on Coolamon Scenic Drive. Thank you to council for making this available to us.

### BVL PROJECT OFFICER

- Rochelle is now working mainly working from home 1 day per week on a flexible basis. In addition to this Rochelle has also been working with council on pest animal projects.

*1<sup>st</sup> December 2022 Report by Alison Ratcliffe*

**ENQUIRY TOPICS/ ISSUES**

Phone	Email	Website	Social Media	Walk in	In Person
Nest boxes	Native water plants	volunteering		Creek restoration	2 x volunteering
Planting list	Forming a locality group	Native nurseries		Promoting project	1 x funding for Private property
Environmental weeds on neighbours property	3 x promoting events	2 x Bush regenerators			
		Verg planting			
		People steeling mulch from landcare site			
3	5	6		2	3
<b>TOTAL</b>					<b>19</b>

*1<sup>st</sup> December 2022 Report by Alison Ratcliffe*



## Landcare Support Officer Report for Byron Shire Council

1<sup>st</sup> January – 30<sup>th</sup> March 2023

### LFW

**Total of 148 properties registered in Byron Shire**

84 registered by BVL, 64 registered by BSC

### LANDCARE GROUPS

- 23 BVL locality groups – 16 working on council owned land (one has become inactive due to illness of coordinator, council regen team now manage this site).
- 3 BVL special interest groups.
- 10 Incorporated Landcare groups working in Byron Shire (not under BVL's umbrella).

### PROJECTS

- **ET Broken Head Coastal Corridor Restoration Stage 3** \$170,000 over 4 years working on 7 properties, 10.18ha of restoration and 4.9ha of planting.
- **LLS Landslip Recovery** – regional project across 4 northern Landcare networks. BVL liaised with landholders and soil conservation experts to arrange site visits to assess 15 priority slides that were identified in Byron Shire. (98 EOI's with 206 individual slides across the 4 northern Landcare networks).



### COUNCIL

- Ordered 2000 more Climate Resilient Landscape Guides which are available for free from the council office in Mullumbimby.
- Held an information stall at Regeneration Festival on 4<sup>th</sup> March. Alison gave a talk with Jo Green on the Climate Resilient Planting Guide.

*30<sup>th</sup> March 2023 Report by Alison Ratcliffe*

**BVL COMMUNITY LIASON OFFICER**

- Joanne McMurtry has started work with BVL and will be looking after all the locality groups and volunteers. Rochelle has now finished work for BVL. Alison is working from home due to being a carer for her partner.

**ENQUIRY TOPICS/ ISSUES**

Phone	Email	Website	Social Media	Walk in	In Person
Cane toad leaflet	Cane toads	Membership	Microbat box		Regen contractors
map	Grant for pp	Recommendation on tools			Volunteering
		Weed ID			3 x Mailing list
		Leaflets			
		Support for project			
		2 x volunteering			
		Sourcing tools			
2	2	8	1		5
					<b>18</b>

*30<sup>th</sup> March 2023 Report by Alison Ratcliffe*





## Landcare Support Officer Report for Byron Shire Council

1<sup>st</sup> April – 30<sup>th</sup> June 2023

### LFW

**Total of 149 properties registered in Byron Shire**

84 registered by BVL, 64 registered by BSC

Paperwork submitted for

- Gardiner, 681 Myocum Road

### LANDCARE GROUPS

- 20 BVL locality groups – 16 working on council owned land (three have become inactive due to coordinators moving away).
- 3 BVL special interest groups.
- 10 Incorporated Landcare groups working in Byron Shire (not under BVL's umbrella).

### PROJECTS

- **ET Broken Head Costal Corridor Restoration Stage 3** \$170,000 over 4 years working on 7 properties, 10.18ha of restoration and 4.9ha of planting. Coming to the end of year 1 and work is on track.
- **LLS Landslip Recovery** – regional project across 4 northern Landcare networks. BVL liaised with landholders and soil conservation experts to arrange site visits to assess 15 priority slides that were identified in Byron Shire. Landholders have received their management plans and 6 sites have been successful in receiving some funding from LLS for earthworks and hydro mulching.
- **MNES Grant** from LLS (Matters of National Environmental Significance) \$65,084 over 1 year to work on 8 sites with subtropical rainforest that have had 1 year of funding already, and 5 of the landslide sites that are needing weed control work.

### EVENTS

- **12<sup>th</sup> Annual Mother's Day Community Tree Planting** – held at 62 Yankee Creek Road. 1000 trees planted with 50 community attending, despite the rainy morning. Co-funded by BVL and Carbon Positive Australia.



*16<sup>th</sup> June 2023 Report by Alison Ratcliffe*

**COUNCIL**

- Riparian Restoration field day organised by BVL and funded by council's Bringing Back the Bruns project held at Chris Mills property on 13<sup>th</sup> June, 27 attendees including 6 council staff. About 100 plants were also planted as well as great talks on riparian restoration from Peter Boyd and Dave Filipczyk.



**BVL COMMUNITY LIASON OFFICER**

- Joanne McMurtry has been on leave for an overseas trip, but is now back. She will work for BVL for 2 days per week on a flexible basis. She has lots of ideas to reinvigorate our volunteer groups which have seen a decrease in volunteering over the last 3 years.

**BVL PROJECT OFFICER**

- Harry Hackett has started work for BVL as Project Officer and will work on a flexible basis between 1 to 2 days per week. She organised the Mother's Day tree planting and the field day for council, doing an excellent job on both.

Alison is now working reduced hours due to her carer's role, she is working 1 day per week on a flexible basis.

**ENQUIRY TOPICS/ ISSUES**

Phone	Email	Website	Social Media	Walk in	In Person
Suitable understorey species for a rainforest planting	Help with grant application	volunteering	Memorial tree in heritage park		
Singapore daisy control	Weed book	Slash pines			
2 x Planting native trees		Bush regen contractors			
contacts		Grants for pp			
books					
bamboo					
Forming a locality group					
Grant for Private property					
9	2	4	1		
					<b>16</b>

*16<sup>th</sup> June 2023 Report by Alison Ratcliffe*

## Report No. 4.2 Biodiversity and Agriculture Projects and Operations Update

**Directorate:** Sustainable Environment and Economy

**Report Author:** Lizabeth Caddick, Biodiversity Officer

5 **File No:** I2023/498

### Summary:

This report provides the Biodiversity Advisory Committee with an update on current projects and programs being undertaken by the Biodiversity team, including:




- 10
  - Flying Fox monitoring
  - No Bat No Me Project
  - Koala vehicle strike
  - Koala habitat restoration
  - Koala monitoring
  - Barbed wire website
- 15
  - Updates to vegetation mapping
  - Threatened species lists
  - Pest animal management program
  - Bringing Back the Bruns
  - Farm extension program
- 20
  - Sustainable agriculture
  - Tourism impacts on coastal biodiversity.

25

### RECOMMENDATION:

**That the Biodiversity Advisory Committee notes the update on current projects and programmes being undertaken by Council staff.**

### 30 Attachments:

- 1 Swamp Oak Mapping Report - Earthscapes - FINAL - 24/3/23, E2023/33427 , page 38 [↓](#) 
- 2 HEV Final Report V5 - 5/5/23, E2023/44987 , page 55 [↓](#) 
- 35 3 REPORTING - Updates to 2021 Vegetation Mapping - Final Report - 6/6/23, E2023/57278 , page 100 [↓](#) 

## Report

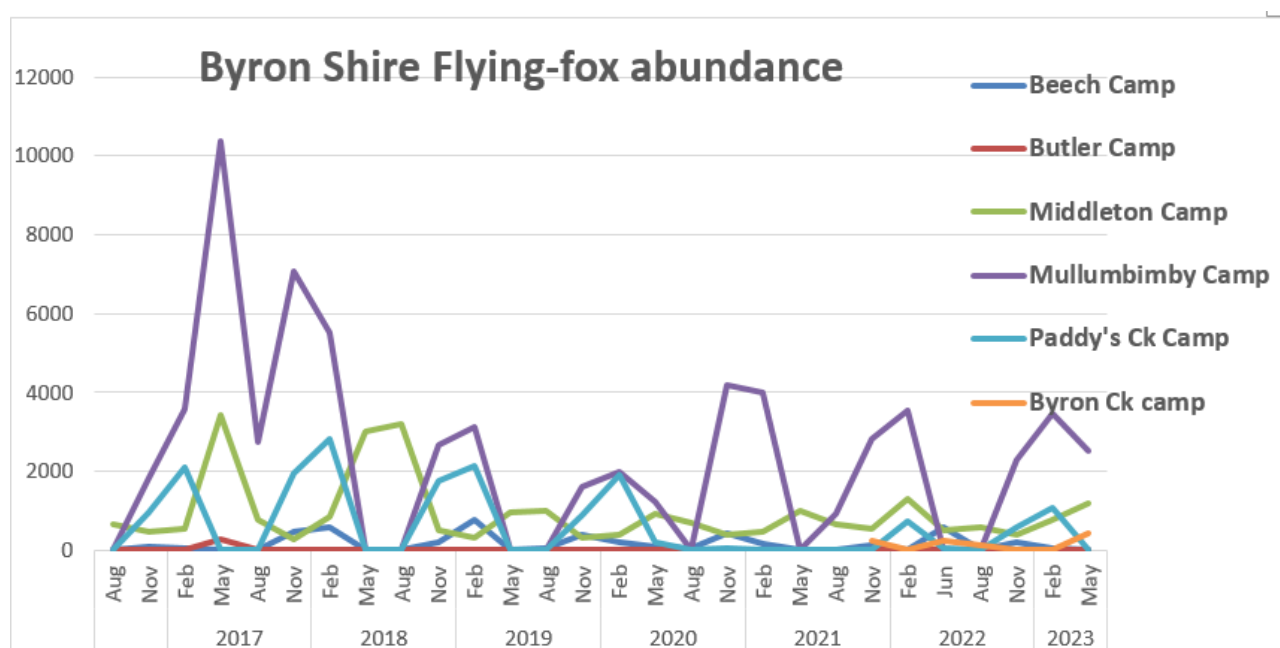
### Flying Foxes

#### National Flying-Fox Monitoring Program - Census

##### Biodiversity Conservation Strategy Action:

- 5 **4.9 Review and implement monitoring programs to assess effectiveness of Council ecological restoration**

In May Byron Shire Council's Biodiversity Project Officer collected data from 6 flying-fox camps in urban areas in our shire. The data was sent to state government and it's the baseline for the National Monitoring program. This survey is done quarterly, formally since 2016.



#### No Bat No Me Project – Flying Foxes/Koala

##### Biodiversity Conservation Strategy Actions:

**2.1 Provide expert advice regarding how people can help protect biodiversity**

- 15 **4.9 Implement actions in the Flying Fox Camp Management Plan 2018-2023.**

The joint project with flying foxes and koalas that secured \$27,100 grant, funded by WIRES, is more than halfway through. Strategically chosen to coincide with flying-fox educational year, this project is also helping to deliver our Environmental Trust educational booklet "Facts about Bats" to all visited schools.

- 20 The project main elements:



1. Flying-Fox Workshops presented on 10 local schools: so far, presented in 7 schools and one presentation for 20 home-schooled children (11 presentations in total). Preliminary results indicate a significant impact, with 90% of students expressing changed perceptions about flying-foxes.
- 5 2. Media Campaign: to amplify community engagement, Council has prepared a media campaign including newspaper ads, social media posts, street banners and an informative video.
- 10 3. Community events: Splendour in the Grass roving presentation with human-sized flying fox costume. This event reached a diverse audience, emphasizing that flying-fox conservation is not only a local but also a national issue. Engagement with visitors from other regions that host flying-foxes was a highlight.
4. Community survey: conducted at the project's inception and again in September, at the end of the project.



### 15 Koalas

#### Koala Vehicle Strike

##### *Biodiversity Conservation Strategy Actions:*

- 20 **4.25** *Work with RMS, local wildlife groups and Regional Koala Communications Group to identify road strike hotspots in Byron Shire.*
- 4.26** *Seek funding for road strike mitigation trials at priority road strike hotspots.*

**4.27** Consider roadkill mitigation measures and opportunities to improve wildlife connectivity into design work for new roads and road asset upgrades.

5 Geolink have developed a preliminary Feasibility Assessment for koala vehicle strike mitigation measures in the key road-strike black spot that extends from Granuaille Rd to Lismore Rd, coming into and out of Bangalow. Infrastructure Services, DPE and Transport for NSW have reviewed the draft options presented, and revised options were presented to stakeholders in June, with proposed options prioritised based on practicality, cost and likelihood of effectiveness. Geolink are now finalising the feasibility study, which will be used by DPE to seek funding for some of the proposed mitigation measures, under the NSW Koala Strategy.

Staff are continuing to progress the Koala LED radar speed signs project, subject to availability of technical staff. This project aims to install flashing radar speed signs and road pavement marking at three koala road strike blackspots, along Broken Head Rd, Coorabell Rd and Coolamon Scenic Drive.

#### 15 Koala Habitat Restoration

*Biodiversity Conservation Strategy Action:*

**3.9** Seek grant funding opportunities for combined Council-private landholder restoration and revegetation projects on private land.

Staff are finalising grant funded koala habitat restoration projects, comprising

- 20 - NSW Koala Strategy grant of \$101,211 for planting and restoration at 6 sites.
- NSW Koala Strategy grant of \$15,000 for ongoing maintenance at 8 existing koala habitat restoration sites.

#### Koala Monitoring

*Biodiversity Conservation Strategy Action:*

25 **4.7** Implement a monitoring program for the Byron Coast koala population.

30 The 2023 Koala Activity Survey program will begin in September, with Council partnering with DPE. DPE funding under the NSW Koala Strategy will cover some contractor costs as well as equipment, including purchase of song-meters to provide additional data to support Spot Analysis Technique (koala scat) surveys. 70 sites will be analysed for koala occupancy and activity level over the 2023 koala breeding season.

#### Northern Rivers Koala Network (NRKN)

*Biodiversity Conservation Strategy Action:*

35 **4.13** Liaise with local conservation groups and government agencies to share information (e.g. monitoring data) and identify opportunities for biodiversity conservation partnerships.

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

4.2

The last meeting (occurs every 2 months) was on 29 June, and included a presentation on the new code of practice for care of sick, injured and orphaned koalas.

- 5 Council partnered with the NRKN Koala Officer and Friends of the Koala on 18 July to deliver a community workshop at The Farm in Byron Bay, informing the community about our upcoming survey program, koala health and conservation, and how the community can get involved in habitat restoration and reporting sightings. The event was well attended with some great questions and discussion.

### Barbed Wire

#### RESOLUTION NUMBER: 21-342

- 10 1. *That Council reviews its use of barbed wire on Council properties with a view to improving the conservation and protection of animals.*
2. *That Council works with key stakeholders to develop an information and education program for the community and landowners in order to:*
- 15 a) *review the impacts of barbed wire on native fauna and*
- b) *provide ideas for alternatives to barbed wire or measures to mitigate the impacts.*
3. *That this issue be referred to the Biodiversity Advisory Committee for further consideration.*

20 As reported to a previous BAC meeting, the use of, and need for, barbed wire fencing, has been discussed with Council Open Space staff and with local farming representatives via the Agriculture Cluster Group (meeting 9/10/2021). Barbed wire is generally not used on Council land and Open Space managers are replacing barbed with smooth wire as and when fencing replacements are needed.

25 Standard farm fencing, for cattle is 5-strand barbed wire. Local farmers advise that barbed wire fencing is often the only effective way of keeping cattle within a property and off of roads, particularly in situations where cattle may be frightened, e.g. near busy roads or when chased by dogs. However, there are opportunities to use smooth strand wire or electric fencing on internal fences, and to use smooth wire for the top strand of perimeter fences. The top strand is generally where the most wildlife impacts occur. Using smooth

30 wire for the bottom strand can also benefit wildlife, but is not practical in fields with young calves as they can get through this. There are likely many properties in the shire that have old barbed wire fences in situ that aren't really necessary as they are no longer used for livestock agistment.

35 To encourage landholders to remove old, unnecessary fences and adopt fauna friendly fencing and netting options, Council has developed a Wildlife Friendly Fencing web page [Wildlife friendly fencing - Byron Shire Council \(nsw.gov.au\)](https://www.byrongov.au/wildlife-friendly-fencing), which was launched recently with a media campaign. The media campaign included boosted social media posts and a press release highlighting some wildlife friendly fencing that Council recently helped to

install at The Farm, in a high-visibility site. The web page contains tips and information on fauna-friendly fencing and netting for farmers and other landholders.

### Mapping Projects

- 5 Council is continuing to progress a number of biodiversity mapping updates in accordance with the Biodiversity Conservation Strategy. These mapping updates are a useful tool to guide Council and other community conservation groups, on where to prioritise biodiversity conservation activities, including habitat restoration and enhancement.

#### Updates to Vegetation and HEV mapping

- 10 *Biodiversity Conservation Strategy Actions:*

*1.14: Update and maintain Council's vegetation and HEV mapping with revised Plant Community Types (PCTs) and current aerial photography;*

*1.19 Update vegetation mapping to clearly identify recently listed threatened ecological communities.*

- 15 Earthscapes Consulting have updated Council's vegetation mapping, funded by a \$24,000 grant from NSW DPE Biodiversity Conservation Division. The updated mapping is all available via Council's online map tool ([Online map tools - Byron Shire Council \(nsw.gov.au\)](https://www.byrongov.au/online-map-tools)). Mapping updates include:

- 20
- Review of new Plant Community Types (NSW State Vegetation Type Mapping) against Byron Shire Council 2021 Vegetation Mapping - reported at November 2023 BAC meeting.
  - Map of Endangered Ecological Communities, including recently listed threatened ecological communities (Coastal Swamp Oak and Coastal Swamp Sclerophyll Forest). Refer Attachment 1 for more details.
- 25
- Updated High Environmental Value mapping. High Environmental Value (HEV) criteria were developed and endorsed by NSW Planning for the assessment of planning proposals. The revised mapping includes updated HEV criteria and reflects the most up to date vegetation and threatened ecological community mapping. Refer Attachment 2 for more details.
- 30
- Updated Vegetation mapping. Refer Attachment 3 for more details.

#### Review of coastal wetland and littoral rainforest mapping

*Biodiversity Conservation Strategy Actions:*

*1.19 Update vegetation mapping to clearly identify recently listed threatened ecological communities.*



# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

4.2

**1.30** *Continue development of Coastal Management Programs for the Shire's coastline and estuaries, ensuring CMPs are consistent with the intent of this Biodiversity Strategy.*

5 As part of the development of Coastal Management Programs for Byron Shire, a Stage 2 study has commenced to fill a key information gap. Council has engaged a consultant to review the coastal wetlands and littoral rainforest areas as mapped in the *SEPP (Resilience and Hazards) 2021* following a State-led minor review undertaken in 2018. This will primarily be a desktop assessment using Council's High Environmental Value mapping (currently being updated), as well as other data such as Plant Community Types (PCT) mapping, Council and agency staff input, and guidance provided by the Department of Planning and Environment on mapping criteria.

10 Depending on the outcome of the project, if there are any proposed key mapping amendments or changes to Council's planning framework in relation to coastal wetlands and littoral rainforest provisions, these would be further considered in a later stage of development of the Coastal Management Programs. There will be opportunity for stakeholders and community to provide input at the decision-making stage (Stage 3).

### Wildlife Corridor Mapping

*Biodiversity Conservation Strategy Action:*

**1.18** *Update Council's wildlife corridor mapping and liaise with other NRJO Councils to ensure consistency in wildlife corridor mapping across the region.*

20 The draft Wildlife Corridor System (Landmark 2022) was on public exhibition from 31 October to 12 December, with over 100 submissions were received. Staff have reviewed feedback and have scheduled a Councillor Workshop to update Councillors on the feedback received and proposed amendments. Due to conflicting priorities the workshop has now been rescheduled to 7 September.

### 25 Threatened species lists

*Biodiversity Conservation Strategy Action:*

**1.11** *Conduct a review of Byron Shire's biodiversity values as a baseline for ongoing biodiversity monitoring, including updated Byron Shire flora and fauna lists and status of threatened flora and fauna.*

30 Updated threatened species lists for Byron Shire have been added to Council's website. Threatened species lists were previously included in the 2004 Biodiversity Strategy, but have now been put on line so it is easier to update them when required. See [Threatened species of plants and animals in Byron Shire - Byron Shire Council \(nsw.gov.au\)](https://www.byrongov.au/Threatened-species-of-plants-and-animals-in-Byron-Shire)

### 35 **Pest Animal Management Program**

#### Pest Animal Management Plan 2018-23

### *Biodiversity Conservation Strategy Action:*

**4.23** *Work with North Coast LLS and private land managers to develop a coordinated cross-tenure approach to pest animal management.*

- 5 The team is in the very early stages of evaluating the outcomes of the PAMP from 2018 and preparing a reviewed plan for the next 5 years. The new plan is likely to include the management of deer in the Shire. A consideration of the new plan will be on the involvement/collaboration of neighbouring Councils in recognition that many of the pests are mobile (e.g. dogs, Indian mynas and deer). Council is negotiating some grant funding from DPE Biodiversity and Conservation Division to support review of the PAMP.

### Deer

### *Biodiversity Conservation Strategy Action:*

- 15 **4.13** *Liaise with local conservation groups and government agencies to share information (e.g. monitoring data) and identify opportunities for biodiversity conservation partnerships.*

Byron Shire Council is actively participating of discussions related to regional deer management. A recent outcome from was the formalisation of a joint submission with the surrounding LGAs to the National Feral Deer Action Plan on 20/03/2023.

Community information workshops are planned for later this year.

### 20 Indian Myna

### *Biodiversity Conservation Strategy Action:*

**4.22** *Develop and implement Operational Plans for target pest species*

- 25 Councils supply of Myna traps has finally dried up as the people who made them have retired. We are currently searching for people or an organisation to make more of the traps. The Pee Gee traps we use are superior to any available on the market.

Council's Indian Myna trapping contractor Rochelle Merdith has a database of all traps being used in the Shire and is encouraging sharing of the traps from those that have eliminated the birds in their area to those in need.

- 30 Rochelle has created a Byron Shire Indian Myna Action Group on Facebook. So far there are 16 members. Members share their successes, techniques and also use the page to offer assistance and traps to others if required.

To date 284 Indian Mynas have been trapped in the Shire since 2020.

### Imported Red Fire Ant

- 35 Recent monitoring has revealed that Red imported fire ants (fire ants) have been found within 5km of the QLD border at Tallebudgera. Fire ants can move approximately 5km per

year. Fire ants are invasive exotic ants that cause serious social, economic, and environmental harm. They are aggressive and have a severe, burning sting.

How do fire ants affect us?

- 5
  - Large numbers of ants will swarm onto a person or animal stinging over and over, causing the sensation of being on fire.
  - Stings can become infected and in rare cases lead to fatal allergic reactions.
  - Infestations restrict the use of backyards, parks, playgrounds, beaches and sports fields and damage electrical, irrigation and agricultural equipment
- 10
  - Fire ants feed on seeds, insects, spiders, lizards, frogs, birds and mammals. They can displace or kill off native plants and animals and change whole ecosystems beyond repair.
  - Their presence limits the ability to export goods to states or countries free of red imported fire ants.

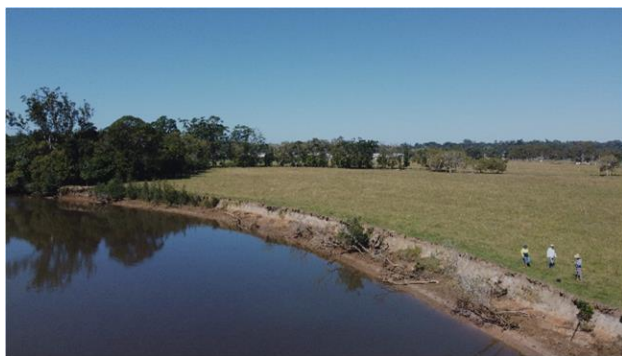
15 As a result of this potential invasion, although insects are not managed in the Pest animal management plan, Imported Red Fire Ants will be included as a priority pest in the updated pest management plan. Staff are closely monitoring the situation and following advice from NSW Department of Primary Industries who is the States primary pest management authority.

### Bringing Back the Bruns

20 *Biodiversity Conservation Strategy Action:*

**4.29** *Continue to develop and implement 'Bringing back the Bruns' branded projects to address improvements in riparian and instream habitat, water quality, fish passage and habitat connectivity on Council and private land along the Brunswick River and its tributaries.*

- 25 The Federally funded *Fish Habitat Restoration Project* on the Brunswick River has been completed. 160m of riverbank has been stabilised with bank re-shaping, log structures designed to dissipate waves and high flow energy and coir logs to trap seeds and promote colonisation of mangroves. The landholder has fenced the site from stock and planted 1400 local native riparian trees and shrubs to create a functioning riparian zone over time.
- 30 The project was achieved with a \$187,000 grant from the Federal Fish Habitat Restoration Program with a partnership with Local Land Services.



### Farm Extension

*Agriculture Action Plan action:*

- 5        **1.3** *Develop and maintain a database of farmers and primary production stakeholders to: identify farmers issues and opportunities and enable easy forwarding of relevant information and activities to specific farmers and stakeholders.*

The Byron Farmers Network database now has 380 members and is an excellent resource to share information and advice with the grower's community, for both Council and other agencies that work to support farmers in the region.

- 10      The farm extension program is ongoing, with visits, emails and phone conversations with local producers to provide support, advice and information.

Since the April BAC meeting 8 emails have gone out to the Byron Farmers Network, providing advice and promoting workshops, training, resources and events.

### Agriculture Workshops/Field Days

- 15      *Agriculture Action Plan action:*

**1.4** *Develop and deliver (or refer landholders to) workshops and field days on best practice farming, innovation, productivity, sustainable land use and biodiversity.*

- 20      We had a field day at Misty Creek Farm May 19 which was a great day of learnings of diverse forms of production with organic chicken and eggs produced amongst a syntropic agroforestry. We had 25 registrations and 22 attendees.

Collaborated with RCS for a Grazing day workshop held @ The Farm Byron bay April 29th with 14 attendees.

- 25      Soil biology Workshops held in collaboration with the flood recovery team with local educator John Bond, June 17<sup>th</sup>, at The Paddock in Mullum April 22nd and Shara Community Gardens with great feedback from attendees.

A "Weeds as Indicators" webinar was held with context specific information delivered in collaboration with Educator Kim Deans. We had ample time for some great questions as well as some great information from the 51 registrations for the webinar. Learning peoples pain points and struggles and delivering content relevant to that. This is a new approach which enables us to share the recorded webinar and get further value from the engagement. Looking to be a great format for educating our landholders going forward as the field day event space is getting clustered.

We supported a great local presentation on the history of agriculture in our region and what we can do going forward. This was in collaboration with local organisation TROPO (Tweed Richmond Organic Producers Organisation). We filmed the presentation so we can have as a vital resource in educating landholders and farmers. Awaiting to be loaded to BSC YouTube channel for distribution.

Was invited to represent Byron Shire Council on the panel for the film screening "Rachels Farm" which held 2 screenings in Byron on July 25th which were both sold out. There was some great discussion with some great follow up from some of our farmers who attended.

### Sustainable Agriculture Activities

*Agriculture Action Plan actions:*

**1.2** Establish and support an agricultural mentoring program to support new and existing farmers in starting up, expanding their enterprise or changing their land management practices.

**1.5** Establish and maintain links to relevant organisations for the benefit of information sourcing, project collaboration, resource sharing and support.

**3.6** Investigate, develop and support processes and arrangements that increase opportunities to access and activate underutilised farmland.

Continued support with incubator program including playing significant role in getting the mentored farmers a stall at Mullum Farmers market, which will play a crucial part in the program evolving. With 3 mentor sessions held with the young farmers over the April June July period.

Article put out on local farming magazine Going Organic. Discussing the role and what has been achieved in reaching local farmers and supporting a more sustainable approach.

### Soil Test Video

*Agriculture Action Plan action:*

**1.6** Source and provide current best practice farming information and techniques to assist farmers to improve productivity and sustainability by practice change

A instructional and inspirational how and why to test soils has been launched and EOI of soil tests is out to the community with the video getting great responses from farmers and

educators. To date we have 8 of the 10 soil tests applied for which will close off August 21st.

Awaiting assistance from the comms team for media release on the soils video.

[The importance of soil testing - YouTube](#)

5

### **Researching the Impacts of Recreational and Tourism Uses on Coastal Biodiversity, Wildlife and Habitats**

*Biodiversity Conservation Strategy Actions:*

10 **2.13** *Seek opportunities to work with tourism operators to build capacity in environmental awareness*

**2.16** *Partner with Council Tourism Officers to investigate opportunities for development of a volunteer tourism initiative that links environmental community groups with visitors.*

The draft report has been received by Council and is currently undergoing review.

Next steps:

- 15
- Finalise baseline monitoring.
  - Consultant to finalise report. Completion expected by September 2023.
  - Report to Council to be noted.
  - Place report on website for 'information only'
- 20
- Consider identified recommendations at Stage 3 of preparation of Coastal Management Programs.
  - Presentation to Council's Coastal and ICOLL Advisory Committee. BAC members will be invited to attend this presentation online.

## **Strategic Considerations**

### **25 Community Strategic Plan and Operational Plan**

<b>CSP Objective</b>	<b>CSP Strategy</b>	<b>DP Action</b>	<b>Code</b>	<b>OP Activity</b>
2: Inclusive Community We have an	2.2: Enhance safety and contribute to	2.2.4: Companion animals -	2.2.4.3	Facilitate companion animals education

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

4.2

inclusive and active community where diversity is embraced and everyone is valued	the physical, mental, and spiritual health and well being of our people	Promote awareness of the requirements of the Companion Animals Act with respect to the ownership of companion animals		
3: Nurtured Environment We nurture and enhance the natural environment	3.1: Partner to nurture and enhance our biodiversity, ecosystems, and ecology	3.1.1: Native species - Use best practice land management to improve ecological resilience and reduce threats to biodiversity	3.1.1.1	Partner with DPE to implement koala vehicle strike mitigation in Byron Shire as part of the NSW Koala Strategy 2022-2026.
3: Nurtured Environment We nurture and enhance the natural environment	3.1: Partner to nurture and enhance our biodiversity, ecosystems, and ecology	3.1.1: Native species - Use best practice land management to improve ecological resilience and reduce threats to biodiversity	3.1.1.2	Engage with the community regarding mitigating threats to koalas.
3: Nurtured Environment We nurture and enhance the natural environment	3.1: Partner to nurture and enhance our biodiversity, ecosystems, and ecology	3.1.1: Native species - Use best practice land management to improve ecological resilience and reduce threats to biodiversity	3.1.1.3	Partner with Regional Koala Group to progress koala conservation in Northern Rivers region.

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

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3: Nurtured Environment We nurture and enhance the natural environment	3.1: Partner to nurture and enhance our biodiversity, ecosystems, and ecology	3.1.1: Native species - Use best practice land management to improve ecological resilience and reduce threats to biodiversity	3.1.1.9	Seek funding to implement the Biodiversity Conservation Strategy, Coastal Koala Plan of Management and Flying Fox Camp Management Plan.
3: Nurtured Environment We nurture and enhance the natural environment	3.1: Partner to nurture and enhance our biodiversity, ecosystems, and ecology	3.1.2: Pest and weed management - Use best practice land management to improve ecological resilience and reduce threats to biodiversity	3.1.2.1	Implement Dog, fox and cat trapping program.
3: Nurtured Environment We nurture and enhance the natural environment	3.1: Partner to nurture and enhance our biodiversity, ecosystems, and ecology	3.1.2: Pest and weed management - Use best practice land management to improve ecological resilience and reduce threats to biodiversity	3.1.2.3	Participate in Northern Rivers Feral Deer Management group.
3: Nurtured Environment We nurture and enhance the natural environment	3.1: Partner to nurture and enhance our biodiversity, ecosystems, and ecology	3.1.3: Habitat restoration - Restore degraded areas that provide high environmental or community value	3.1.3.1	Update Byron Shire habitat restoration database and DPE Koala Habitat Restoration Archive.



# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

4.2

3: Nurtured Environment We nurture and enhance the natural environment	3.1: Partner to nurture and enhance our biodiversity, ecosystems, and ecology	3.1.3: Habitat restoration - Restore degraded areas that provide high environmental or community value	3.1.3.3	Implement 2022 Koala Habitat Restoration Project.
3: Nurtured Environment We nurture and enhance the natural environment	3.1: Partner to nurture and enhance our biodiversity, ecosystems, and ecology	3.1.3: Habitat restoration - Restore degraded areas that provide high environmental or community value	3.1.3.4	Investigate grant opportunities for improving the Brunswick Estuary ecosystems and river health.
3: Nurtured Environment We nurture and enhance the natural environment	3.1: Partner to nurture and enhance our biodiversity, ecosystems, and ecology	3.1.3: Habitat restoration - Restore degraded areas that provide high environmental or community value	3.1.3.5	Deliver Federal Fish Habitat Restoration Project
3: Nurtured Environment We nurture and enhance the natural environment	3.2: Deliver initiatives and education programs to encourage protection of our environment	3.2.3: Planning - Plan to improve the quality of the natural environment	3.2.3.1	Update flora and fauna lists for the shire, including status of threatened flora and fauna.
3: Nurtured Environment We nurture and enhance the natural environment	3.2: Deliver initiatives and education programs to encourage protection of	3.2.3: Planning - Plan to improve the quality of the natural	3.2.3.2	Update Byron Shire Vegetation and HEV mapping

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

4.2

	our environment	environment		
3: Nurtured Environment We nurture and enhance the natural environment	3.2: Deliver initiatives and education programs to encourage protection of our environment	3.2.3: Planning - Plan to improve the quality of the natural environment	3.2.3.3	Participate in regional coastal and environmental working groups and initiatives
3: Nurtured Environment We nurture and enhance the natural environment	3.2: Deliver initiatives and education programs to encourage protection of our environment	3.2.3: Planning - Plan to improve the quality of the natural environment	3.2.3.4	Identify priority open forest ecosystems requiring restoration through the reintroduction of fire.
3: Nurtured Environment We nurture and enhance the natural environment	3.3: Protect the health of our coastline, estuaries, waterways, and catchments	3.3.1: Coastal Management Program planning and implementation - Undertake Coastal Management Program planning and implementation	3.3.1.5	Research the effects of recreational uses on coastal biodiversity and habitats
4: Ethical Growth We manage growth and change responsibly	4.3: Promote and support our local economy	4.3.5: Regenerative agriculture - Develop and implement strategies to support regenerative agriculture, agri-business and farmers	4.3.5.1	Maintain and update Byron Shire Farmer database.
4: Ethical Growth	4.3: Promote and support	4.3.5: Regenerative	4.3.5.2	Provide extension services to farmers to

## BYRON SHIRE COUNCIL

### STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

4.2

We manage growth and change responsibly	our local economy	agriculture - Develop and implement strategies to support regenerative agriculture, agri-business and farmers		support and promote sustainable agriculture.
4: Ethical Growth We manage growth and change responsibly	4.3: Promote and support our local economy	4.3.5: Regenerative agriculture - Develop and implement strategies to support regenerative agriculture, agri-business and farmers	4.3.5.3	Deliver farmer mentoring and farmer education activities.

#### Recent Resolutions

N/A

#### Legal/Statutory/Policy Considerations

5 N/A

#### Financial Considerations

N/A

#### 10 Consultation and Engagement

N/A



Updated Coastal Swamp Oak (*Casuarina glauca*) Mapping in Byron Shire  
March 2023

**Authors:** Jane Wickers and Joanne Green, EarthScapes Consulting



Figure 1 - Swamp Oak community Broken Head.

Version	Written by	Date	Reviewed by	Date
V1	Jane Wickers	February 24 2023	Dr Jo Green	February 28 2023
V2	Jane Wickers	February 28 2023	Dr Jo Green	
V3	Jane Wickers	March 20 2023		
Final	Jane Wickers and Dr Jo Green	March 24 2023		

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**Note:** The information in this plan is subject to clarification or amendment due to changes in legislation, agencies and organisations over time. It is the responsibility of the user to ensure compliance with relevant legislation.

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### Acknowledgement

The People of the Bundjalung nation developed and maintained a deep and rich connection with the land of the Byron area. The land nourished all of the person, supplying physical, spiritual, cultural and identity necessities. We wish to acknowledge these First Peoples, and pay our respects to Elders - past, present and future.



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## 1. Objective

Update Byron Shire 2021 Vegetation mapping to clearly identify recently listed threatened ecological community - Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland

Assessment to include desk top analysis and targeted ground truthing to validate boundaries where required.

- Area of land mapped as Coastal Swamp Oak woodland.
- Ground truthing methodology used

## 2. Background and Legislation

Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community was listed as Endangered 20 March-2018 under the Federal EPBC Act 1999.

(<https://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=142>).

The condition thresholds, classes and categories are the key diagnostic criteria to define Coastal Swamp Oak Forest and were used in the groundtruthing and mapping to determine the categorisation of Swamp Oak in Byron Shire in 2023 (See Table 1 below).

Although the EPBC-listed Coastal Swamp Oak Forest as described above is not directly listed under NSW legislation, the threatened community *Swamp Oak Floodplain Forest of North Coast, Sydney Basin and South East Corner Bioregion* is of similar composition. This Swamp Oak Community can have a higher percentage or be dominated by *Melaleuca quinquenervia* Broad-leaved Paperbark with a more diverse midstorey and understorey. The structure of the community may vary from open forests to low woodlands, scrubs or reedlands with scattered trees and is usually below 20 m elevation on land subject to inundation. *Swamp Oak Floodplain Forest of North Coast, Sydney Basin and South East Corner Bioregion* is listed in NSW as a threatened community under NSW Biodiversity Conservation Act 2016 previously the Threatened Species Act 1995.

*Table 1 - Condition thresholds, classes and categories for patches of Coastal Swamp Oak Forest of NSW and SE Queensland.*



Condition thresholds  Patch size classes→  ↓ Vegetation quality classes	Large patch The patch is at least 5 ha	Medium patch The patch is at least 2 ha and less than 5 ha	Small contiguous** The patch is at least 0.5 ha and less than 2 ha, and is connected to a larger area of native vegetation of at least 5 ha	Small patch The patch is at least 0.5 ha and less than 2 ha
<b>HIGH QUALITY</b> <b>Predominantly native understorey</b> Non-native species comprise <b>less than 20%</b> of total understorey vegetation cover*	CATEGORY A A <u>large patch</u> that meets <b>key diagnostics</b> and has a <u>predominantly</u> native understorey	CATEGORY B A <u>medium patch</u> that meets <b>key diagnostics</b> and has a <u>predominantly</u> native understorey OR A <u>small patch</u> that meets <b>key diagnostics</b> and has a <u>predominantly</u> native understorey and is <u>contiguous**</u> with another <u>large</u> area of native vegetation	CATEGORY C A <u>small patch</u> that meets <b>key diagnostics</b> and has a <u>predominantly</u> native understorey	
<b>GOOD QUALITY</b> <b>Mostly native understorey</b> Non-native species comprise <b>less than 50%</b> of total understorey vegetation cover* AND transformer species*** comprise <b>less than 30%</b> of total understorey vegetation cover*	CATEGORY B A <u>large patch</u> that meets <b>key diagnostics</b> and has a <u>mostly</u> native understorey	CATEGORY C A <u>medium patch</u> that meets <b>key diagnostics</b> and has a <u>mostly</u> native understorey OR A <u>small patch</u> that meets <b>key diagnostics</b> and has a <u>mostly</u> native understorey and is <u>contiguous**</u> with another <u>large</u> area of native vegetation		
<b>MODERATE QUALITY</b> <b>Some native understorey</b> Non-native species comprise <b>less than 80%</b> of total understorey vegetation cover* AND transformer species*** comprise <b>less than 50%</b> of total understorey vegetation cover*	CATEGORY C A <u>large or medium patch</u> that meets <b>key diagnostics</b> and has <u>some</u> native understorey			
<p>*Refers to total perennial understorey vegetation cover for the patch of the ecological community. Includes vascular plant species of all layers below the canopy with a life-cycle of more than two growing seasons. It includes herbs (graminoids and forbs), grasses, shrubs and juvenile plants of canopy species, but does not include annual plants, cryptogams, plant litter or exposed soil. Areas of little to no understorey vegetation cover (e.g. plant litter) are included if key diagnostics are met and non-native species are below thresholds.</p> <p>**Contiguous means the patch is connected or in close proximity (within 30 m) to another area of native vegetation.</p> <p>***Transformer species (e.g. <i>Chrysanthemoides monilifera</i>, <i>Asparagus</i> spp, <i>Pennisetum</i> spp, <i>Ipomoea</i> spp. etc.) are non-native plant species with the potential to permanently change the character, condition, form or nature of patches of the ecological community. See p. 43 for further information on weeds, including transformer species. Annual weeds, such as <i>Symphyotrichum subulatum</i> (saltmarsh aster), may be seasonally very abundant and temporarily restrict the development of native species, but would not be counted as transformer weeds in determining condition.</p>				

### 3. Current Mapping

#### PCT Mapping

Eastern NSW State Vegetation Type Map (SVTM) v1.1 (sourced from DPIE) includes the following communities (Table 2) that contain Swamp Oak.

Table 2 contains all PCTs in Byron LGA that have "Swamp Oak" in the PCT Name (sourced from SVTM).

Figure 2 displays Swamp Oak PCTs based on the SVTM mapping.

*Table 2 - Swamp Oak Communities PCT mapping in Byron Shire*

<b>PCTID</b>	<b>PCT Name</b>	<b>Area (Ha)</b>
3993	Far North Swamp Oak-Paperbark Tidal Forest	10.5
4026	Estuarine Sea Rush Swamp Oak Forest	151.1
4034	Far North Swamp Oak-Tuckeroo Swamp Fringe Forest	146.6
4090	Far North Estuarine Mangrove-Swamp Oak Forest	10.6
		<b>318.8</b>

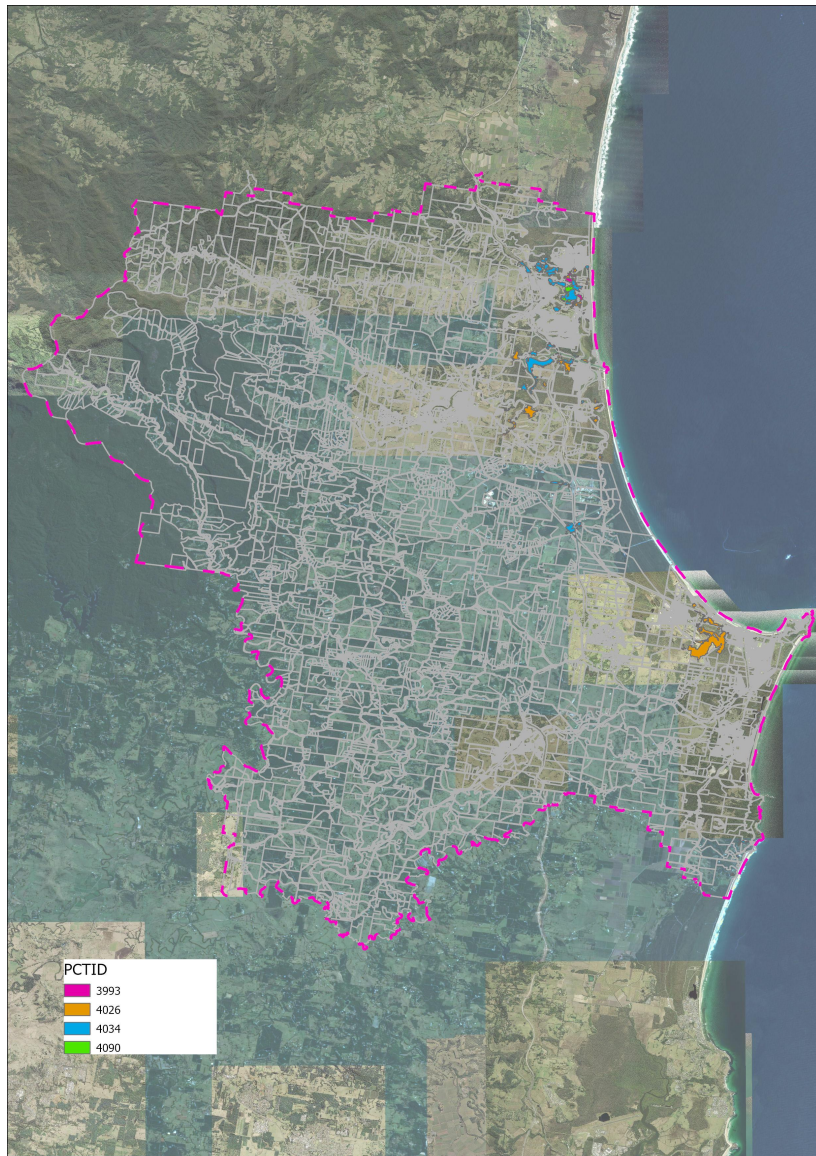


Figure 2 - Distribution of Swamp Oak in Byron Shire based on NSW PCT mapping.

#### Byron Shire 2021 Vegetation Mapping

Byron Shire Vegetation mapping includes the following vegetation communities (LM veg type Table 3) where Swamp Oak is dominant. This mapping was originally mapped by Landmark Ecological Services in 2015 and updated in 2021.

Figure 3 shows the distribution of Swamp Oak communities in Byron Shire based on Byron Shire Council vegetation mapping.

Table 3 - Byron Shire Council LM vegetation types dominated by Swamp Oak.

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.2 - ATTACHMENT 1

Veg Type	PCT ID	Area (Ha)
Swamp Oak	4034/4026	42.6
Swamp Oak-Cabbage Palm	4034	4.1
Swamp Oak-Callicoma-Paperbark	4026	0.7
Swamp Oak-Camphor Laurel	4034	0.4
Swamp Oak-Eucalypt	4026	0.8
Swamp Oak-Mangrove	4026	8.3
Swamp Oak-Paperbark	4026	13.8
Swamp Oak-Paperbark-Wattle	4034	1.1
Swamp Oak-Paperbark-Willow Bottlebrush	4026	1.6
Swamp Oak-Rainforest	4034	6.0
Swamp Oak-Sedgeland	4026	0.2
Swamp Oak-Swamp Box-Rainforest	4034	0.7
Swamp Oak-Wattle	4034	0.4
Swamp Oak-Wattle-Paperbark	4034	1.0
Swamp Oak-Wattle-Swamp Mahogany, Forest Red Gum	4034	0.8
Swamp Oak on metasediments	4034	0.1
Swamp Oak+Forest Red Gum	4034	0.3
Swamp Oak+Littoral Rainforest	4034	0.3
Swamp Oak+Mangrove	4026	2.2
Swamp Oak+Paperbark	4026	79.6
Swamp Oak+Paperbark, Eucalypt	4034	3.5
Swamp Oak+Paperbark, Rainforest	4034	0.8
Swamp Oak+Paperbark, Swamp Box	4026	1.5
Swamp Oak+Pink Bloodwood, Swamp Box	4034	20.6
Swamp Oak+Rainforest	4034	1.6
Swamp Oak+Saltmarsh, Mangrove	4026	0.2
Swamp Oak+Swamp Box	4026	1.0
Swamp Oak+Swamp Box, Forest Red Gum, Paperbark	4026	1.4
Swamp Oak+Swamp Mahogany	4026	12.7
Swamp Oak+Tuckeroo, Mangrove	4034	0.2
		208.5



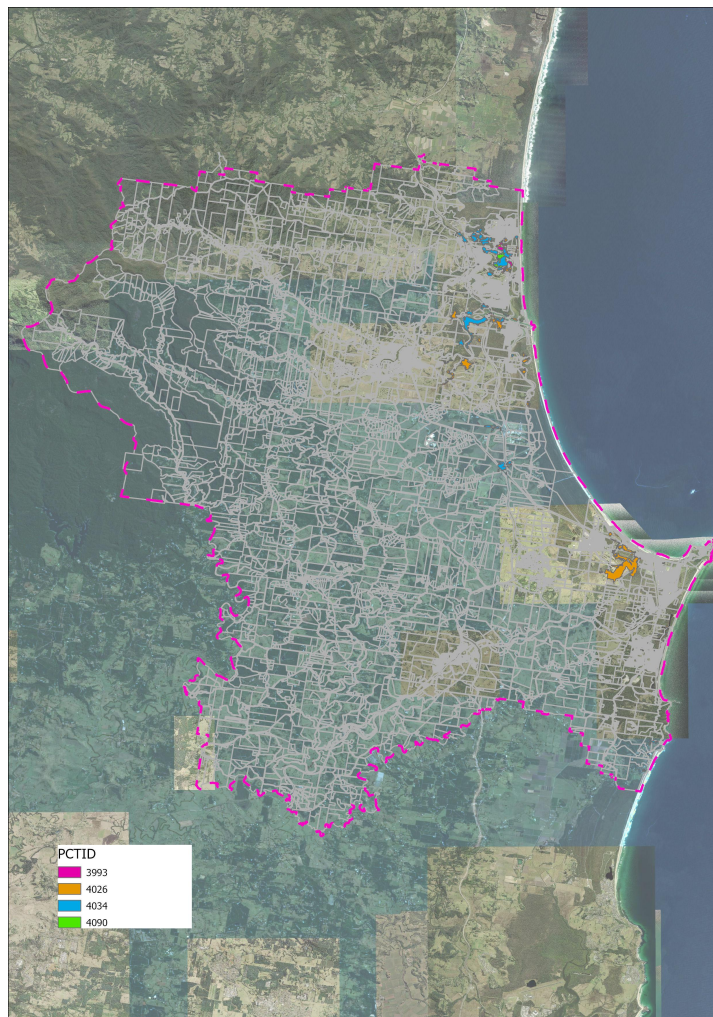


Figure 3 - Distribution of Swamp Oak based on Byron Shire Council Vegetation Mapping.

Note, the PCT mapping includes National Park Estate whereas the Byron Shire Council vegetation mapping does not. This and the scale of the mapping would account for the difference in total area of the Swamp Oak total area.

#### 4. Mapping Update Methodology

There is an overlap between the NSW PCT mapping and Byron Shire vegetation mapping of Swamp Oak vegetation in Byron LGA. It was determined that the Byron Shire vegetation mapping was more accurate and mapped at a finer scale than the NSW PCT mapping and would be used as the primary spatial layer for updating Swamp Oak distribution in Byron Shire. This was based on local expert knowledge of the location of Swamp Oak by Botanist, Dr

Joanner Green as well as the draft report by EarthScapes Consulting, Assessment of Plant Community Type (PCT) Mapping in Byron Shire (2022).

In addition to onground survey (ground truthing) Nearmaps aerial photography was used to provide additional clarity to update the boundaries of the Swamp Oak communities in the 2021 Byron Shire vegetation mapping. Swamp Oak canopy is easily distinguished with current aerial photography as shown in Figure 4.



Figure 4 - Swamp Oak appearance in aerial photography.

Swamp Oak polygons from BSC vegetation mapping were assigned a category based on the key diagnostic criteria described in Table 1 Conservation advice (incorporating listing advice) for the Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community (Coastal Swamp Oak Forest NSW and SEQ\_ Approved Conservation Advice (environment.gov.au)).

Note, the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (s266B) Approved Conservation Advice (including listing advice) for the Natural Temperate Grassland of the South Eastern Highlands (EC 152)* advises that very small or degraded patches may not meet the minimum condition thresholds and will be excluded from national protection (Forest NSW and SEQ\_ Approved Conservation Advice 2018). Over time these patches may increase in area and condition to a point where they may meet thresholds. It is recommended that mapping be updated every ten years.

#### Site Assessments

Ground-truthing of sites with known Swamp Oak was conducted between November 2022 and January 2023. Ground truthing included walking through and around the boundaries of the vegetation community mapping the area on a tablet using Avenza.

Site selection was based on:

- Tenure - National Park Estate was a lower priority.
- Accessibility - Where permission from landowner was granted or assessment could be completed from the edge of the property.
- Previous observations - Sites not previously ground-truthed were prioritised.
- Areas that do not include a flora plot under PCT mapping.

A large number of sites were adjacent to the Brunswick River. A boat was used to access these locations.

Appendix A describes the data collection fields.

## 5. Results

All of the sites mapped as Swamp Oak met the following key criteria:

- Occurs from south-east Queensland to southern NSW within the South Eastern Queensland, NSW North Coast, Sydney Basin, or South East Corner bioregions.
- Occurs in coastal catchments at elevations up to 50 m ASL, typically less than 20 m ASL.
- Occurs on soils derived from unconsolidated sediments (including alluvium)
- Has an open woodland, woodland, forest, or closed forest structure, with a tree canopy that has a total crown cover of at least 10 per cent.
- Does not occur on rocky headlands, sea cliffs or other consolidated sediments.
- Occurs within 30km of the coast.
- Has a canopy of trees dominated by *Casuarina glauca*.

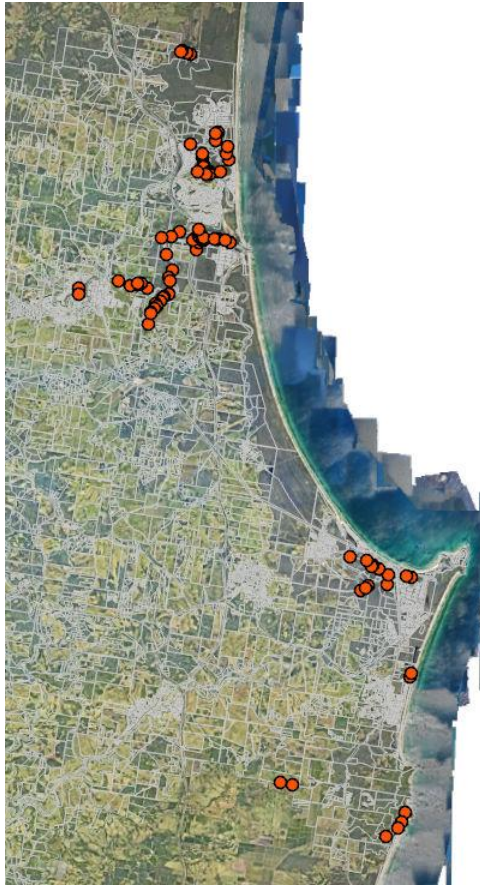
### Categorisation

85 site assessments were conducted (see Figure 5) and used to inform the categorisation of the Swamp Oak communities. The Swamp oak vegetation community in Byron shire has been regenerating in many areas and these patches are meeting key diagnostic criteria as they increase in area.

Table 4 shows the change in Swamp Oak area after the mapping updates.

*Table 4 - Total area of Swamp Oak in Byron Shire 2021 and 2023 mapping*

Area of Swamp Oak dominated communities 2021 mapping	208 Ha
Area of Swamp Oak dominated communities 2023 mapping	215 Ha



*Figure 5 - Swamp Oak site assessment locations map.*

Polygons were assigned a Category of A,B, C or Nil based on the criteria in Table 1. Figures 6 and 7 show examples of the results of the categorisation.



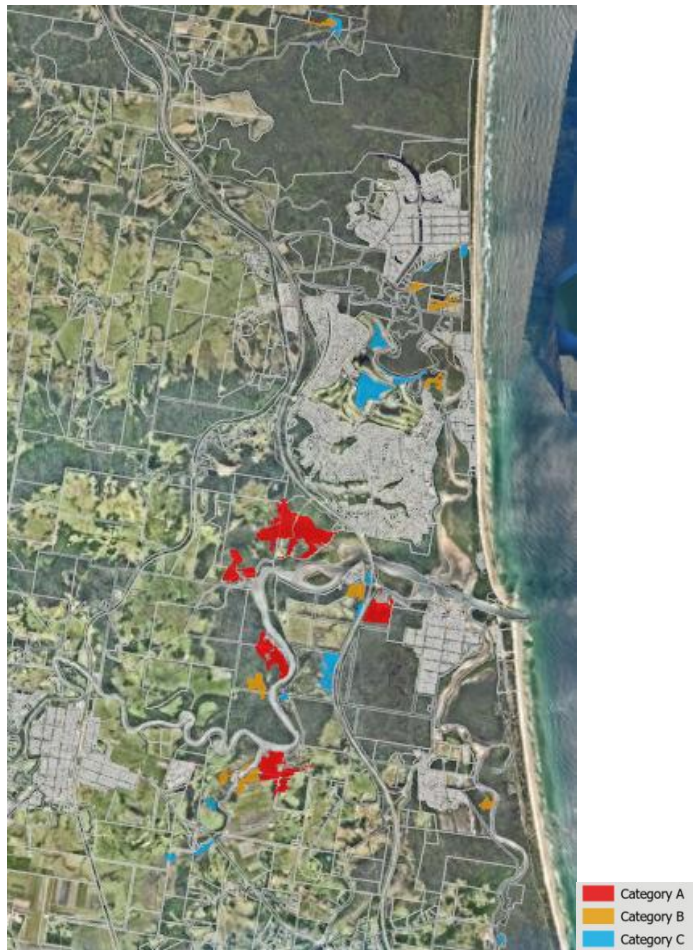


Figure 6 - Categorisation of Swamp Oak in the north of Byron Shire.

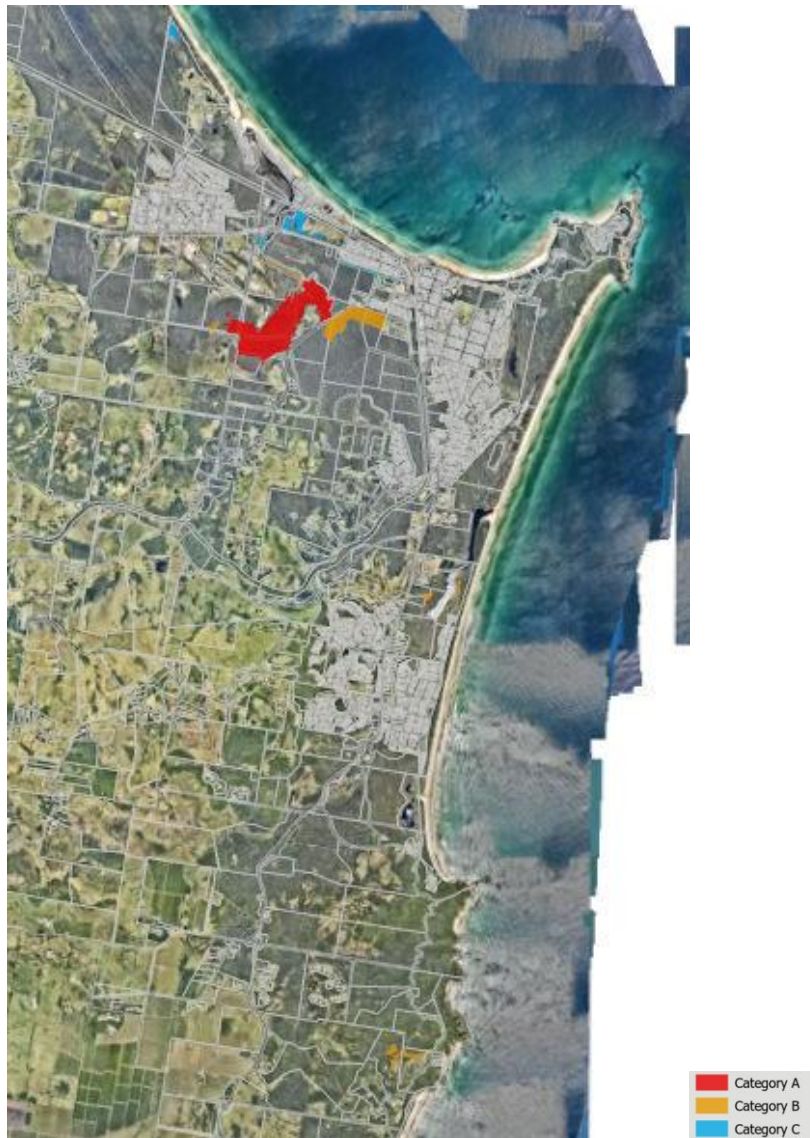


Figure 7 - Categorisation of Swamp Oak in the south of Byron Shire.

Table 5 shows the results of the categorisation of Swamp Oak vegetation (refer to Table 2 for criteria). Categories A, B & C meet the criteria for EEC.

Table 5 - Swamp Oak Categories

Category	Total Ha
A	108.4
B	42.2
C	39.1
Other	25.7
	<b>215.4</b>

The areas in the "Other" category are where Swamp Oak occurs but does not meet the diagnostic criteria outlined in Table X. It should be noted that these areas are likely to still be listed under the Biodiversity Conservation Act, 2016.

## 6. Conclusions

A total of 215 hectares of Swamp Oak community was mapped across Byron LGA. This is an additional 7 hectares from the 2021 mapping of this community.

The most likely reason for this is more accurate mapping of boundaries with ground-truthing and NearMaps aerial photography.

Of the 215 hectares, 189.7 hectares meet the diagnostic criteria for the EPBC Act 1999. 25.7 hectares of Swamp Oak do not meet the diagnostic criteria for the EPBC Act but are threatened ecological community under the Biodiversity Act 2016.

It should be noted that whilst the area remains stable since previous mapping in 2017 and 2021, it is still a small total area.

It is important that the Endangered Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community continues to be protected.

## 7. Recommendations

Recommendations from this project include:

- Incorporating this updated mapping into Byron Shire High Environmental Value (HEV) mapping.
- Updating all EEC vegetation mapping every 10 years.
- Directing resources into targeted restoration works.

## 8. Data

The data associated with this project is located at:

Photos: G:\EPS\NATURAL ENVIRONMENT\\_Biodiversity\GIS\Veg2022\Swamp Oak Data Collection\Photos

GIS Project: G:\EPS\NATURAL ENVIRONMENT\\_Biodiversity\GIS\Veg2022\Veg2022.aprx

Site Assessment Points:

G:\EPS\NATURAL ENVIRONMENT\\_Biodiversity\GIS\Veg2022\Swamp Oak Data Collection\Data\SwampOak.gdb\SwampOakAssessmentSites

Swamp Oak spatial layer:

G:\EPS\NATURAL ENVIRONMENT\\_Biodiversity\GIS\Veg2022\Swamp Oak Data Collection\Data\SwampOak.gdb\SwampOakMapping20230203

## Appendix A - Site Assessment Data Collected

Field	Field Description
ID	Unique ID
Field Assessor	Name of Assessor
Assessment Date	Assessment Date
Latitude	GCS_WGS_1984
Longitude	GCS_WGS_1984
Swamp Oak Canopy	<10% 10 - 30% 30 - 50% 50 - 70% 70 - 90% >90%
Non-Native Understorey	<20% 20 - 50% 50 - 80%
Transformer Species Understorey	<30% 30 - 50%
Connected to a larger area	Yes No Partial (connected but small/narrow remnant)
Photos	
Other Observations	
Observation Type	<ul style="list-style-type: none"> <li>• Seen from edge of polygon</li> <li>• Walk through</li> <li>• Distance assessment</li> <li>• No ground truthing</li> </ul>





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Version	Written by	Date	Reviewed by	Date
V1	Jane Wickers	February 24 2023	Dr Jo Green	February 28 2023
V2	Jane Wickers	February 28 2023	Dr Jo Green	March 2023
V3	Jane Wickers	April 18 2023		
Final	Jane Wickers and Dr Jo Green	May 5 2023 2023		

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**Note:** The information in this plan is subject to clarification or amendment due to changes in legislation, agencies and organisations over time. It is the responsibility of the user to ensure compliance with relevant legislation.

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### **Acknowledgement**

The People of the Bundjalung nation developed and maintained a deep and rich connection with the land of the Byron area. The land nourished all of the person, supplying physical, spiritual, cultural and identity necessities. We wish to acknowledge these First Peoples, and pay our respects to Elders - past, present and future.



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## 1. Objective

The objectives of this project are:

- Review High Environmental Criteria,(HEV) criteria to apply through a review of recent literature and discussions with DPE.
- Update Byron Shire HEV mapping based with updated criteria, biodiversity datasets and updated vegetation mapping.

## 2. Current HEV Mapping

The most recent Byron Shire HEV mapping was completed in 2016 by Landmark Ecological Services (Landmark) and updated in May 2017.

The report, *High Environmental Value Criteria May 2017 Revision* by Landmark outlines the methodology applied.

## 3. HEV Criteria

Discussions were held with staff and guidance provided from the Biodiversity and Conservation Division, Department of Planning and Environment in July 2022.

Appendix 1 details the criteria supplied by DPE to be applied for HEV mapping. BCD advise that the HEV criteria are referenced in the North Coast Regional Plan and are relevant at the shire wide scale for the purposes of regional strategic planning.

It should be noted, that this project maps HEV at a landscape scale, not a property scale. The output of the LGA mapping identifies likely areas of HEV, based on current data sets. Site-specific ground truthing may be required to confirm HEV polygons at property scale.

Table 1 summarises the criterion with reference to Byron Shire scale mapping.

*Table 1 - HEV Criteria (provided by BCD, DPE).*

Criterion	Criterion Details
1.1 Biodiversity Values Map	Version14_3_20221228 used.
2.1 Over-cleared vegetation types	Listing from National Vegetation Information System (NVIS).
2.2 Vegetation in over-cleared landscapes (Mitchell landscapes)	Version 3.1 used.
2.3 Threatened Ecological Communities	EPBC Act 1999. BC Act 2016. No TECs from FM Act 1994 found in Byron Shire.
2.4 100m buffer on Coastal Wetlands and Littoral Rainforest areas as per the Coastal Management SEPP 2018	Coastal Wetlands version 20181217 used. Littoral Rainforest version 20181217 used.
3.1 Key habitat for threatened species <ul style="list-style-type: none"> <li>• Key breeding habitats with known breeding occurrence.</li> </ul>	Any known and verified breeding sites. Includes Koala breeding habitat.

● Core Koala Habitat	Byron Comprehensive Koala Plan of Management (KPOM) Persistent populations.
● Habitat for known populations of species-credit species	Core Mitchell Rainforest Snail Habitat. Hollow Dependant Fauna Habitat. Glossy Black Cockatoo feeding habitat.
● Key habitats for migratory species	
4.1 Nationally important wetlands	2010 Version of spatial data used.
4.2 Vulnerable Estuaries and ICOLLs	June 2022 Version of spatial data used.
5.1 Karst landscapes	Not found in Byron Shire
5.2 Sites of geological significance included in State Heritage Register or Heritage Inventory	Not found in Byron Shire

## 4. Methodology

### 4.1 Biodiversity Values Map

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

Sourced from: <https://datasets.seed.nsw.gov.au/dataset/biodiversity-values-map>

### 4.2 Over-cleared vegetation types

The list of over-cleared PCTs was generated from BioNet Vegetation Classification Database on 13/02/2023 (refer to Appendix 3).

The PCT polygons were clipped to the BSC vegetation mapping to improve the accuracy of the boundaries. Where the BSC mapping did not overlap the PCT mapping, the area was removed from the over-cleared vegetation layer.

Sourced from:

<https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet/about-bionet-vegetation-classification2.2> Vegetation in over-cleared landscapes (Mitchell landscapes)

### 4.3 Vegetation in over-cleared landscapes (Mitchell landscapes)

Refers to over-cleared landscapes.

Sourced from: <https://datasets.seed.nsw.gov.au/dataset/nsw-mitchell-landscapes-version-3-1>

### 4.4 Threatened Ecological Communities

#### EPBC Communities:

These are ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999*.

BSC vegetation mapping was used as well as the diagnostic criteria outlined in Approved Conservation Advice for each community (see Table 2).

List of communities sourced from: <https://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Appendix 2 lists the vegetation types identified in the Byron Shire Council 2021 mapping for each EPBC community.

*Table 2 - EPBC Communities in Byron Shire.*

Community	Category	Date of Listing	Minimum Patch Size	Condition/Canopy Criteria
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	20/03/2018	0.5 Ha	Refer to Earthscapes Consulting Pty Ltd Swamp Oak Report (2023). Categories A, B & C.
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	08/12/2021	> 0.25 Ha	BSC Vegetation Condition 4 and Canopy D not included from Landmark HCV methods 2017 <a href="http://www.environment.gov.au/biodiversity/threatened/communities/pubs/171-conservation-advice.pdf">http://www.environment.gov.au/biodiversity/threatened/communities/pubs/171-conservation-advice.pdf</a> coastal swamp oak
Lowland Rainforest of Subtropical Australia	Critically Endangered	25/11/2011	0.1 Ha	<a href="http://www.environment.gov.au/cgi-bin/sprat/public/publiclookupcommunities.pl">http://www.environment.gov.au/cgi-bin/sprat/public/publiclookupcommunities.pl</a>
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	10/08/2013	0.1 Ha	<a href="https://www.environment.gov.au/biodiversity/threatened/communities/pubs/118-conservation-advice.pdf">https://www.environment.gov.au/biodiversity/threatened/communities/pubs/118-conservation-advice.pdf</a>
Grey box-grey gum wet forest of subtropical eastern Australia	Endangered	11/08/2022	0.5Ha	BSC Vegetation Condition 4 and Canopy D not included from Landmark HEV methods 2017
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	10/10/2008	0.1 Ha	<a href="https://www.environment.gov.au/biodiversity/threatened/communities/pubs/76-listing-advice.pdf">https://www.environment.gov.au/biodiversity/threatened/communities/pubs/76-listing-advice.pdf</a>
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	05/10/2022	> 0.5Ha	BSC Vegetation Condition 4 and Canopy D not included from Landmark HEV methods 2017. <a href="http://www.environment.gov.au/biodiversity/threatened/communities/pubs/179-conservation-advice.pdf">http://www.environment.gov.au/biodiversity/threatened/communities/pubs/179-conservation-advice.pdf</a>

In their HEV mapping of 2016, Landmark applied the criteria shown in Table 3 for Lowland Rainforest of Subtropical Australia (EPBC Act, 1999). The same rules have been applied in the updated mapping of this community.

*Table 3 - Candidate Lowland Rainforest (EPBC Act) criteria (Landmark, 2016)*

	Canopy Cover			
Rainforests	A 81-100%	B 51-80%	C 31-50%	D 10-30%
1 Old growth ([LANDS_CO]= 1)	x	x		
2 Mature veg ([LANDS_CO]= 2)	x	x		
3 Advanced regrowth ([LANDS_CO]= 3)	x			
4 Regrowth ([LANDS_CO]= 4)				

**BC Act 2016 Communities:**

These are ecological communities listed under the *Biodiversity Conservation Act 2016*.

BSC vegetation mapping was used as well as the diagnostic criteria outlined in the NSW Threatened Species Scientific Committee determinations for each community (see Table 4). The Landmark Vegetation Description was used to identify the dominant vegetation community for each EEC. The exceptions were the Communities Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion and Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions. For these communities, the vegetation assemblages were more complex and the PCT assignments in the BSC mapping were applied.

List of communities sourced from: <https://www.environment.nsw.gov.au/threatenedspeciesapp/>

*Table 4 – Vegetation Communities listed under BC Act 2016 in Byron Shire*

Community Name	BSC Vegetation Criteria
Byron Bay Dwarf Graminoid Clay Heath Community	Landmark Vegetation Description (LM_Veg) includes clay heath
Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	PCT_class is Subtropical Rainforests and <70m ASL. <a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10497">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10497</a>
Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	PCT_class is Littoral Rainforests <a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10867">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10867</a>
Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	Not found or currently mapped in Byron Shire.
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	LM_Veg includes Rainforest <a href="https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2004-2007/lowland-rainforest-nsw-north-coast-sydney-basin-bioregion-endangered-ecological-community-listing">https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2004-2007/lowland-rainforest-nsw-north-coast-sydney-basin-bioregion-endangered-ecological-community-listing</a>
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	LM_Vegtype begins with 'Paperbark' and < 70m ASL. <a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10786">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10786</a>
Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	LM_Veg includes Saltmarsh. For "Mangrove-Saltmarsh" - each polygon validated. <a href="https://www.environment.gov.au/biodiversity/threatened/communities/pubs/118-conservation-advice.pdf">https://www.environment.gov.au/biodiversity/threatened/communities/pubs/118-conservation-advice.pdf</a>
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	LM_Veg includes Sedge, Reed, Eleocharis, Freshwater, Swamp grassland and each polygon validated. Open water not included. <a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10929">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10929</a>
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	LM_Veg starts with Swamp Oak. <a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10945">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10945</a>
Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	LM_Veg starts with Forest Red Gum, Grey Ironbark, Pink Bloodwood and < 250m ASL. <a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10944">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10944</a>

Coastal Cypress Pine Forest in the New South Wales North Coast Bioregion	LM_Vegtype includes Cypress. <a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20081grey">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20081grey</a>
White Gum Moist Forest in the NSW North Coast Bioregion	Not found in Byron Shire.
Grey Box—Grey Gum Wet Sclerophyll Forest in the NSW North Coast Bioregion	LM_Veg starts with Grey Gum <a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20115">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20115</a>

#### **4.5 100m buffer on Coastal Wetlands and Littoral Rainforest areas as per the Coastal Management SEPP 2018**

This criteria relates to the State Environmental Planning Policy (Resilience and Hazards) 2021.

Coastal Wetlands - are identified as plant communities dominated by any of the following six vegetation types:

- Mangroves
- Salt marshes
- Melaleuca forests
- Casuarina forests
- Sedgeland
- Brackish and Freshwater swamps
- Wet meadows

Littoral Rainforest - are identified as plant communities dominated by any of the following five combinations of tree species:

- Riberry or Small Leaved Lilly Pilly
- Broad-leaved Lilly Pilly
- Tuckeroo
- Brushbox
- Yellow tulip
- Bauerella
- Red Olive Plum
- Plum Pine
- Other Lilly Pillies
- Various figs
- Cabbage palm and Plum pine

Littoral Rainforest determination follows Key diagnostic criteria  
(<https://www.environment.gov.au/biodiversity/threatened/communities/pubs/76-listing-advice.pdf>)

The Coastal Wetlands and Littoral Rainforests Area also includes a 100-metre proximity area around the outer extent of the mapped coastal wetlands and littoral rainforests. The proximity area spatial datasets are known as the Proximity Area for Coastal Wetlands and the Proximity Area for Littoral Rainforests.

Tables 10 and 11 in Appendix 2 lists the BSC vegetation types found in the Coastal Management SEPP.

Sourced from:

<https://www.planningportal.nsw.gov.au/opendata/dataset/state-environmental-planning-policy-resilience-and-hazards-2021>

#### **4.6 Key habitat for threatened species**

- Key breeding habitats with known breeding occurrence

Vegetation (from BSC vegetation layer) where there have been breeding koalas recorded in the last 5 years have been mapped. Only the vegetation habitat was included, rather than the cadastral boundary used in the source data.

Sourced from: BSC Female koala mapping and BSC Vegetation Mapping

- Core Koala Habitat

Core Koala Habitat has been mapped in BSC's Byron Coast Comprehensive Koala Plan of Management (2016).

Sourced from:

<https://www.byron.nsw.gov.au/Services/Environment/Native-animals-and-plants/Koalas-in-Byron-Shire/Byron-Coast-Comprehensive-Koala-Plan-of-Management>

Persistent Koala Populations were mapped across the north coast as part of the draft Northern NSW Regional Koala Conservation Strategy by EarthScapes Consulting.

The data was created using a 1Km grid and analysing Bionet and ALA records since 1990. Persistent Koala Populations were defined as populations across three generations.

As recommended by DPE, all BSC vegetation types were included, with the exception of water bodies, exotics and wetland communities.

- Habitat for known populations of species-credit species

Core Mitchell's Rainforest Snail (*Thersites mitchellae*) habitat was mapped using the model output from the 2022 Potential Habitat Mapping of Mitchells Rainforest Snail *Thersites mitchellae* in Byron Shire by EarthScapes Consulting and BioNet records.

Glossy Black-Cockatoo (*Calyptorhynchus lathamii*) habitat at recorded feed trees was mapped using data supplied by recent surveys conducted by WildBnB. BSC 2021 vegetation was used as the source of the habitat mapping, ie. The vegetation polygon that intersected the GBC record.

Hollow-dependent fauna require hollows as a key component of their habitat either on a daily or seasonal basis (DPE, 2014). Old growth forest mapping was used as a surrogate indicator of hollow-dependent fauna habitat. The BSC vegetation mapping undertaken by Landmark was the source of the old growth mapping.

- Migratory Species

Migratory species habitat mapping was informed by the following:

- BioNet records of migratory birds (see Table 5 for convention and agreement codes).
- Report: Byron Wetlands and Vallances Road Avifauna Survey (2021). Byron Bird Buddies.
- Report: Birds of Byron Wetlands and Belongil Estuary Report (2015). Byron Bird Buddies.
- Jan Olley of Byron Bird Buddies reviewed the draft migratory species habitat mapping and provided feedback on additional areas to be included; the ponds on the Elements property at Sunrise Beach, Little Wategos Beach, Belongil Beach and Brunswick River estuary. Byron Bird Buddies survey records demonstrate that these sites consistently support migratory bird species.

Table 5 - Migratory Bird Codes

Code	Description	Definition under the EPBC Act 1999, and Migratory Birds agreement.
C	CAMBA	China-Australia Migratory Bird Agreement: Refers to species listed in the Bilateral Agreement between the Government of Australia and the Government of the People's Republic of China for the protection of Migratory Birds and their Environment (Subdivision A of Division 1 of Part 5, Commonwealth EPBC Act 1999).
J	JAMBA	Japan-Australia Migratory Bird Agreement: Refers to species listed in the Bilateral Agreement between the Government of Japan and the Government of Australia for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment (Subdivision A of Division 1 of Part 5, Commonwealth EPBC Act 1999).
K	ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement: Refers to species listed in the Bilateral Agreement between the Government of Australia and the Government of the Republic of Korea for the protection of Migratory Birds and their Environment (Subdivision A of Division 1 of Part 5, Commonwealth EPBC Act 1999).

#### 4.7 Nationally important wetlands

Directory of Important Wetlands in Australia identifies nationally important wetlands.

Sourced from: <https://datasets.seed.nsw.gov.au/dataset/directory-of-important-wetlands-in-australia>

#### 4.8 Vulnerable Estuaries and ICOLLs

This dataset identifies estuaries that are vulnerable or susceptible to the impacts of land-based inputs of pollutants such as urban stormwater or agricultural runoff

Sourced from: <https://data.nsw.gov.au/data/dataset/vulnerableestuariesandicolls>

### 5. Results

Figure 1 shows the area of HEV after all of the criteria have been applied.

Appendix 4 includes maps of each of the criteria.



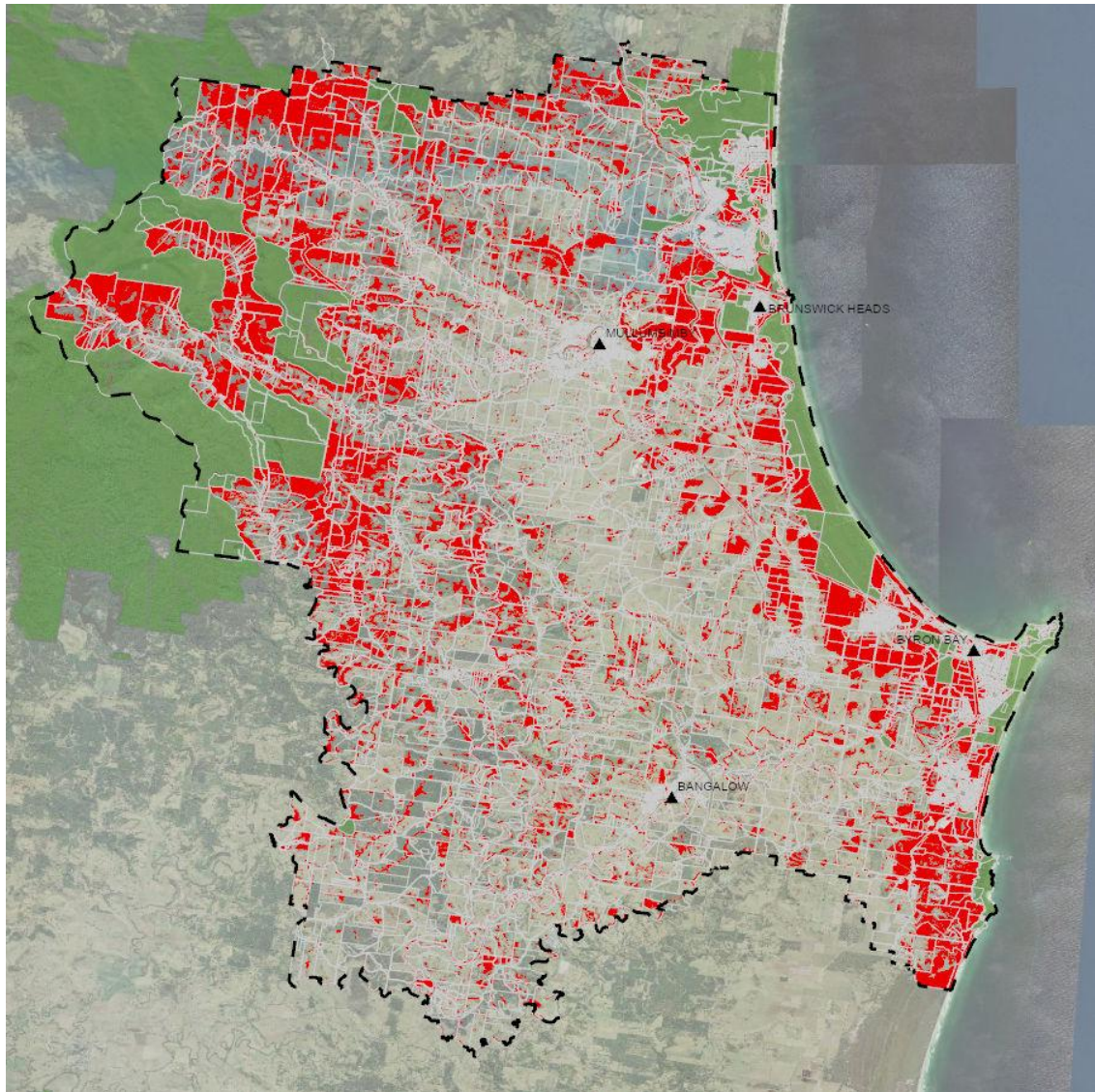


Figure 1 - 2023 HEV Mapping in Byron Shire.

Table 6 and Figure 2 show the difference in area between 2017 and 2023 mapping.

Table 6 - Total area of mapped HEV 2017 and 2023 mapping.

	Area (Ha)
2017 HEV Mapping	15,005
2023 HEV Mapping	16,635



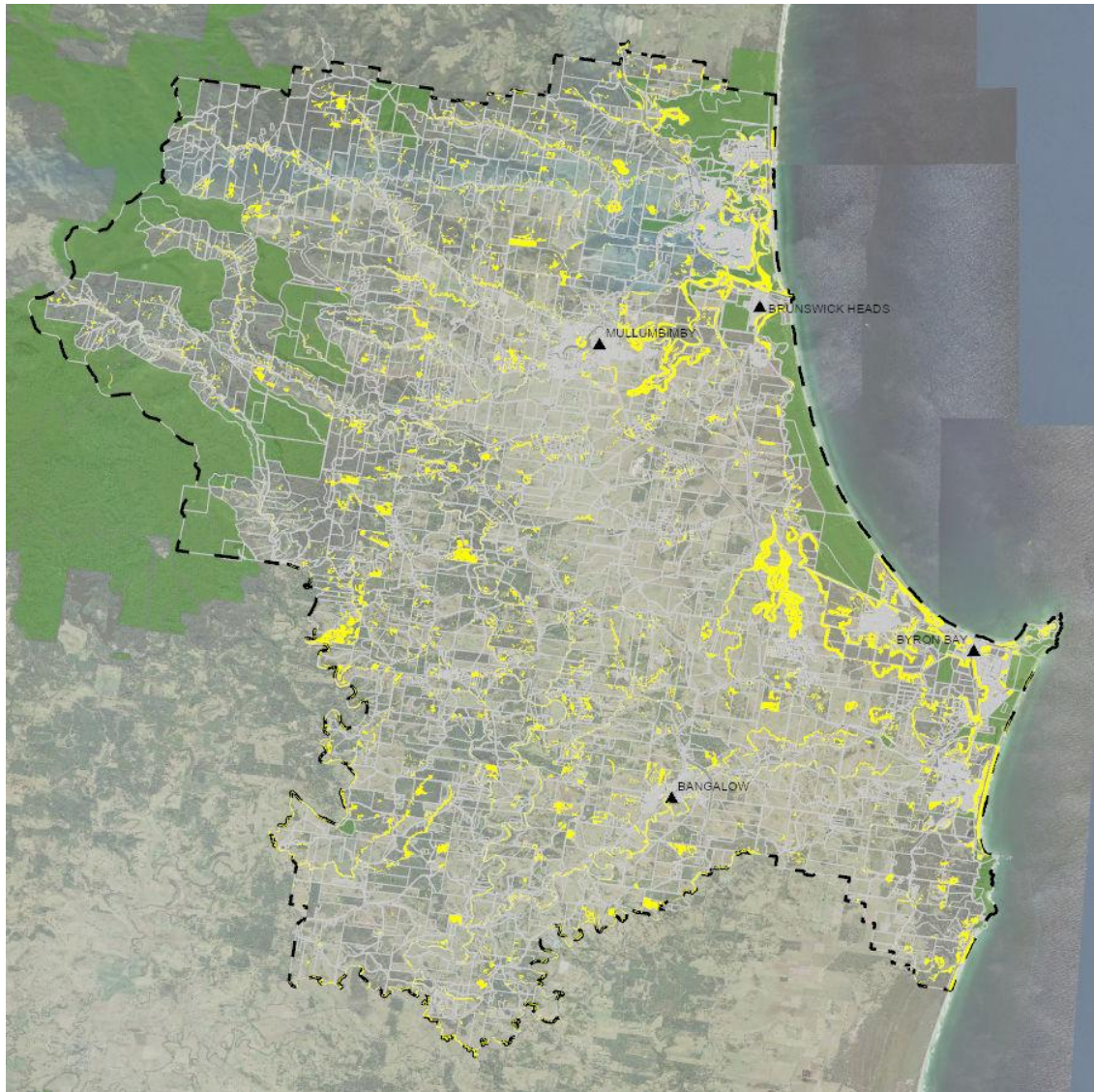


Figure 2 - Additional HEV area from 2017 mapping.

## 6. Discussion

The criteria used to map HEV across Byron Shire has changed since previously applied in 2015 and 2017 (refer to Appendix 1).

Whilst there are significant overlaps in the areas of HEV, there are an additional 1,630 hectares where HEV is likely to occur.

The key reasons for the increase in area are:

- New EECs listed under EPBC Act (see Table 7).
- Inclusion of 100m buffer of Coastal Wetland and Littoral Rainforest areas as per the Coastal Management SEPP 2018.
- Additional areas included in the Biodiversity Values Map.

Table 7 - New EEC Listings since 2017 (EPBC Act)

Community	Date of Listing
Coastal Swamp Oak ( <i>Casuarina glauca</i> ) Forest of New South Wales and South East Queensland ecological community	20/03/2018
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	08/12/2021
Grey box-grey gum wet forest of subtropical eastern Australia	11/08/2022
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	05/10/2022

It is important to note that the results of applying HEV criteria are appropriate at landscape scale, however additional field verification is required at a property scale.

## 7. Recommendations

The key recommendations from this project include:

- Update HEV mapping, at least every 5 years with updated vegetation and other criteria mapping.
- Incorporate the outcomes of the 2023 *Review of Coastal Wetland and Littoral Rainforest Mapping within Byron Shire LGA*.
- Undertake more detailed assessment of EECs based on the diagnostic criteria outlined in the Conservation Advice for the following communities. This includes more detailed assessment of criteria such as percentage of understorey weeds. As with the recent updated mapping of Swamp Oak communities, review of current diagnostic criteria, desktop review (approximately 70%) and field surveys (approximately 30%) is required.
  - The Coastal Swamp Sclerophyll Forest  
<http://www.environment.gov.au/biodiversity/threatened/communities/pubs/171-conservation-advice.pdf>
  - Lowland Rainforest of Subtropical Australia  
<https://www.environment.gov.au/biodiversity/threatened/communities/pubs/101-listing-advice.pdf>
  - Littoral Rainforest and Coastal Vine Thickets of Eastern Australia  
<http://www.environment.gov.au/biodiversity/threatened/communities/pubs/76-listing-advice.pdf>
  - Grey box-grey gum wet forest of subtropical eastern Australia  
<https://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=181&status=Endangered>
  - Subtropical eucalypt floodplain forest and woodland  
<http://www.environment.gov.au/biodiversity/threatened/communities/pubs/179-conservation-advice.pdf>

## 8. Data

The spatial data is available on BSC's data drives:

EEC spatial layer:

G:\EPS\NATURAL ENVIRONMENT\Biodiversity\GIS\Veg2022\HEV\_mapping\_2023\BSCEEC2023MGA56.shp

HEV spatial layer:

G:\EPS\NATURAL ENVIRONMENT\Biodiversity\GIS\Veg2022\HEV\_mapping\_2023\BSCHEV2023MGA56.shp

Note, the field HEV summarises the HEV criteria met.

BV - Biodiversity Values

OCVT - Over-cleared Vegetation Type

ML - Mitchell's Landscapes

EEC\_EPBC - Endangered Ecological Community (EPBC Act)

EEC\_BCT - Endangered Ecological Community (BC Act)

CW - Coastal Wetland

LrF - Littoral Rainforest

BrK - Breeding Koala Habitat

KPOM - BSC Koala Plan of Management

PKP - Persistent Koala Population.

HDF - Hollow-dependent Fauna Habitat

NIW - Nationally Important Wetland

VEICOLLS - Vulnerable Estuaries and ICOLLS

Metadata is included with the spatial data as per ANZLIC standards.

## References

Department of Planning and environment (2014). Trees with Hollows - natural resource management information note.

## Appendix 1 - BCD NE Branch HEV Criteria and Identification Methods at the Property Scale

Table 8 - HEV Criteria

High Environmental Value (HEV) Criteria and Components		Property Scale HEV Identification Method
Criterion 1. Sensitive Biodiversity Mapped on the Biodiversity Values Map		
1.1 Biodiversity Values Map		<ul style="list-style-type: none"> <li>a. Identify the parts of the land on the Biodiversity Values map which can be viewed at <a href="https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/about-the-biodiversity-offsets-scheme/when-does-bos-apply/biodiversity-values-map">https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/about-the-biodiversity-offsets-scheme/when-does-bos-apply/biodiversity-values-map</a>.</li> <li>b. Inspect those mapped areas on the land to verify accuracy and map as HEV where the map is accurate.</li> </ul>
Criterion 2. Native vegetation of high conservation value		
2.1 Over-cleared vegetation types		<ul style="list-style-type: none"> <li>a. Identify Plant Community Types (PCTs) on the land through field work.</li> <li>b. Register and visit the Vegetation Information System (VIS) database at <a href="mailto:vis@environment.nsw.gov.au">vis@environment.nsw.gov.au</a>.</li> <li>c. Use the VIS to determine whether the % cleared status of the PCTs identified through field work on the land is above 70%.</li> <li>d. Map all PCTs on the land with the % cleared above 70% as HEV.</li> </ul>
2.2 Vegetation in over-cleared landscapes (Mitchell landscapes)		<ul style="list-style-type: none"> <li>a. Identify over-cleared Mitchell landscapes by viewing map data from the SEED portal <a href="https://www.seed.nsw.gov.au/">https://www.seed.nsw.gov.au/</a> – selecting NSW (Mitchell Landscapes) – latest version, selecting Show on Seed Map and viewing the View Over Cleared Land Status.</li> <li>b. Map all native vegetation on the land as HEV if it is in an over-cleared Mitchell landscape.</li> </ul>
2.3 Threatened Ecological Communities - any vulnerable, endangered, or critically endangered ecological community listed under the BC Act, the FM Act 1994 or the EPBC Act and not mapped on the BV map		<ul style="list-style-type: none"> <li>a. Identify Plant Community Types (PCTs) on the land through field work.</li> <li>b. Register and visit the VIS database at <a href="mailto:vis@environment.nsw.gov.au">vis@environment.nsw.gov.au</a>.</li> <li>c. Use the VIS to determine whether the PCTs on the land have Threatened Ecological Community (TEC) Status.</li> <li>d. If not identified as a TEC from steps a – c above, then refer to the NSW <a href="#">Threatened Species Scientific Committee determinations</a> to consider whether the any of the PCTs accords with the determinations.</li> <li>e. Map all PCTs on the land that are TECs as HEV.</li> </ul>
2.4 100m buffer on Coastal Wetlands and Littoral Rainforest areas as per the Coastal Management SEPP 2018		<ul style="list-style-type: none"> <li>a. Locate the land on the SEPP Coastal Management SEPP maps available at <a href="https://webmap.environment.nsw.gov.au/PlanningHtml5Viewer/?viewer=SEPP_CoastalManagement">https://webmap.environment.nsw.gov.au/PlanningHtml5Viewer/?viewer=SEPP_CoastalManagement</a></li> <li>b. Map any parts of the land shown as proximity areas for Coastal Wetlands and Littoral Rainforest as HEV.</li> </ul>
Criterion 3. Threatened species		
3.1 Key habitat for threatened species (vulnerable, endangered, or critically endangered species listed under BC Act)	Key breeding habitats with known breeding occurrence	<ul style="list-style-type: none"> <li>a. Search BioNet for threatened species records on and within 5km of the land</li> <li>b. Undertake field work to identify potential breeding habitats on the land for threatened species.</li> <li>c. Either assume breeding occurrence and map identified breeding habitats on the land as HEV or undertake targeted surveys during the breeding season and map these habitats as HEV if breeding occurs there.</li> </ul>

	Core Koala Habitat	<ul style="list-style-type: none"><li>a. Check council records for approved comprehensive or individual property Koala Plans of Management (KPoM).</li><li>b. Identify areas of core koala habitat on the land mapped in any approved KPoM and map these areas as HEV.</li><li>c. If there are no approved KPoMs, then undertake field work in accordance with the relevant State Environmental Planning Policy (SEPP) for koalas, e.g. SEPP (Koala Habitat Protection) 2020, to determine whether Core Koala Habitat is present on the land.</li><li>d. Map any core koala habitat identified on the land through field work as HEV.</li></ul>
High Environmental Value (HEV) Criteria and Components		Property Scale HEV Identification Method
	Habitat for known populations of species-credit-species and SAIL entities (species-credit species and SAIL entities are identified in the Threatened Biodiversity Data Collection)	<ul style="list-style-type: none"><li>a. Search BioNet for threatened species records on and within 5km of the land.</li><li>b. Undertake field work to identify populations of threatened species credit species on the land and their habitats.</li><li>c. Map all habitats of known populations of species credit species on the land as HEV.</li></ul> <p>The Biodiversity Assessment Method and the Department's survey assessment guidelines should be referred to for suitable habitat assessment methodologies.</p> <p>If a recent Biodiversity Development Assessment Report has been prepared for the land, then this could be referred to in support of demonstrating how this criterion has been considered.</p>
	Key habitats for migratory species	<ul style="list-style-type: none"><li>a. Search BioNet for threatened migratory species records on and within 5km of the land.</li><li>b. Undertake field work to identify habitats of threatened migratory species on the land.</li><li>c. Map all habitats of threatened migratory species on the land as HEV.</li></ul>
Criterion 4. Wetlands, rivers, estuaries & coastal features of high environmental value		
4.1 Nationally important wetlands	<ul style="list-style-type: none"><li>a. Search the Directory of Important Wetlands in Australia for those occurring in NSW available at <a href="http://www.environment.gov.au/cgi-bin/wetlands/search.pl?smode=DOIW">http://www.environment.gov.au/cgi-bin/wetlands/search.pl?smode=DOIW</a>.</li><li>b. Identify any nationally important wetlands listed in the directory that occur on the land and map these areas as HEV.</li></ul>	
Note: Rivers and their riparian areas comprising HEV are included in the Biodiversity Values Map under HEV Criterion 1 as protected riparian land		
4.2 Vulnerable Estuaries and ICOLLs	<ul style="list-style-type: none"><li>a. Identify whether any vulnerable estuaries or ICOLLs occur on, or in the vicinity of, the land by reviewing the maps available at <a href="https://datasets.seed.nsw.gov.au/dataset/vulnerableestuariesandicolls">https://datasets.seed.nsw.gov.au/dataset/vulnerableestuariesandicolls</a>.</li><li>b. Map any vulnerable estuaries or ICOLLs that occur on, or in the vicinity of, the land as HEV.</li></ul>	
Criterion 5. Areas of geological significance		
5.1 Karst landscapes	<ul style="list-style-type: none"><li>a. Identify whether limestone outcrops or caves occur on the land.</li><li>b. Consider any additional Karst landscapes that occur in the vicinity of the land, with reference to the NSW Government's <i>Guide to New South Wales Karst and Caves</i> available at <a href="https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Land-and-soil/nsw-karst-cave-guide-110455.pdf">https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Land-and-soil/nsw-karst-cave-guide-110455.pdf</a> and any other available karst mapping, such as karts maps associated with local environmental plans.</li><li>c. Map any limestone outcrops or caves on the land and any other karst landscapes that occur in the vicinity of the land as HEV.</li></ul>	
5.2 Sites of geological significance included in the State Heritage Register or Heritage Inventory	<ul style="list-style-type: none"><li>a. Identify whether the land contains, or is in the vicinity of, the sites of geological significance listed in Appendix A.</li><li>b. Map any sites of geological significance that occur on, or in the vicinity of, the land as HEV.</li></ul>	

## Appendix 2 - EPBC EECs and Byron Shire Vegetation Types

*Table 9 - BSC Vegetation Types (EPBC EEC)*

EPBC EEC	BSC Vegetation Type	Area (Ha)
Subtropical eucalypt floodplain forest and woodland	Forest Red Gum	0.8
	Forest Red Gum-Blackbutt-Flooded Gum-Tallowwood	0.8
	Forest Red Gum-Brush Box+Camphor	5.9
	Forest Red Gum-Brush Box+Tallowwood, Bloodwood	2.9
	Forest Red Gum-Flooded Gum-Tallowwood	3.8
	Forest Red Gum-Grey Gum-Grey Ironbark-Brush Box	7.5
	Forest Red Gum-Grey Ironbark-Blackbutt-Bloodwood	1.3
	Forest Red Gum-Grey Ironbark-Flooded Gum-Swamp Box	1.5
	Forest Red Gum-Littoral Rainforest	9.8
	Forest Red Gum-Paperbark	2.2
	Forest Red Gum-Paperbark-Swamp Oak	3.4
	Forest Red Gum-Paperbark+Rainforest	4.4
	Forest Red Gum-Pink Bloodwood-Swamp Box	3.3
	Forest Red Gum-Swamp Mahogany	0.6
	Forest Red Gum-Swamp Mahogany-Paperbark	4.2
	Forest Red Gum-Swamp Mahogany-Pink Bloodwood	2.4
	Forest Red Gum-Swamp Mahogany-Swamp Box	6.0
	Forest Red Gum-Swamp Mahogany+Swamp Box+Paperbark	0.9
	Forest Red Gum-Swamp Oak	1.2
	Forest Red Gum-Swamp Oak-Paperbark-Swamp Mahogany	0.6
	Forest Red Gum-Swamp Oak+Swamp Mahogany	4.7
	Forest Red Gum-Tallowwood	1.2
	Forest Red Gum-Tallowwood-Paperbark	1.1
	Forest Red Gum-Teatree	3.6
	Forest Red Gum+Brush Box, Bloodwood, Rainforest	0.6
	Forest Red Gum+Camphor Laurel	4.7
	Forest Red Gum+Coast Cypress Pine	3.4
	Forest Red Gum+Ironbark, Brush Box, Pink Bloodwood	1.9
	Forest Red Gum+Paperbark	1.0
	Forest Red Gum+Paperbark, Swamp Mahogany, Camphor	3.4
	Forest Red Gum+Pink Bloodwood	1.1
	Forest Red Gum+Rainforest, Brush Box	0.6
	Forest Red Gum+Swamp Box, Grey Ironbark	2.8
	Forest Red Gum+Swamp Oak, Paperbark, Swamp Box	0.8
	Forest Red Gum+Swamp Oak, Swamp Box, Paperbark	0.7
	Forest Red Gum+Tallowwood, GreyIronbark	0.8
	Forest Red Gum+Wattle	2.3
	Grey Ironbark-Blackbutt	1.5
	Grey Ironbark-Blackbutt-White Mahog-Pink Bloodwood	1.7
	Grey Ironbark-Brush Box	1.0
	Grey Ironbark-Brush Box-Rainforest	2.4
	Grey Ironbark-Forest Red Gum-Brush Box	13.8
	Grey Ironbark-Pink Bloodwood	3.6
	Grey Ironbark-White Mahogany-Brush Box+Tallowwood	1.3

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## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.2 - ATTACHMENT 2

	Grey Ironbark+Bloodwood, Brush Box, Camphor Laurel	2.1
	Grey Ironbark+Brush Box, Tallowwood, Bloodwood	1.8
	Pink Bloodwood	0.8
	Pink Bloodwood-Blackbutt	0.7
	Pink Bloodwood-Brush Ironbark Wattle-U Cheese Tree	1.9
	Pink Bloodwood-Forest Red Gum	0.5
	Pink Bloodwood-Grey Ironbark	1.2
	Pink Bloodwood-Rainforest	0.8
	Pink Bloodwood-Tallowwood	0.7
	Pink Bloodwood-Wattle-Rainforest	1.8
	Pink Bloodwood+Brush Box, Tallowwood, Ironbark	3.6
Grey box-grey gum wet forest	Grey Gum-Brush Box	31.8
	Grey Gum-Grey Ironbark-Pink Bloodwood	2.4
	Grey Gum-Tallowwood-Brush Box	12.3
	Grey Gum-Wattle-Grey Ironbark	2.1
Littoral Rainforest and Coastal Vine Thickets	Brush Box	4.1
	Brush Box-Bangalow Palm-Rainforest	5.7
	Brush Box-Coast Banksia-Rainforest	1.3
	Brush Box-Littoral Rainforest	0.2
	Brush Box-Pink Bloodwood-Rainforest	126.9
	Brush Box-Rainforest	0.7
	Brush Box headland rainforest	0.9
	Brush Box+Rainforest	0.2
	Coast Banksia	4.3
	Coast Banksia-Coast Wattle-Rainforest	0.9
	Coast Banksia-Coast Wattle-Tuckeroo	1.4
	Coast Banksia-Littoral Rainforest	10.0
	Coast Banksia-Rainforest	5.3
	Coast Banksia-Tuckeroo	0.4
	Coast Banksia-Tuckeroo-Mixed Regrowth	4.6
	Coast Banksia-Wattle-Tuckeroo	5.3
	Coast Banksia+Rainforest	3.0
	Coast Banksia+Tuckeroo, Swamp Box	2.1
	Coast Wattle-Coast Banksia-Rainforest	4.8
	Coast Wattle-Tuckeroo	0.1
	Cottonwood Hibiscus LRf	0.5
	Hoop Pine-Eucalypt-Rainforest	1.0
	Hoop Pine-Flooded Gum-Rainforest	1.1
	Hoop Pine-Rainforest	1.1
	Hoop Pine-Rainforest+Swamp Oak	0.2
	Hoop Pine-Swamp Oak	1.2
	Hoop Pine-Swamp Oak-Rainforest	41.3
	Littoral Rainforest	0.3
	Littoral Rainforest-Brush Box	0.3
	Littoral Rainforest-Coast Banksia	0.6
	Littoral Rainforest-Swamp sclerophyll	0.1
	Littoral Rainforest+Brush Box	1.3
	Littoral Rainforest+Eucalypt	0.2
	Littoral Rainforest+Paperbark	1.6
	Native Guava-Coast Banksia-Three-veined Laurel	0.4



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## 4.2 - ATTACHMENT 2

	Paperbark-Rainforest	70.8
	Rainforest	14.0
	Rainforest-Coast Banksia	0.3
	Rainforest-Coast Cypress-Paperbark	0.7
	Rainforest-Hoop Pine	1.8
	Rainforest+10-50% Camphor Laurel	1.6
	Rainforest+Coast Banksia	2.7
	Tuckeroo-Coast Banksia	0.5
	Tuckeroo-Paperbark	0.1
	Tuckeroo-Rainforest	0.4
	Wattle+Tuckeroo, Beach Acronychia	0.7
Lowland Rainforest of Subtropical Australia	Bangalow Palm	26.5
	Bangalow Palm-Rainforest	2.4
	Bangalow Palm-Rainforest-Paperbark	55.8
	Brush Box	3.3
	Brush Box-Bloodwood-Rainforest	1.3
	Brush Box-Camphor Laurel+Hoop Pine	1.6
	Brush Box-Eucalypt-Hoop Pine-Camphor Laurel	1.5
	Brush Box-Eucalypt-Rainforest	1.6
	Brush Box-Flooded Gum-Rainforest	0.7
	Brush Box-Hoop Pine	6.3
	Brush Box-Hoop Pine-Rainforest	1.2
	Brush Box-Hoop Pine+Camphor Laurel	1.5
	Brush Box-Ironbark-Hoop Pine+Rainforest	343.0
	Brush Box-Rainforest	6.4
	Brush Box-Rainforest-Camphor Laurel	7.5
	Brush Box-Rainforest-Eucalypt	0.8
	Brush Box-Rainforest-Hoop Pine	3.3
	Brush Box-Rainforest+Hoop Pine	4.6
	Brush Box-Tallowwood-Hoop Pine	0.5
	Brush Box-Wattle-Camphor Laurel	2.7
	Brush Box+Camphor Laurel	4.5
	Brush Box+Camphor Laurel, Rainforest	86.1
	Brush Box+Rainforest	6.5
	Brush Box+Rainforest, Eucalypt	1.4
	Brush Cypress	0.2
	Coast Banksia-Littoral Rainforest	2.3
	Coast Banksia-Rainforest	5.2
	Eucalypt-Brush Box	3.1
	Eucalypt-Brush Box-Rainforest	6.2
	Ficus	3.7
	Ficus-Rainforest	0.5
	Ficus spp, Riberry, Murrogun	1.3
	Flooded Gum-Hoop Pine-Brush Box-Rainforest	4.0
	Hoop Pine	0.3
	Hoop Pine-Brush Box-Camphor Laurel	8.3
	Hoop Pine-Brush Box-Rainforest	0.4
	Hoop Pine-Ficus-Rainforest	0.3
	Hoop Pine-Pink Bloodwood	50.0
	Hoop Pine-Rainforest	6.1
	Hoop Pine-Rainforest-Brush Box	1.5

# BYRON SHIRE COUNCIL

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## 4.2 - ATTACHMENT 2

	Hoop Pine-Rainforest-Camphor Laurel	1.3
	Hoop Pine-Rainforest-Paperbark	4.1
	Hoop Pine-Rainforest+Brush Box	0.5
	Hoop Pine-Rainforest+Grey Ironbark, Flooded Gum	0.3
	Hoop Pine-Riberry-Weeping Lilly Pilly	2.5
	Mixed Eucalypt-Rainforest - Camphor laurel	0.6
	Planted Rainforest	1255.3
	Rainforest	0.4
	Rainforest-Bangalow Palm-Wattle	61.4
	Rainforest-Brush Box	0.7
	Rainforest-Brush Box-Camphor Laurel	0.8
	Rainforest-Brush Box-Wattle	6.0
	Rainforest-Coast Banksia	16.8
	Rainforest-Eucalypt	2.1
	Rainforest-Hoop Pine-Camphor Laurel	27.7
	Rainforest-Paperbark	0.3
	Rainforest-Paperbark-Camphor Laurel	6.6
	Rainforest-Privet	7.7
	Rainforest-Wattle	2.4
	Rainforest - Flooded Gum emergents	9.1
	Rainforest -Camphor Laurel+Hoop Pine	3.3
	Rainforest Regrowth.	569.7
	Rainforest+10-50% Camphor Laurel	0.4
	Rainforest+Bangalow Palm	110.9
	Rainforest+Brush Box	37.2
	Rainforest+Hoop Pine	5.6
	Rainforest+Hoop Pine, Brush Box	6.0
	Rainforest+Hoop Pine, Brush Box, Coast Banksia	3.0
	Rainforest+Paperbark	1.1
	Rainforest+Wattle	2.1
	Red Kamala-Red Ash	0.3
	Riberry-Ficus	5.9
	Subtropical Rainforest	0.5
	Umbrella Cheese Tree-Bangalow Palm--Rainforest	7.1
	Umbrella Cheese Tree-Bangalow Palm-Callicoma	1.1
	Umbrella Cheese Tree-Melicope	0.2
	Umbrella Cheese Tree-Paperbark	0.7
	Wattle-Rainforest	1.0
	Weeping Lilly Pilly-Hoop Pine-Rainforest	22.4
Subtropical and Temperate Coastal Saltmarsh	Saltmarsh	0.3
	Saltmarsh-Mangrove+Swamp Oak	0.2
	Saltmarsh grassland	0.2
	Saltmarsh+Paperbark	31.1
Coastal Swamp Oak (Casuarina glauca) Forest	Swamp Oak	4.1
	Swamp Oak-Cabbage Palm	0.2
	Swamp Oak-Camphor Laurel	0.7
	Swamp Oak-Eucalypt	2.9
	Swamp Oak-Mangrove	9.7
	Swamp Oak-Paperbark	1.6
	Swamp Oak-Paperbark-Willow Bottlebrush	4.2

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.2 - ATTACHMENT 2

	Swamp Oak-Rainforest	0.7
	Swamp Oak-Swamp Box-Rainforest	1.0
	Swamp Oak-Wattle-Paperbark	12.5
	Swamp Oak + Paperbark	0.7
	Swamp Oak+Mangrove	78.7
	Swamp Oak+Paperbark	3.1
	Swamp Oak+Paperbark, Eucalypt	1.1
	Swamp Oak+Paperbark, Rainforest	1.4
	Swamp Oak+Paperbark, Swamp Box	20.5
	Swamp Oak+Pink Bloodwood, Swamp Box	2.2
	Swamp Oak+Rainforest	0.2
	Swamp Oak+Saltmarsh, Mangrove	0.6
	Swamp Oak+Swamp Box	12.4
	Swamp Oak+Swamp Mahogany	685.6
Coastal Swamp Sclerophyll Forest	Paperbark	8.0
	Paperbark-Black Sheoak-Swamp Mahogany	0.6
	Paperbark-Brush Box-Rainforest	0.9
	Paperbark-Brush Box-Swamp Oak	12.6
	Paperbark-Camphor Laurel	4.4
	Paperbark-Camphor Laurel-Rainforest	1.5
	Paperbark-Cheese Tree	0.6
	Paperbark-Cheese Tree-Camphor Laurel	0.5
	Paperbark-Cheese Tree-Rainforest	0.3
	Paperbark-Coast Banksia	1.7
	Paperbark-Eucalypt	5.2
	Paperbark-Fernland	0.9
	Paperbark-Forest Red Gum	4.6
	Paperbark-Grass Tree	1.7
	Paperbark-Mixed eucalypt	1.1
	Paperbark-Pink Bloodwood-Swamp Mahogany	39.7
	Paperbark-Rainforest	2.7
	Paperbark-Rainforest-Brush Box	7.8
	Paperbark-Rainforest-Camphor Laurel	2.6
	Paperbark-Rainforest-Eucalypt-Brush Box	1.7
	Paperbark-Rainforest-Swamp Oak	2.0
	Paperbark-Rainforest regrowth	0.6
	Paperbark-Rainforest+Landscaping	0.9
	Paperbark-Rainforest+Swamp Oak	17.6
	Paperbark-Sedgeland	10.4
	Paperbark-Swamp Box	0.7
	Paperbark-Swamp Box-Camphor Laurel	7.1
	Paperbark-Swamp Box-Rainforest	3.7
	Paperbark-Swamp Box-Swamp Mahogany	1.9
	Paperbark-Swamp Box-Swamp Mahogany-Forest Red Gum	0.5
	Paperbark-Swamp Box-Swamp Mahogany-Teatree	1.5
	Paperbark-Swamp Box+Swamp Oak	18.9
	Paperbark-Swamp Mahogany	0.5
	Paperbark-Swamp Mahogany-Camphor Laurel	8.6
	Paperbark-Swamp Mahogany-Rainforest	2.4
	Paperbark-Swamp Mahogany-Swamp Box	0.6
	Paperbark-Swamp Mahogany-Wattle regrowth	0.7

	Paperbark-Swamp Mahogany+Teatree	9.3
	Paperbark-Swamp Oak	1.1
	Paperbark-Swamp Oak-Coast Banksia	4.3
	Paperbark-Swamp Oak-Swamp Box	3.2
	Paperbark-Swamp Oak-Swamp Mahogany	9.1
	Paperbark-Swamp Oak-Swamp Mahogany-Brush Box	18.9
	Paperbark-Teatree	1.6
	Paperbark-Teatree-Camphor Laurel-Rainforest	0.5
	Paperbark-Teatree-Rainforest	2.6
	Paperbark-Wattle	4.3
	Paperbark-Wattle-Cheese Tree	3.3
	Paperbark-Wattle-Rainforest	0.8
	Paperbark-Wattle-Swamp Box	6.7
	Paperbark-Willow Bottlebrush	0.5
	Paperbark-Willow Bottlebrush-Wattle	3.2
	Paperbark + Camphor Laurel	3.5
	Paperbark+Camphor Laurel	2.9
	Paperbark+Camphor Laurel, Weeping Lilly Pilly	1.2
	Paperbark+Coast Wattle, Tuckeroo	0.5
	Paperbark+Flooded Gum, Tallowwood	75.7
	Paperbark+Rainforest	0.8
	Paperbark+Rainforest, Forest Red Gum	2.6
	Paperbark+Rainforest, Swamp Mahogany	1.3
	Paperbark+Swamp Box	1.0
	Paperbark+Swamp Box, Blackbutt	2.1
	Paperbark+Swamp Box, Flooded Gum, Swamp Mahogany	9.0
	Paperbark+Swamp Box, Rainforest	9.2
	Paperbark+Swamp Box, Swamp Mahogany	8.1
	Paperbark+Swamp Mahogany	8.1
	Paperbark+Swamp Mahogany, Swamp Box	1.0
	Paperbark+Swamp Oak	0.5
	Paperbark+Swamp Oak, Rainforest	3.7
	Paperbark+Swamp Oak, Swamp Box, Rainforest	0.5
	Paperbark+Teatree	2.4
	Paperbark+Teatree, Rainforest	1.0

*Table 10 - BSC Vegetation Types (Coastal Wetland SEPP)*

<b>BSC Vegetation Type</b>	<b>Area (Ha)</b>
Saltmarsh-Fernland	0.1
Forest Red Gum-Swamp Mahogany-Paperbark	0.1
Coast Teatree-Tuckeroo	0.1
Coast Banksia-Bitou Bush	0.1
Hoop Pine-Swamp Oak-Rainforest	0.1
Paperbark-Brush Box-Swamp Oak	0.1
Swamp Oak+Paperbark, Rainforest	0.1
Rainforest-Coast Cypress-Eucalypt-Wattle	0.1
Brush Box on marine aeolian sands	0.1
Swamp Mahogany-Pink Bloodwood-Brush Box-Tallowwood	0.1
Umbrella Cheese Tree-Melicope	0.1
Wallum Banksia-Black She-oak	0.1

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## 4.2 - ATTACHMENT 2

Brush Box-Wattle	0.1
Brush Box-Red Mahogany+Saw Banksia	0.1
Grey Ironbark-Brush Box-Rainforest	0.1
Brush Box-Camphor Laurel-Cabbage Palm	0.1
Swamp Box	0.1
Gahnia clarkei-Rhynchospora corymbosa	0.1
Swamp Oak on metasediments	0.1
Forest Red Gum-Tallowwood-Paperbark	0.1
Forest Red Gum+Coast Cypress Pine	0.1
Littoral Rainforest-Swamp sclerophyll	0.1
Swamp Mahogany-Rainforest	0.1
Blackbutt+Brush Box	0.2
Paperbark-Mangrove	0.2
Sedgeland-Forbland-Grassland	0.2
Saltmarsh grassland	0.2
Swamp Oak+Saltmarsh, Mangrove	0.2
Paperbark+Swamp Oak, Rainforest	0.2
Coast Banksia-Rainforest	0.2
Saltmarsh+Paperbark	0.2
Wattle-Cheese Tree	0.2
Tallowwood-Forest Red Gum+Pink Bloodwood,Blackbutt	0.2
Swamp Oak+Swamp Box, Forest Red Gum, Paperbark	0.2
Coast Teatree-Cypress Pine-Paperbark	0.2
Coast Cypress-Coast Banksia	0.2
Swamp Oak+Tuckeroo, Mangrove	0.2
PL	0.2
Swamp Oak-Sedgeland	0.2
Byron Bay Graminoid clay heath	0.3
Saltmarsh-Mangrove+Swamp Oak	0.3
Mixed Eucalypt-Brush Box	0.3
Rainforest-Coast Banksia	0.3
Brush Box-Swamp Oak	0.3
Swamp Mahogany-Brush Box	0.3
Coast Banksia+Rainforest	0.3
Swamp Oak+Littoral Rainforest	0.3
Sedgeland-Heath	0.3
Bangalow Palm-Rainforest-Paperbark	0.3
Paperbark-Coast Banksia	0.3
Mangrove+Paperbark	0.3
Swamp Box-Paperbark-Swamp Mahogany	0.3
Forest Red Gum-Swamp Mahogany-Pink Bloodwood	0.3
Fernland-Sedgeland	0.3
Swamp Mahogany-Swamp Box	0.3
Swamp Oak-Wattle	0.4
Seagrass	0.4
Swamp Oak-Camphor Laurel	0.4
Littoral Rainforest	0.4
Wallum Banksia-Scribbly Gum	0.4
Blackbutt - Flooded Gum	0.4
Swamp Mahogany-Paperbark-Rainforest	0.4
Brush Box-Rainforest	0.4

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.2 - ATTACHMENT 2

Teatree	0.4
Paperbark-Cheese Tree-Camphor Laurel	0.5
Brush Box	0.5
Swamp Sclerophyll	0.5
Rainforest-Swamp Oak-Mangrove	0.5
Mangrove-Saltmarsh	0.5
Coast Cypress	0.5
Forest Red Gum-Swamp Oak	0.6
Hoop Pine-Rainforest	0.6
Blackbutt	0.6
Cladium procerum sedgeland	0.6
Swamp grassland	0.6
Forest Red Gum-Swamp Mahogany	0.6
open water-Sedgeland	0.7
Tallowood-Brush Box+Bloodwood, Swamp Mahogany	0.7
Paperbark-Rainforest-Eucalypt-Brush Box	0.7
Swamp Oak-Swamp Box-Rainforest	0.7
Brush Box+Rainforest	0.7
Mangrove+Rainforest	0.7
Eucalypt	0.7
Common Reed-Setaria-Vasey Grass	0.8
Swamp Oak-Eucalypt	0.8
Eleocharis equisetina-Leersia hexandra	0.9
Rainforest+Paperbark	0.9
Paperbark-Cheese Tree	0.9
Forest Red Gum	0.9
Common Reed-Batswing Fern	1.0
Swamp Oak+Swamp Box	1.0
Scribbly Gum-Swamp Mahogany-Wallum Banksia	1.0
Paperbark+Swamp Box, Swamp Mahogany	1.0
Swamp Oak-Wattle-Paperbark	1.0
Forest Red Gum-Paperbark	1.0
Swamp Oak-Paperbark-Wattle	1.1
Paperbark-Swamp Oak-Coast Banksia	1.1
Coast Wattle-Swamp Oak	1.1
Paperbark-Sedgeland	1.1
Paperbark-Willow Bottlebrush	1.1
Mangrove +Forest Red Gum, Rainforest	1.2
Camphor Laurel 51-80%	1.2
Swamp Mahogany	1.3
open water-Forbland-Sedgeland	1.3
Scribbly Gum+Red Mahogany, Swamp Mahogany	1.3
Rainforest+10-50% Camphor Laurel	1.4
Paperbark+Swamp Mahogany	1.5
Swamp Oak+Paperbark, Swamp Box	1.5
Swamp Oak-Paperbark-Willow Bottlebrush	1.6
Swamp Oak+Rainforest	1.6
Swamp Mahogany-Swamp Box+Scribbly Gum	1.7
Swamp Mahogany-Paperbark	1.8
Paperbark-Rainforest regrowth	1.8
Paperbark-Mixed eucalypt	1.9

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.2 - ATTACHMENT 2

Scribbly Gum	1.9
Swamp Oak+Mangrove	2.1
Grassland-Sedgeland	2.2
Freshwater wetland	2.4
Coast Banksia-Paperbark	2.4
Paperbark-Sedgeland-Wet meadow	2.4
Salt Couch	2.4
Mangrove+Saltmarsh	2.5
Swamp Box-Swamp Mahogany-Paperbark	2.6
River Mangrove	2.8
Paperbark-Swamp Oak-Swamp Mahogany-Brush Box	2.8
Paperbark-Teatree	3.0
Swamp Oak+Paperbark, Eucalypt	3.5
Paperbark-Rainforest	3.5
Sedgeland-Grassland-open water	3.5
Swamp Oak-Cabbage Palm	4.1
Paperbark-Fernland	4.1
Rainforest	4.3
Paperbark-Wattle-Cheese Tree	4.3
Paperbark-Swamp Oak-Swamp Box	4.3
Paperbark-Grass Tree	4.6
Grassland-Forbland	4.6
Grey Mangrove	5.2
Paperbark+Swamp Oak	5.4
Swamp Oak-Rainforest	5.4
Swamp Mahogany-Swamp Box-Paperbark	5.5
Mixed Eucalypt	6.1
Paperbark-Swamp Oak	6.2
Mangrove-Swamp Oak	6.2
Paperbark-Swamp Box	6.7
Grey Mangrove-River Mangrove	7.5
Swamp Oak-Mangrove	8.2
Sedgeland	8.7
Paperbark+Rainforest	9.5
Paperbark-Swamp Mahogany	10.5
Swamp Oak-Paperbark	11.4
Swamp Oak+Swamp Mahogany	12.7
Sedgeland-Fernland-Grassland	14.4
Sedgeland-Fernland	15.4
Rainforest-Paperbark	15.5
Sedgeland-Grassland	15.7
Grassland-Sedgeland-Forbland (wetland)	17.6
open water	21.5
Mangrove	21.5
Saltmarsh	21.7
Swamp Oak	41.4
Swamp Oak+Paperbark	78.6
Paperbark	357.0

Table 11 - BSC Vegetation Types (Coastal Wetland SEPP)



<b>BSC Vegetation Type</b>	<b>Area (Ha)</b>
Brush Box	0.2
Brush Box-Grey Ironbark-Pink Bloodwood	0.2
Brush Box-Littoral Rainforest	0.3
Brush Box-Rainforest	4.6
Brush Box headland rainforest	0.2
Brush Box+Rainforest	0.9
Hoop Pine-Rainforest	2.5
Littoral Rainforest	49.2
Pandanus+Coast Banksia	0.0
Paperbark	0.2
Paperbark+Hoop Pine	0.0
Paperbark+Rainforest	0.1
Rainforest	3.5
Rainforest-Coast Banksia	0.0
Riberry-Brown Kurrajong-Coast Banksia-Lilly Pilly	0.2

### Appendix 3 - Over-Cleared Vegetation Types

Table 12 - Over-cleared Vegetation Types (Generated from BioNet 13/02/2023).

PCTID	PCT Name	status	Classification Confidence Level	Vegetation Class	Vegetation Formation	IBRA	IBRAS Subregion	county
3001	Lismore Basalt Subtropical Rainforest	Approved	High	Subtropical Rainforests	Rainforests	South Eastern Queensland	Scenic Rim	BALLINA; BYRON; LISMORE;
3002	Lower Richmond Hills Dry-Subtropical Rainforest	Approved	High	Subtropical Rainforests	Rainforests	South Eastern Queensland	Burringbar-Conondale Ranges;Clarence Lowlands;Scenic Rim	BALLINA; BYRON; KYOGLE; LISMORE; TWEED;
3004	Far North Bangalow Palm Swamp Forest	Approved	High	Subtropical Rainforests	Rainforests	South Eastern Queensland	Burringbar-Conondale Ranges;Clarence Lowlands;Scenic Rim;Sunshine Coast-Gold Coast Lowlands	BALLINA; BYRON; TWEED;
3005	Far North Floodplain Subtropical Rainforest	Approved	Very Low	Subtropical Rainforests	Rainforests	South Eastern Queensland	Burringbar-Conondale Ranges;Clarence Lowlands	BALLINA; BYRON;
3012	Far North Waterhousea Riparian Rainforest	Approved	Very Low	Subtropical Rainforests	Rainforests	South Eastern Queensland	Burringbar-Conondale Ranges	BYRON;
3016	Lower Tweed Hills Subtropical Dry Rainforest	Approved	High	Subtropical Rainforests	Rainforests	South Eastern Queensland	Burringbar-Conondale Ranges;Sunshine Coast-Gold Coast Lowlands	BYRON; TWEED;
3123	Far North Sands Coastal Cypress Littoral Rainforest	Approved	High	Littoral Rainforests	Rainforests	NSW North Coast;South Eastern Queensland	Yuraygir;Burringbar-Conondale Ranges;Clarence Lowlands;Scenic Rim	BALLINA; BYRON; CLARENCE VALLEY; RICHMOND VALLEY;
3410	Spinifex Strandline Grassland	Approved	High	Maritime Grasslands	Grasslands	NSW North Coast;South Eastern Queensland;Sydney Basin	Coffs Coast and Escarpment;Karuah Manning;Burringbar-Conondale Ranges;Clarence Lowlands;Pittwater;Wyong	BYRON; CENTRAL COAST; COFFS HARBOUR; LAKE MACQUARIE; MID-COAST; NORTHERN BEACHES; PORT STEPHENS; RICHMOND VALLEY;
3553	Northern Sands Bloodwood-Swamp Turpentine Forest	Approved	High	Coastal Dune Dry	Dry Sclerophyll	NSW North Coast;South	Macleay Hastings;Yuraygir;Burringbar-	BALLINA; BYRON; COFFS HARBOUR;

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.2 - ATTACHMENT 2

				Sclerophyll Forests	Forests (Shrubby sub-formation)	Eastern Queensland	Conondale Ranges; Clarence Lowlands	KEMPSEY; PORT MACQUARIE-HASTINGS;
3791	Far North Headland-Dune Scrub	Approved	High	Coastal Headland Heaths	Heathlands	NSW North Coast; South Eastern Queensland	Coffs Coast and Escarpment; Burringbar-Conondale Ranges; Scenic Rim; Sunshine Coast-Gold Coast Lowlands	BYRON; COFFS HARBOUR; TWEED;
3911	Northern Sand Swale Fernland	Approved	Very Low	Coastal Heath Swamps	Freshwater Wetlands	NSW North Coast; South Eastern Queensland	Macleay Hastings; Burringbar-Conondale Ranges; Clarence Lowlands	BYRON; CLARENCE VALLEY; PORT MACQUARIE-HASTINGS;
3963	Estuarine Reedland	Approved	High	Coastal Freshwater Lagoons	Freshwater Wetlands	NSW North Coast; South Eastern Queensland; Sydney Basin	Karuah Manning; Macleay Hastings; Burringbar-Conondale Ranges; Scenic Rim; Illawarra; Jervis; Pittwater; Wyong	BYRON; CENTRAL COAST; NORTHERN BEACHES; PORT MACQUARIE-HASTINGS; PORT STEPHENS; SHOALHAVEN; TWEED; WOLLONGONG;
3990	Far North Paperbark Gahnia Swamp Forest	Approved	High	Coastal Swamp Forests	Forested Wetlands	NSW North Coast; South Eastern Queensland	Yuraygir; Burringbar-Conondale Ranges; Clarence Lowlands; Clarence Sandstones; Scenic Rim; Sunshine Coast-Gold Coast Lowlands	BALLINA; BYRON; CLARENCE VALLEY; LISMORE; RICHMOND VALLEY; TWEED;
3993	Far North Swamp Oak-Paperbark Tidal Forest	Approved	High	Coastal Swamp Forests	Forested Wetlands	South Eastern Queensland	Burringbar-Conondale Ranges; Clarence Lowlands; Sunshine Coast-Gold Coast Lowlands	BALLINA; BYRON; LISMORE; TWEED;
4026	Estuarine Sea Rush Swamp Oak Forest	Approved	High	Coastal Floodplain Wetlands	Forested Wetlands	NSW North Coast; South East Corner; South Eastern Queensland; Sydney Basin	Coffs Coast and Escarpment; Karuah Manning; Macleay Hastings; Bateman; East Gippsland Lowlands; South East Coastal Ranges; Burringbar-Conondale Ranges; Cumberland; Illawarra; Pittwater; Sydney Cataract; Wyong; Yengo	BEGA VALLEY; BYRON; CENTRAL COAST; COFFS HARBOUR; EUROBOALLA; KEMPSEY; LAKE MACQUARIE; LIVERPOOL; MID-COAST; NAMBUCCA; PORT MACQUARIE-HASTINGS; PORT STEPHENS; SHOALHAVEN;

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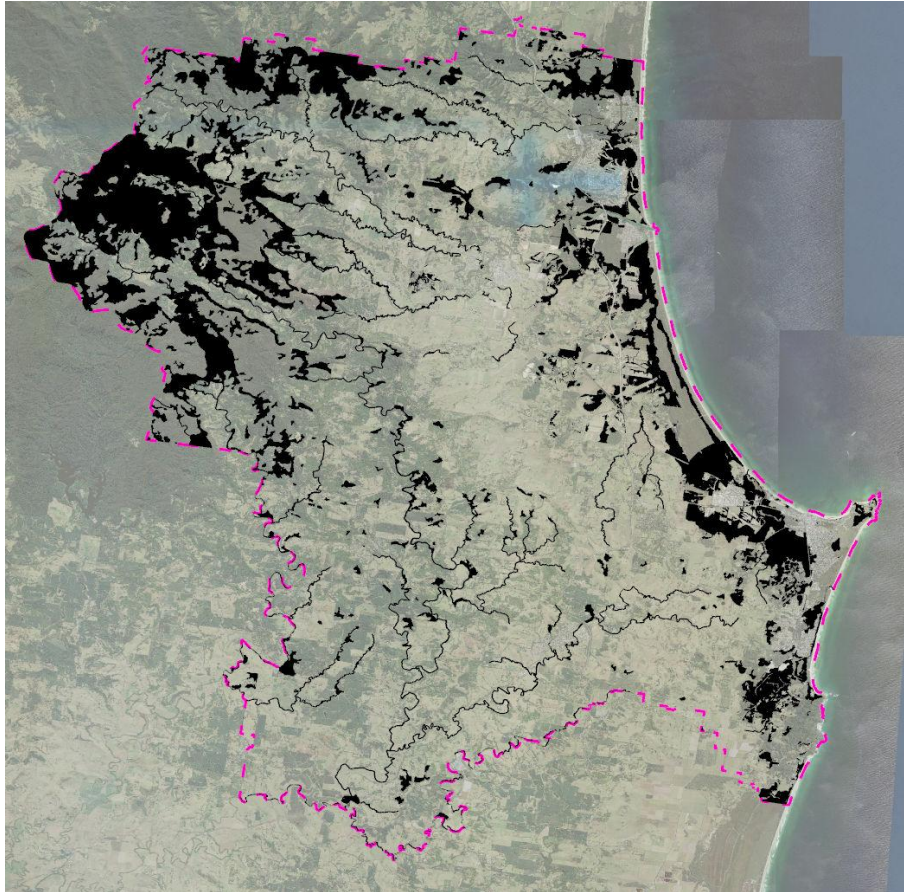
## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.2 - ATTACHMENT 2

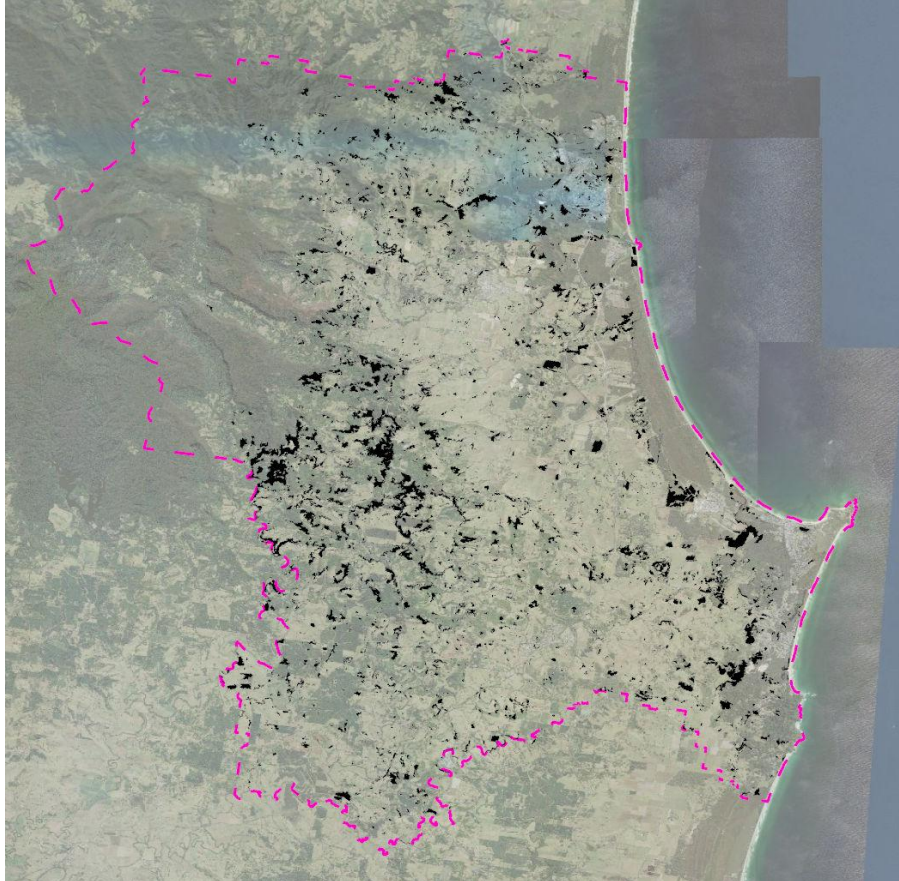
								SUTHERLAND; TWEED;
4034	Far North Swamp Oak-Tuckeroo Swamp Fringe Forest	Approved	High	Coastal Floodplain Wetlands	Forested Wetlands	NSW North Coast; South Eastern Queensland	Coffs Coast and Escarpment; Macleay Hastings; Burringbar-Conondale Ranges; Clarence Lowlands; Clarence Sandstones	BALLINA; BYRON; CLARENCE VALLEY; COFFS HARBOUR; LISMORE; NAMBUCCA; RICHMOND VALLEY; TWEED;

## **Appendix 4 - HEV Criteria Maps**

*Figure 3 - Biodiversity Values Map*

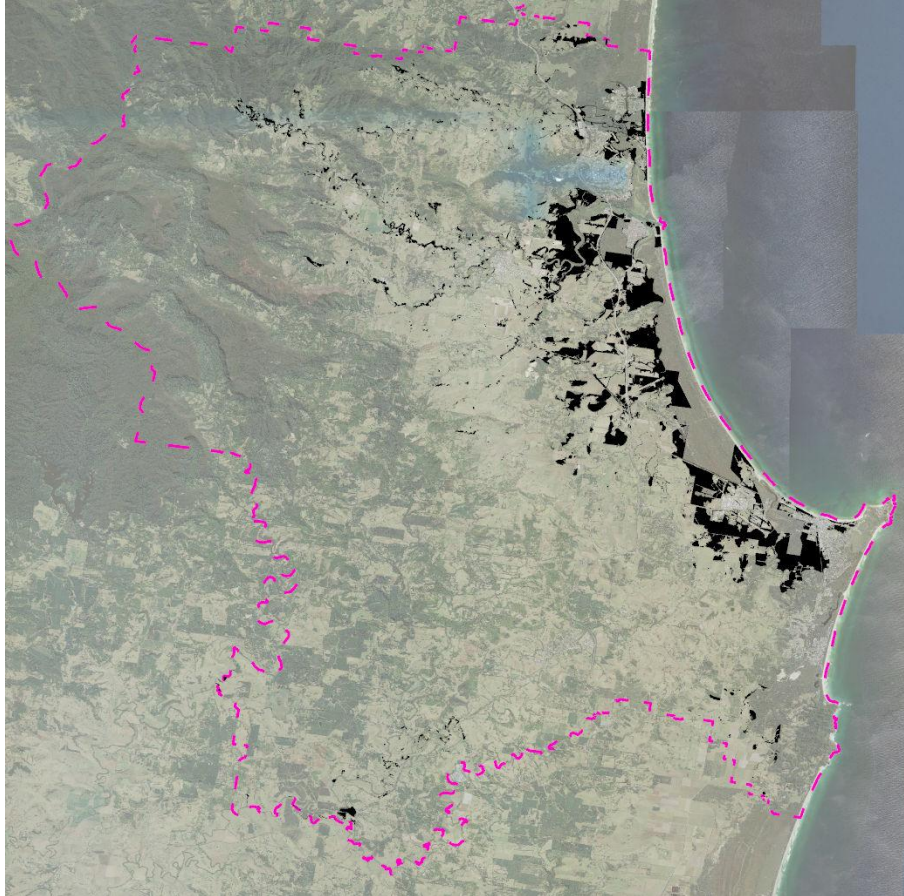


*Figure 4 - Over-cleared vegetation types (based on BSC 2021 Vegetation mapping and NSW Government SVTM mapping)*





*Figure 5 - Vegetation in over-cleared landscapes (Mitchell landscapes). (Based on BSC 2021 Vegetation mapping).*





*Figure 6 - Threatened Ecological Communities (based on BSC 2021 Vegetation mapping).*

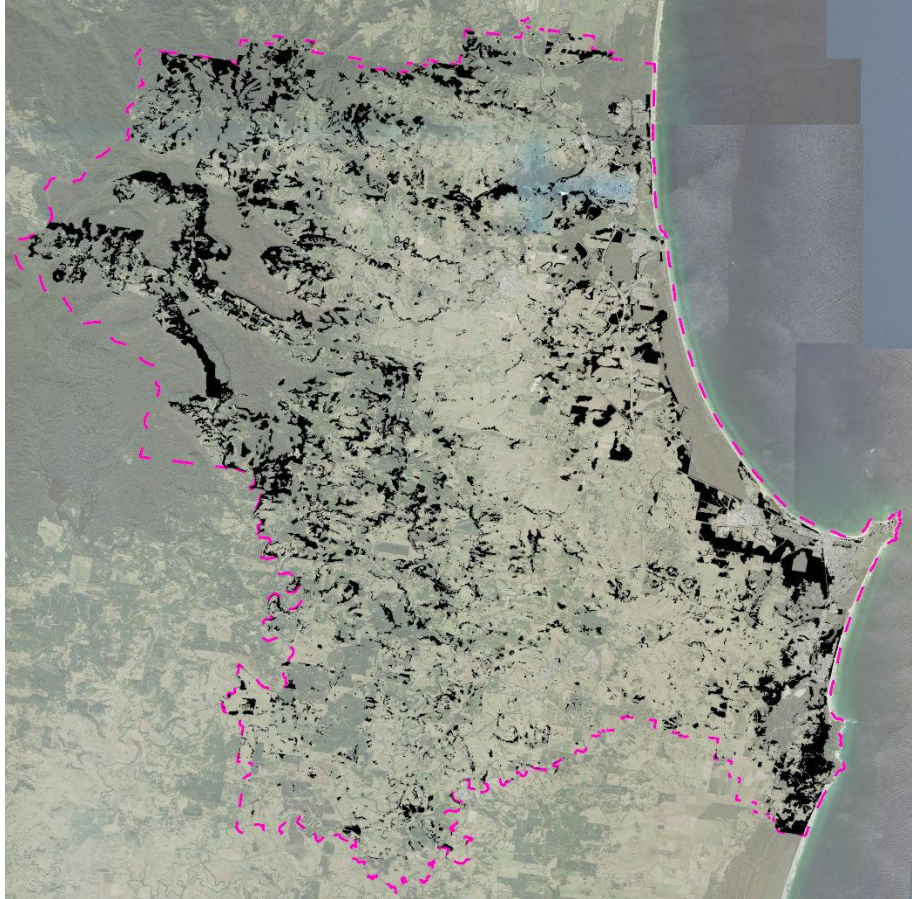
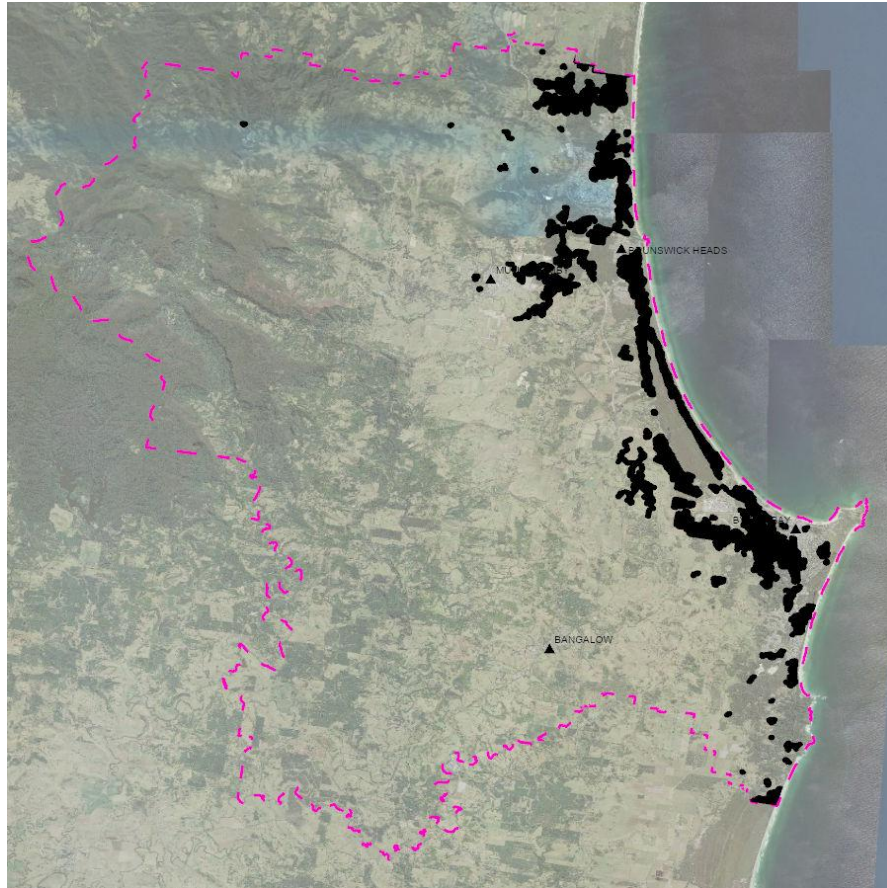
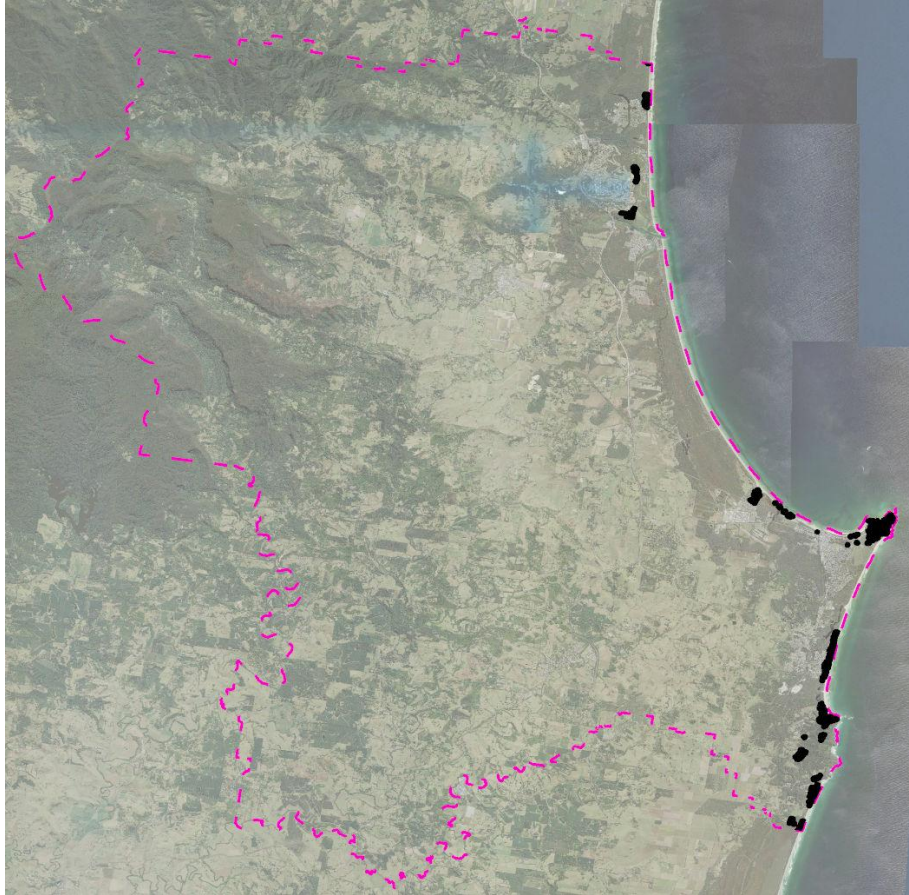


Figure 7 - 100m buffer on Coastal Wetlands



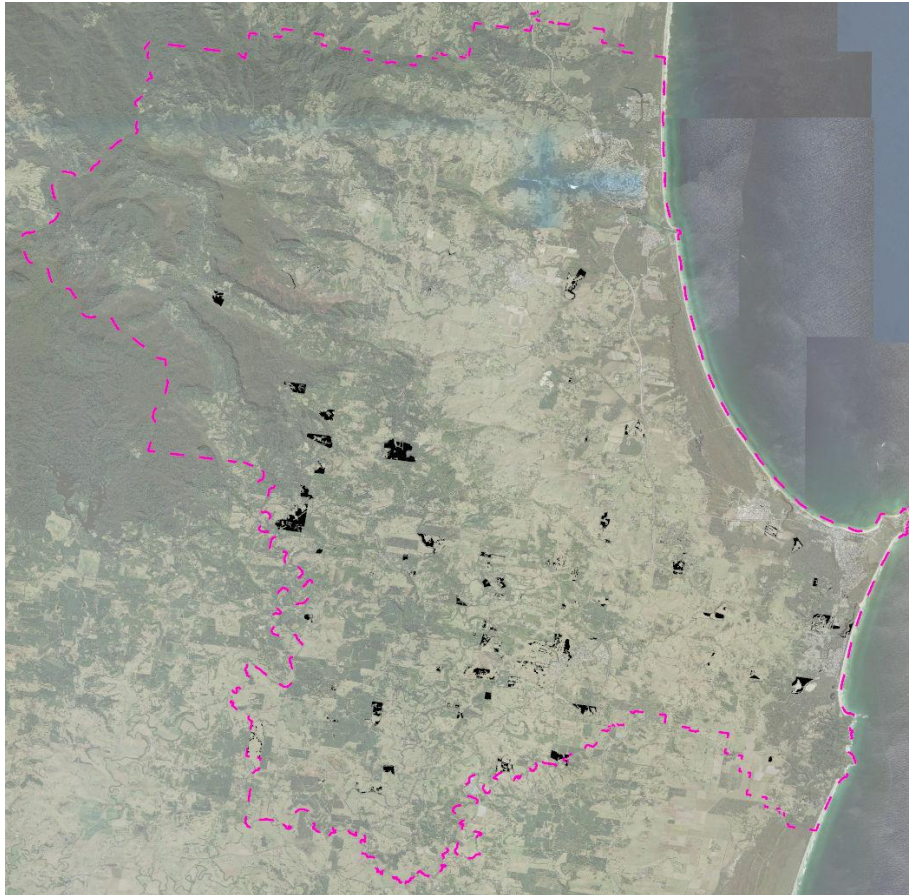
*Figure 8 - 100m buffer on Littoral Rainforest*





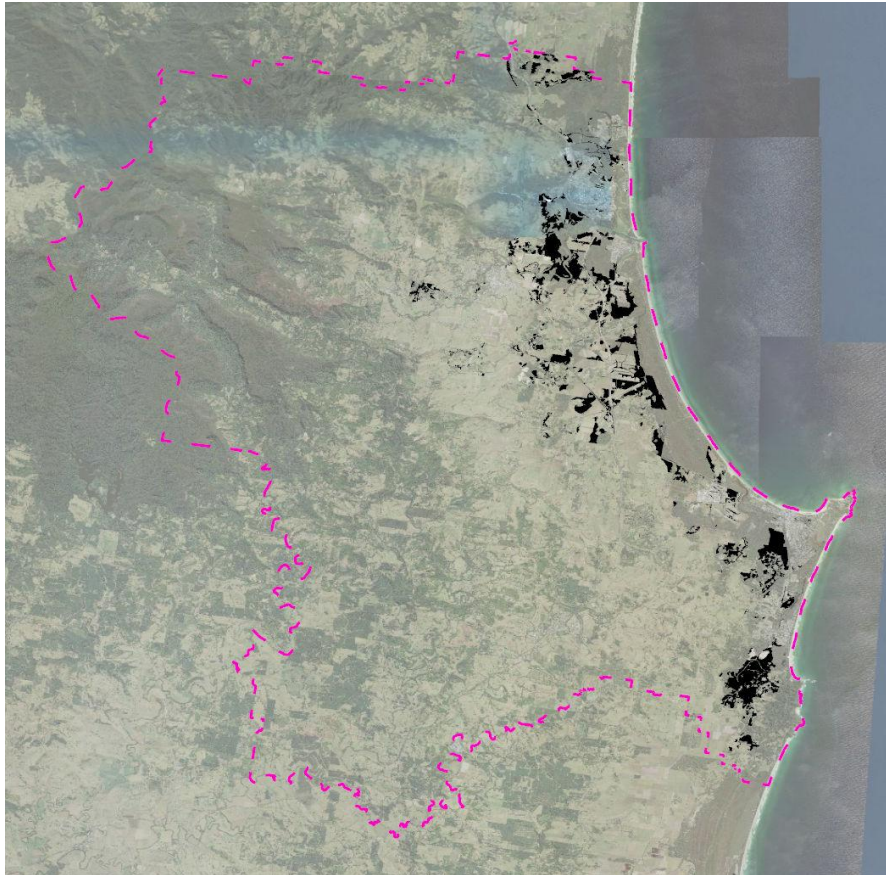
Key breeding habitats with known breeding occurrence

*Figure 9 - Koala Breeding Habitat (BSC vegetation mapping). (Based on BSC 2021 Vegetation mapping).*

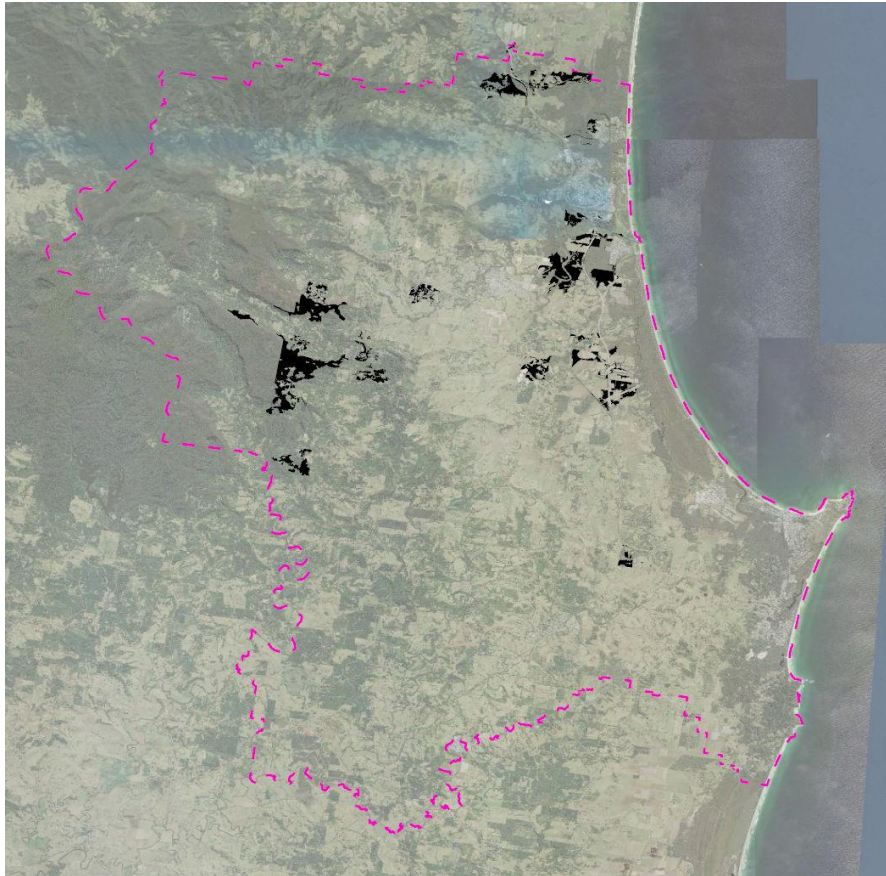


Core Koala Habitat

*Figure 10 - Byron Shire KPOM (based on BSC 2021 Vegetation mapping).*



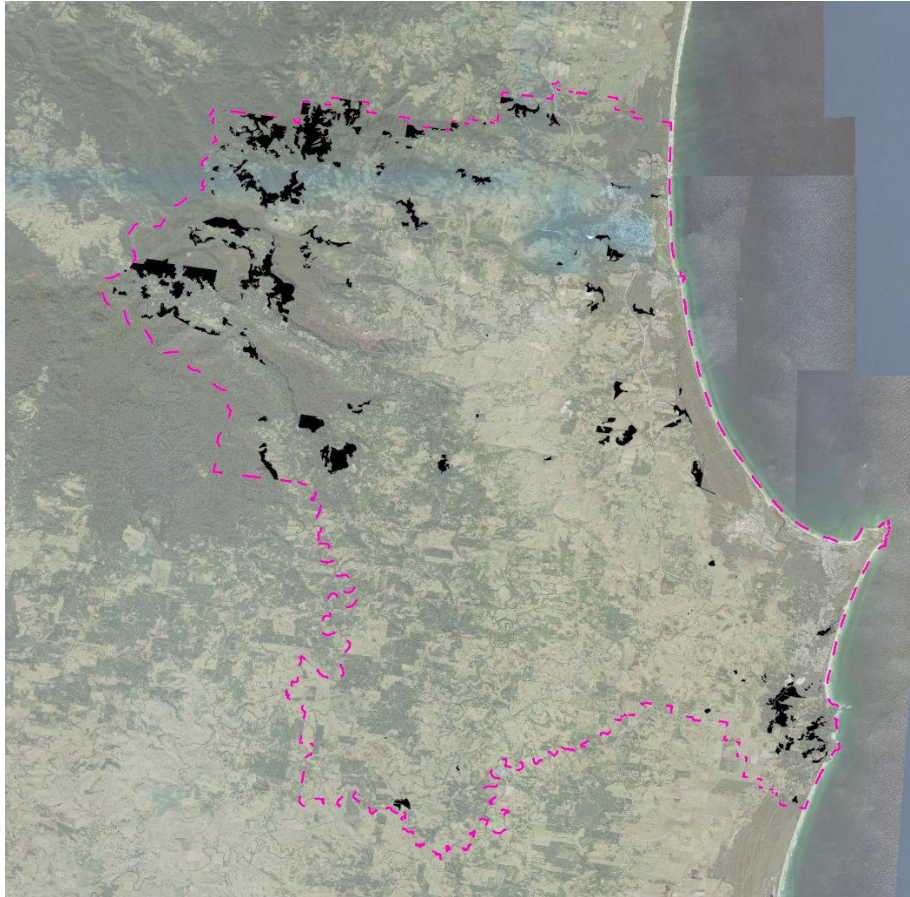
*Figure 11 - Persistent Koala Populations(based on BSC 2021 Vegetation mapping).*





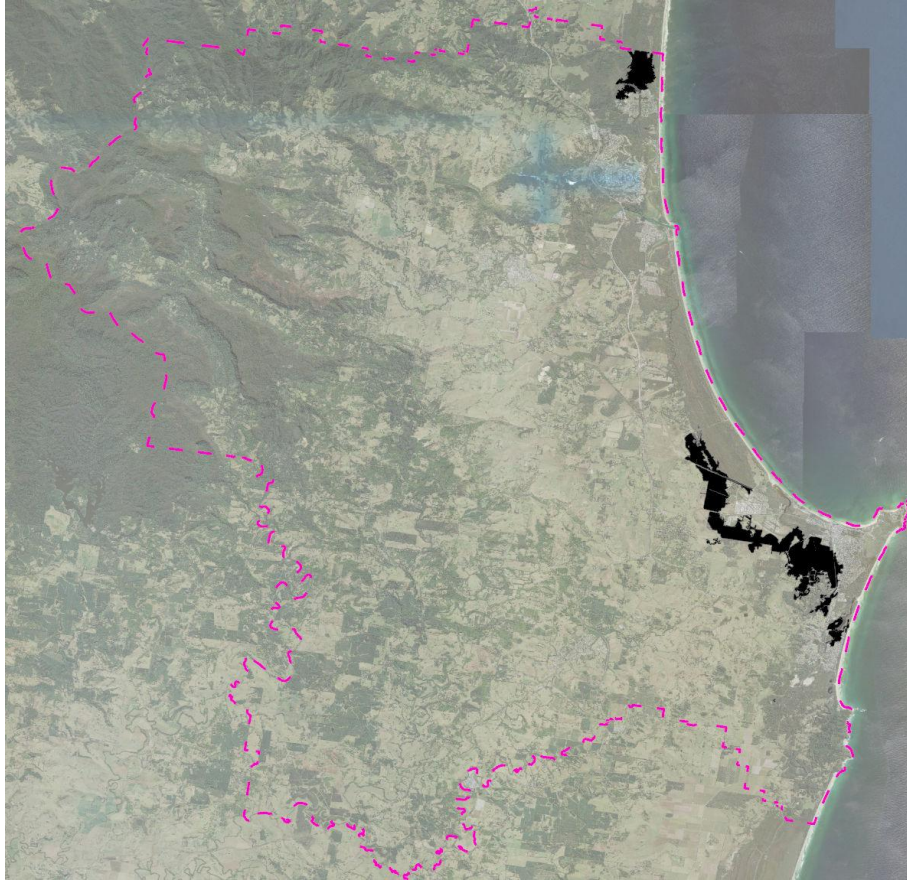
Habitat for known populations of species-credit species

*Figure 12 - Hollow dependent fauna habitat (based on BSC 2021 Vegetation mapping).*

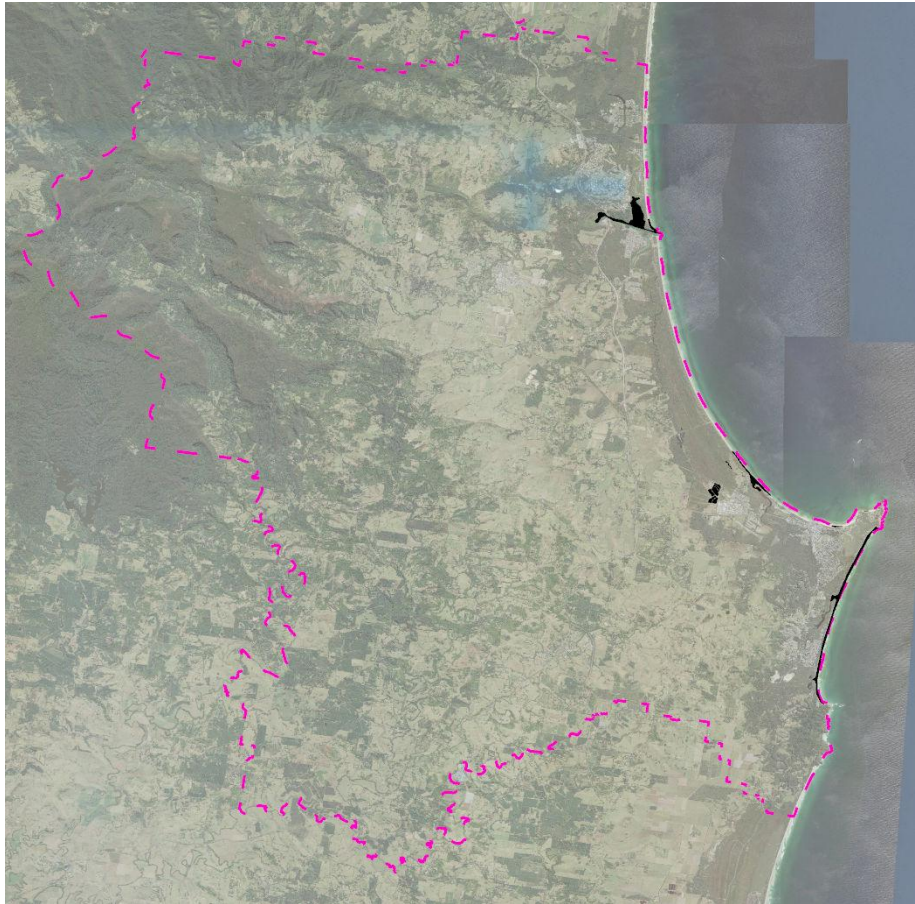




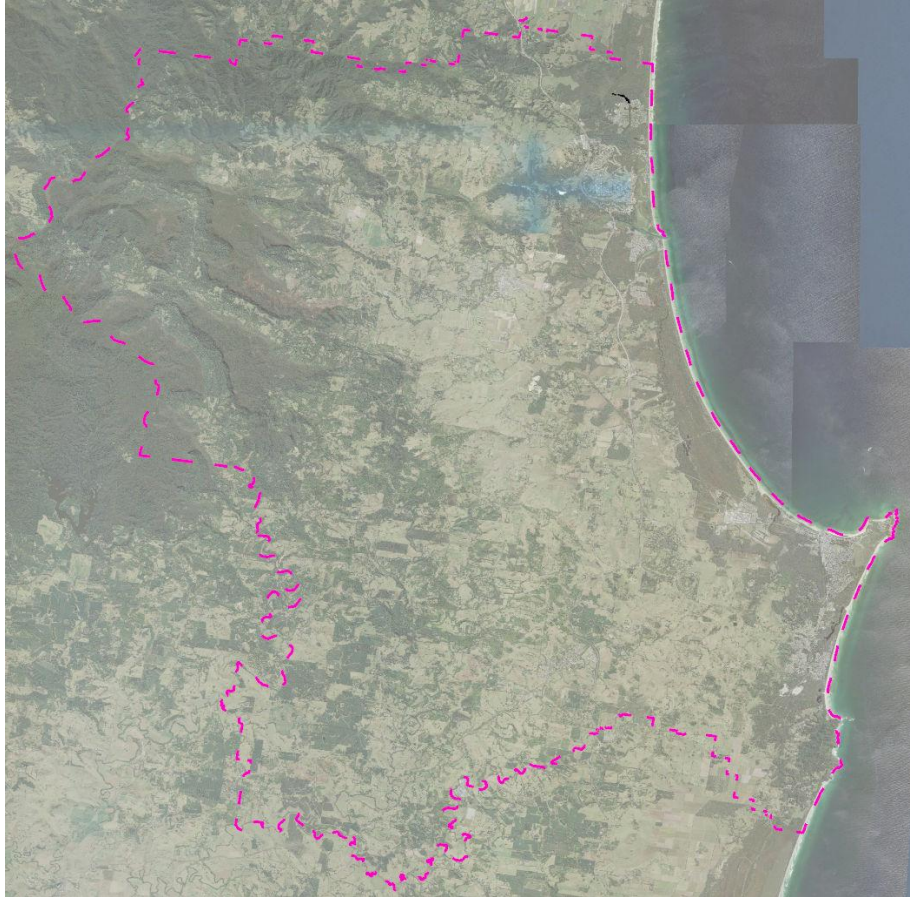
*Figure 13 - Mitchell Rainforest Snail Core Habitat (based on BSC 2021 Vegetation mapping).*



*Figure 14 - Key habitats for migratory species*

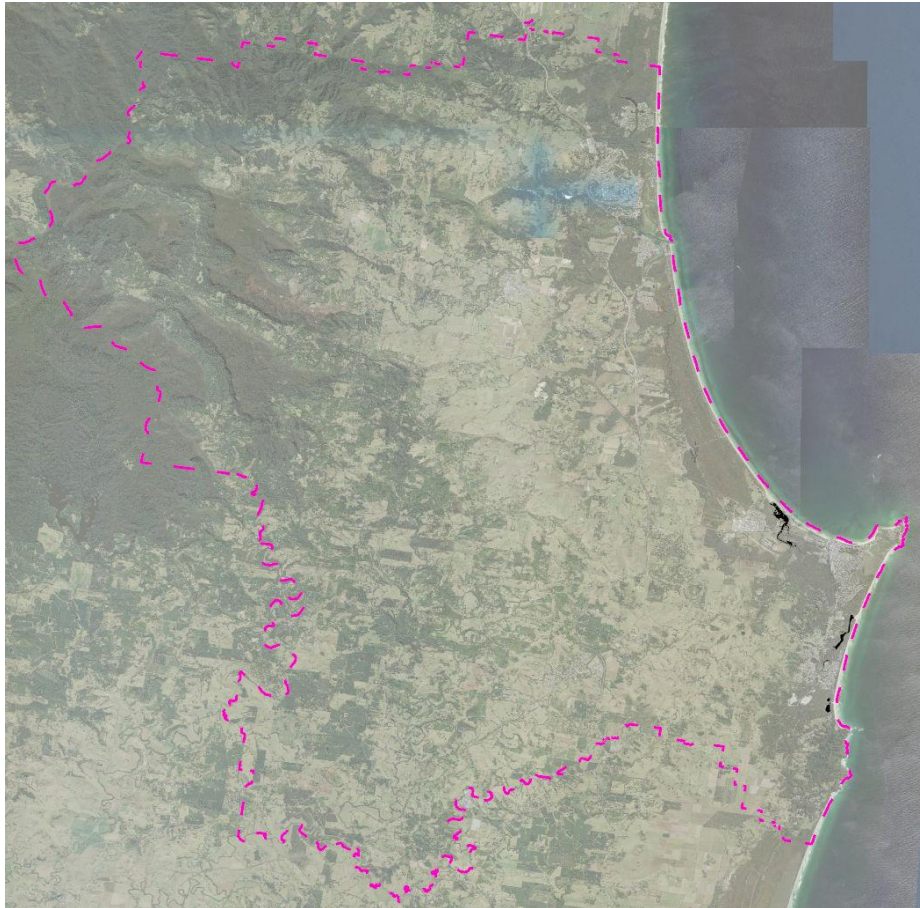


*Figure 15 - Nationally important wetlands*





*Figure 16 - Vulnerable Estuaries and ICOLLs*





**Author:** Jane Wickers, EarthScapes Consulting

Version	Written by	Date	Reviewed by	Date
V1	Jane Wickers	May 4 2023	Liz Caddick, Byron Shire Council and Ian Gaskill, Department of Planning and Environment	May 2023
V2	Jane Wickers	2 June 2023	Liz Caddick, Byron Shire Council	2 June 2023
Final	Jane Wickers	5 June 2023		

**Disclaimer:** While all reasonable care has been taken to ensure the information contained in this plan is up to date and accurate, no warranty is given that the information contained in the Plan is free from error or omission. Any reliance placed on such information shall be at the sole risk of the user. Please verify the accuracy of the information prior to using it.

**Note:** The information in this plan is subject to clarification or amendment due to changes in legislation, agencies and organisations over time. It is the responsibility of the user to ensure compliance with relevant legislation.

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### Acknowledgement

The People of the Bundjalung nation developed and maintained a deep and rich connection with the land of the Byron area. The land nourished all of the person, supplying physical, spiritual, cultural and identity necessities. We wish to acknowledge these First Peoples, and pay our respects to Elders - past, present and future.



### Scope of Work

1. Use ESRI ArcGIS software to overlay current aerial photography (Nearmaps and SIX maps) over Byron Shire Council vegetation. Modify the boundaries of the vegetation polygons to reflect changes in boundaries due to improved aerial photo accuracy and/or resulting from clearing.
2. Updates to vegetation type or addition of vegetation (e.g. recent restoration and habitat plantings) is not within the scope of the project.

### Datasets Used

#### Vegetation

- ✧ Byron Shire Council Vegetation mapping 2021. This dataset was originally created by Landmark Ecological Services and updated in 2021 by EarthScapes Consulting.

#### Aerial Photography

- ✧ NearMaps Byron Shire (latest available).
- ✧ NSW Spatial Services SIX Maps aerial photography.

### Project Location

ESRI's Arcgis Pro project file: Byron Shire Council's network location: G:\EPS\NATURAL ENVIRONMENT\Biodiversity\GIS\Veg2022\Veg2022.aprx  
G:\EPS\NATURAL ENVIRONMENT\Biodiversity\GIS\Veg22\Veg2022.aprx

#### Output datasets:

Updated Vegetation Mapping: G:\EPS\NATURAL ENVIRONMENT\Biodiversity\GIS\Veg2022\Veg\_Mapping\_2023\BSCVeg2023.shp

Projection is GDA 1994 MGA Zone 56

### Work Undertaken

Byron Shire Council's 2021 vegetation mapping was updated by reviewing boundaries against NearMaps aerial photography.

Where vegetation no longer exists, the area was excised and the reason for clearing noted in the spatial layer (eg. Road).



These areas were flagged in the spatial layer in the “ToDelete” field.

## Results

Table 1 shows that the mapping review resulted in the removal of a total area of 426.8 Ha of vegetation in Byron Shire since the mapping was last updated.

The reasons for this reduction in mapped vegetation include:

- More accurate mapping is possible with higher resolution, more current aerial photography.
- Vegetation communities dominated by exotic species like Camphor laurel have been cleared by some landholders.
- Vegetation clearing has occurred for development and a range of other reasons.

Table 1 - Area of vegetation cover removed from mapping by category.

Category	Area (Ha)
Beach	0.3
Buildings/Gardens/Driveway	77.7
Carpark	0.6
No vegetation cover (e.g. cleared agricultural land)	302.3
Footpath	0.2
Golf course	6.5
Quarry	0.4
Railway	2.2
Road	35.0
Sand	1.5
	<b>426.8</b>

Figure 1 shows the areas (in red) that have been removed from the vegetation mapping across Byron Shire.

Appendix 1 is a list of excised areas by vegetation community.

Note: it was beyond the scope of this project to update the mapping with additions to vegetation, e.g. where new areas have been planted. So the reduction in mapped vegetation of 426.8 ha does not represent a net change to vegetation cover in Byron Shire.

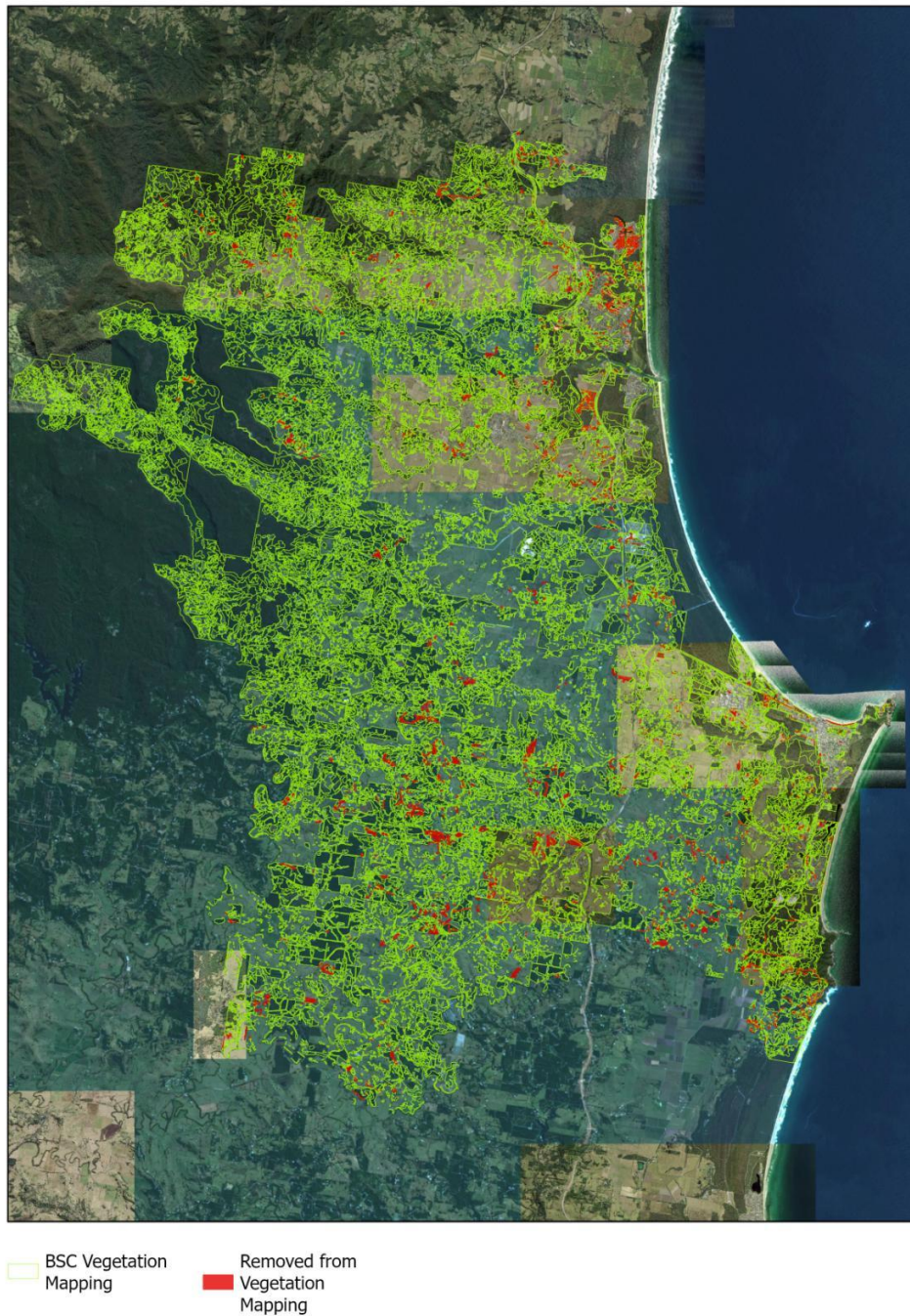


Figure 1- Areas excised from Byron Shire Council excised from vegetation mapping.

### Recommendations for Additional Work

#### Geocortex

- Update Geocortex vegetation mapping once reviewed.
- This version of the vegetation mapping still includes the 2017 HEV attributes. Once the 2022 HEV mapping has been finalised, these fields could be removed. The only fields to keep are shown in Table 2 below.
- Apply a filter to the data using the "Todelete" field. Note: The purpose of this field is to create a filter to remove these polygons, so they are not visible but there is a record of them. This does not have to be a visible field in Geocortex.

Table 2 – Fields to retain in updated vegetation mapping, following finalization of revised 2022 HEV mapping.

Field
ToDelete
LM_Vegtype
K_Hab
Plantation
Obs
Obs_Date
Locality
IVT_Field
PCT_Form
PCT_Class
PCT_Comm
PCT_Code
Notes
Map
Edit_notes
MLand_Code
Lscape_Nam
OC_Veg_type
VerDate
Plantai_1
Landscape_
Canopy_Des
Observatio
Shape_Area

#### Future and ongoing updates

- To maintain the currency of the vegetation mapping, the boundaries should be updated every 2 years using NearMaps aerial photography.

- Large areas have been planted with native vegetation or the habitat restored in recent years. It would be beneficial to update the mapping with these changes, as including these updates was beyond the scope of work of the current project. Information on recently planted areas is available on Council's *Vegetation – Restoration Mapping Project 2022* layer, and via the ALA koala habitat restoration database.
- Landslips associated with the 2022 flood event have not been mapped. This would be a useful spatial layer for Council staff.
- Review of the net gains and losses of vegetation in Byron Shire and reasons for this. To include:
  - Review of cleared areas identified and comparison with known clearing approvals for DAs.
  - Identification of authorised and unauthorised clearing on rural land, through review of clearing permitted for Private Forestry Agreements and other permitted purposes (e.g. clearing along fence lines).
  - Clarification of the extent of changes in mapped vegetation area that are a result of earlier mapping errors.
  - Identification of newly planted areas.

Appendix 1 - Area of Vegetation Communities being excised from vegetation mapping

<b>Vegetation Community</b>	<b>Area (Ha)</b>
Paperbark-Swamp Oak	0.1
Swamp Oak+Swamp Box, Forest Red Gum, Paperbark	0.1
Rainforest+Brush Box	0.1
Mangrove+Rainforest	0.1
Brush Box-Rainforest-Camphor Laurel	0.1
Hoop Pine-Rainforest+Brush Box	0.1
Paperbark-Wattle-Camphor Laurel	0.1
Flooded Gum-Camphor Laurel	0.1
Forest Red Gum-Paperbark+Rainforest	0.1
Swamp Oak-Sedgeland	0.1
Wattle-Privet	0.1
Swamp Mahogany+Forest Red Gum	0.1
Eucalypt-Brush Box-Rainforest	0.1
Blackbutt-Camphor Laurel	0.1
Hoop Pine-Brush Box-Rainforest	0.1
Littoral Rainforest+Brush Box	0.1
Paperbark+Hoop Pine	0.1
Camphor Laurel-Wattle-Coast Banksia	0.1
Blackbutt-Tallowood-White Mahogany	0.1
Brush Box+Camphor Laurel	0.1
Rainforest -Camphor Laurel+Paperbark	0.1
Red Mahogany-Brush Box-Willow Bottlebrush	0.1
Rainforest-Hoop Pine	0.1
Tallowood-Flooded Gum-Pink Bloodwood	0.1
Paperbark+Rainforest, Swamp Mahogany	0.1
Swamp Oak+Rainforest	0.1
Coast Banksia-Camphor Laurel-Rainforest	0.1
Teatree-Paperbark	0.1
Paperbark-Forest Red Gum	0.1
Paperbark-Swamp Box-Swamp Mahogany-Teatree	0.1
Paperbark-Camphor Laurel-Swamp Oak	0.1
Pink Bloodwood	0.1
Eucalypt-Paperbark	0.1
Blackbutt+Tallowood, Brush Box	0.1
Littoral Rainforest+Eucalypt	0.1
Eucalypt-Camphor Laurel	0.1
Paperbark+Swamp Oak, Swamp Box, Rainforest	0.1
Swamp Mahogany-Brush Box	0.1
Blackbutt+Tallowood, Pink Bloodwood, Brush Box	0.1
Wattle-Camphor Laurel-Rainforest	0.1
Coast Cypress-Rainforest-Coast Banksia	0.1
Forest Red Gum-Grey Ironbark-Blackbutt-Bloodwood	0.1
Slash Pine-Paperbark	0.1
Tallowood+Brush Box, Pink Bloodwood	0.1
Brush Box-Swamp Oak	0.1
Mixed Eucalypt-Rainforest	0.1
Swamp Oak-Eucalypt	0.1
Swamp Box-Pink Bloodwood-Grey Ironbark-Rainforest	0.1
Brush Box-Bangalow Palm-Rainforest	0.1
Tuckeroo-Coast Banksia	0.1
Coast Cypress-Coast Banksia-Wattle	0.1

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.2 - ATTACHMENT 3

Mangrove +Forest Red Gum, Rainforest	0.1
Blackbutt-Brush Box	0.1
Paperbark+Camphor Laurel	0.1
Forest Red Gum-Swamp Oak	0.1
Forest Red Gum-Littoral Rainforest	0.1
Coast Wattle-Swamp Oak	0.1
Scribbly Gum-Blackbutt-Grey Ironbark	0.1
Brush Box headland rainforest	0.1
Coast Banksia-Eucalypt-Rainforest	0.1
Swamp Oak+Pink Bloodwood, Swamp Box	0.1
Coast Banksia-Camphor Laurel	0.1
Coast Wattle-Tuckeroo	0.1
Swamp Mahogany+Paperbark	0.1
Brush Box-Forest Red Gum-Grey Ironbark	0.1
Rainforest+Hoop Pine	0.1
Lantana	0.1
Eucalypt-Brush Box	0.1
Pink Bloodwood-Blackbutt	0.1
Wattle-Rainforest-Slash Pine	0.1
Brush Box-Tallowwood-Rainforest	0.1
Grey Ironbark	0.1
Paperbark-Rainforest-Swamp Oak	0.1
Coast Banksia-Littoral Rainforest	0.1
Rainforest-Brush Box-Camphor Laurel	0.1
Brush Box+Mixed Eucalypt	0.1
Coast Banksia-Coast Wattle-Rainforest	0.1
Wattle-Paperbark+Teatree	0.1
Grey Ironbark-Pink Bloodwood	0.1
Paperbark-Rainforest regrowth	0.2
Eucalypt-Rainforest-Camphor Laurel	0.2
Tobacco-Lantana	0.2
Paperbark-Pink Bloodwood-Swamp Mahogany	0.2
Grey Ironbark-Blackbutt	0.2
Tallowwood-Brush Box+Bloodwood, Swamp Mahogany	0.2
Blackbutt-Grey Ironbark	0.2
Flooded Gum-Brush Box-Camphor Laurel	0.2
Blackbutt+Brush Box, Ironbark, Pink Bloodwood	0.2
Hoop Pine	0.2
Forest Red Gum+Swamp Oak, Paperbark, Swamp Box	0.2
Swamp Oak-Rainforest	0.2
Blackbutt+Tallowwood, Pink Bloodwood	0.2
Forest Red Gum-Swamp Oak+Swamp Mahogany	0.2
Coast Cypress-Rainforest	0.2
Swamp Oak+Swamp Box	0.2
Rainforest-Brush Box	0.2
Brush Box+Rainforest	0.2
Forest Red Gum+Rainforest, Brush Box	0.2
Paperbark-Rainforest+Landscaping	0.2
Slash Pine-Camphor Laurel-Wattle-Rainforest	0.2
Paperbark+Swamp Mahogany	0.2
Brush Box-Coast Banksia-Rainforest	0.2
Wattle-Eucalypt-Camphor Laurel	0.2
Brush Box-Tallowwood	0.2
Camphor Laurel-Lantana	0.2
Forest Red Gum-Swamp Oak-Paperbark-Swamp Mahogany	0.2

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.2 - ATTACHMENT 3

Paperbark-Swamp Oak-Camphor Laurel	0.2
Flooded Gum-Rainforest-Privet	0.2
Brush Box-Grey Ironbark+Pink Bloodwood, Blackbutt	0.2
Flooded Gum	0.2
Brush Box	0.2
Forest Red Gum+Paperbark	0.2
Blackbutt+Grey Ironbark	0.2
Paperbark-Swamp Mahogany	0.2
Blackbutt-Grey Ironbark-Tallowwood	0.2
Paperbark+Swamp Oak	0.3
Blackbutt+Tallowwood	0.3
Paperbark-Teatree-Rainforest	0.3
Eucalypt-Rainforest	0.3
Tallowwood-Brush Box	0.3
Rainforest-Wattle-Coast Cypress	0.3
Blackbutt+Bloodwood, Swamp Mahogany	0.3
Camphor Laurel-Slash Pine	0.3
Wattle-Forest Red Gum+Paperbark, Camphor Laurel	0.3
Tallowwood-Pink Bloodwood	0.3
Brush Box-Wattle-Ironbark	0.3
Mangrove	0.3
Coast Banksia regrowth	0.3
Paperbark+Rainforest	0.3
Brush Box-Eucalypt	0.3
Rainforest+Paperbark	0.3
Forest Red Gum+Swamp Oak, Swamp Box, Paperbark	0.3
Wattle-Rainforest-Eucalypt	0.3
Mixed Eucalypt-Brush Box	0.3
Hoop Pine-Rainforest	0.4
Blackbutt+Brush Box	0.4
Swamp Oak+Paperbark, Eucalypt	0.4
Sedgeland-Fernland-Grassland	0.4
Tallowwood-Swamp Mahogany-Forest Red Gum	0.4
Eucalypt-Wattle-Camphor Laurel	0.4
Eucalypt-Swamp Oak-Rainforest	0.4
Forest Red Gum	0.4
Coast Banksia	0.4
Swamp Oak-Paperbark-Wattle	0.4
open water-Forbland-Sedgeland	0.4
Rainforest-Coast Banksia	0.4
Swamp Mahogany-Paperbark	0.4
Swamp Oak-Mangrove	0.4
Slash Pine	0.4
Willow Bottlebrush-Wattle	0.5
Rainforest+Wattle	0.5
Rainforest-Wattle	0.5
Eucalypt	0.5
open water	0.5
Coast Cypress	0.5
Wattle-Mixed regrowth	0.5
Brush Ironbark Wattle	0.5
Native Guava-Coast Banksia-Three-veined Laurel	0.5
Swamp Oak-Paperbark	0.5
White Mahogany-Pink Bloodwood-Blackbutt	0.6
Paperbark-Rainforest-Camphor Laurel	0.6



Camphor Laurel-Wattle-Privet	0.6
Mixed Eucalypt-Rainforest-Wattle	0.6
Willow Bottlebrush-Rainforest	0.6
Ficus	0.7
Coast Banksia-Wattle-Tuckeroo	0.7
Paperbark-Rainforest	0.7
Flooded Gum-Wattle-Camphor Laurel	0.7
Rainforest regrowth	0.7
Swamp Mahogany	0.7
Tallowwood	0.8
Tallowwood-Flooded Gum-Brush Box	0.8
Wattle-Camphor Laurel	0.8
Mixed Regrowth	0.8
Rainforest -Camphor Laurel+Hoop Pine	0.9
Forest Red Gum-Swamp Mahogany	0.9
Forest Red Gum-Paperbark	0.9
Coast Banksia-Rainforest	0.9
Wattle-Rainforest	1.0
Scribbly Gum	1.1
Swamp Oak+Paperbark	1.1
Paperbark-Teatree+Camphor Laurel	1.2
Wattle-Rainforest-Camphor Laurel	1.4
Forest Red Gum-Swamp Mahogany-Pink Bloodwood	1.7
Coast Wattle-Coast Banksia	1.7
Wattle	1.9
Littoral Rainforest	2.2
Brush Box-Rainforest	2.3
Blackbutt	2.7
Black Sheoak-Rainforest-Brush Box	2.8
Camphor Laurel-Privet-Rainforest regrowth	3.8
Mixed Eucalypt	4.0
Paperbark-Teatree	6.6
Swamp Oak	6.6
Paperbark	10.8
Rainforest+10-50% Camphor Laurel	26.0
Rainforest	31.7
Camphor Laurel 51-80%	69.0
Camphor Laurel >80%	97.1
PL *	103.5

\*PL refers to Plantations, including the following plantation types:

- Eucalyptus species inc Koala plantings
- Exotic Pine
- Hoop Pine
- Rainforest mixed species plantings includes Paperbark sclerophyll.
- Orchard
- Landscaping/Mixed Plantings mainly exotic species.

## **Report No. 4.3      Future Discussion Items for Biodiversity Advisory Committee**

**Directorate:**                      Sustainable Environment and Economy

**Report Author:**                Lizabeth Caddick, Biodiversity Officer

5    **File No:**                        I2023/624












### **Summary:**

10    This report summarises reports and information requested by the Biodiversity Advisory Committee. These requests, resourcing and alignment with Council's Operational Plan are tabled for discussion by the committee, to resolve whether these requests are taken to Council for consideration for inclusion in a future Council OP and budget.

### **RECOMMENDATION:**

15    **That the Biodiversity Advisory Committee notes the report.**

### **Attachments:**

- 20    1    Attachment 1 - Threatened Species Monitoring on Council Land - 17 Aug 2023, E2023/78469 , page 116 [↓](#) 
- 2    2    Lilly Pilly - Biobanking Agreement - SITE action plan\_ Lilly Pilly BBA\_final 6 March 2020, E2023/40251 , page 124 [↓](#) 
- 3    3    Lilly Pilly - Biobanking Agreement - BA 352 Annual report and BCT Audit Template - Yr 3 - 27 June 2021 to 27 June 2022, E2023/40252 , page 223 [↓](#) 
- 25    4    Lilly Pilly - Biobanking Agreement - BA352 Active audit letter - Yr 3 Sep 2022 - payment released AMP4, E2023/40253 , page 232 [↓](#) 
- 5    5    Lilly Pilly - Biobanking Agreement - BA 352 - site inspection & photopoint monitoring templates, E2023/40254 , page 245 [↓](#) 
- 30    6    Lilly Pilly - Biobanking Agreement - Active agreement letter - Yr 1 Aug 2019 - BSA 352, E2023/40255 , page 247 [↓](#) 
- 7    7    Lilly Pilly - Biobanking Agreement - BA 352 Annual Report and BCT Audit Template - Yr 2 - 27 June 2020 to 27 June 2021 - unsigned, E2023/40258 , page 249 [↓](#) 
- 8    8    Lilly Pilly - Biobanking Agreement - BA 352\_Lilli Pilli BioBanking Agreement final version, E2023/40259 , page 258 [↓](#) 
- 35    9    Lilly Pilly - Biobanking Agreement - BA 352 Annual Report audit letter - Yr 2 - 27 June 2020 to 27 June 2021 - payment released, E2023/40260 , page 322 [↓](#) 
- 10    10    Lilly Pilly - Biobanking Agreement - Supplementary Reports combined\_Year 2 - July 2021, E2023/40261 , page 333 [↓](#) 
- 40    11    Lilly Pilly - Biobanking Agreement - Lilli Pilli Photo Monitoring, E2023/40263 , page 361 [↓](#) 



## Report

The following requests for reports or information have been received by Biodiversity Advisory Committee members:

Information requested	Resourcing	Operational Plan & other Council Strategies
<p><b>Council lands being managed for Biodiversity.</b></p> <p>Which threatened communities and/or species are being managed in each of the Council-managed areas listed below and is management and monitoring revealing any positive outcomes?</p> <p>i) sections of West Byron STP including Cell H and areas of forest, woodland and shrubland in the NW part of the site,</p> <p>ii) Valances Road STP including (?) land linking to the Ocean Shores STP,</p> <p>iii) land to the east of Lilli Pilli Drive,</p> <p>iv) land to the east of the Byron Bypass, and</p> <p>v) an informal flora reserve adjacent to the southern boundary of Brunswick Heads Nature Reserve off</p>	<p>Note: not all of the sites requested are managed by Council:</p> <ul style="list-style-type: none"> <li>- Council does not manage any land linking Vallances Rd STP with Ocean Shores STP.</li> <li>- Land to the east of the Byron Bypass (Lot 2 DP1289363) is owned by the Transport Asset Holding Entity of NSW.</li> <li>- The informal flora reserve adjacent to the southern boundary of Brunswick Heads Nature Reserve off Bashforth Trail (Lot 58 DP755692) is owned by Tweed Byron Local Aboriginal Land Council.</li> </ul> <p>Attachment 1 gives a summary of current Council maintenance and monitoring actions at:</p> <p>i) West Byron STP</p> <p>ii) Valances Road STP</p> <p>iii) land to the east of Lilli Pilli Drive</p> <p>iv) land to the east of the Byron Bypass</p> <p>As per the information below it is recommended that:</p> <p>a) For STP sites BAC members can review the</p>	<p>There is no activity in Council's OP that directly resources this action.</p> <p>The following OP action provides indirect support:</p> <p><b>OP 3.1.3.6</b> Undertake bush regeneration activities to maintain and expand restoration of HEV sites on Council owned or managed lands forming part of the Council bush regeneration program.</p> <p>Council is currently developing a Biodiversity Management Plan for West Byron STP that will guide future threatened species monitoring and reporting at this site.</p>

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

4.3

Information requested	Resourcing	Operational Plan & other Council Strategies
<p>Bashforth Trail.</p> <p>It would be valuable for Council and the community generally to know that areas of Council land are being managed for the conservation of particular threatened communities and species. Public dissemination of this information could have positive benefits for Council in promoting a favourable public image, particularly in light of Byron Shire's location at the centre of one of the most biodiverse regions in Australia and its significance for maintaining refugial populations of many species with Gondwanan lineages.</p> <p><b>Requested by:</b> David Milledge &amp; Peter Westheimer 18/4/2023</p>	<p>Biodiversity Management Plan when the draft is available later in the year.</p> <p>b) For Biobanking sites (Lilli Pilli drive), BAC members can review the attached monitoring reports if these are of interest.</p> <p>In addition, Dave Filipczyk, bush regen team leader, is happy to present his restoration data to a future BAC meeting or show members some of the results on-site.</p> <p>Note also, as per Biodiversity Conservation Strategy Action 1.11, updated threatened species lists for Byron Shire have recently been added to Council's website <a href="https://www.byrongov.au/threatened-species-of-plants-and-animals-in-byron-shire">Threatened species of plants and animals in Byron Shire - Byron Shire Council (nsw.gov.au)</a></p>	

## Strategic Considerations

### Community Strategic Plan and Operational Plan

CSP Objective	CSP Strategy	DP Action	Code	OP Activity
<b>3: Nurtured Environment</b>	3.1: Partner to nurture and	3.1.3: Habitat restoration -	3.1.3.6	Undertake bush regeneration activities

## BYRON SHIRE COUNCIL

### STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

4.3

We nurture and enhance the natural environment	enhance our biodiversity, ecosystems, and ecology	Restore degraded areas that provide high environmental or community value		to maintain and expand restoration of HEV sites on Council owned or managed lands forming part of the Council bush regeneration program
<b>3: Nurtured Environment</b> We nurture and enhance the natural environment	3.2: Deliver initiatives and education programs to encourage protection of our environment	3.2.3: Planning - Plan to improve the quality of the natural environment	3.2.3.1	Update flora and fauna lists for the shire, including status of threatened flora and fauna.

### Recent Resolutions

N/A

### Legal/Statutory/Policy Considerations

5 N/A

### Financial Considerations

No detailed costings for requested items provided at this stage.

### Consultation and Engagement

N/A

10

## Attachment 1:

### Current threatened species monitoring on Council-managed land.

Council's restorations team are currently working on 90 sites, all of which have threatened species on them. However they do not have resources for ecological monitoring, and implementing a monitoring program across Council sites would be very costly. If this were considered a priority in future, it is essential that monitoring is not funded from the restorations budget, as all these funds are needed to enable the restorations team to restore and maintain these sites.

The biodiversity team are not currently resourced to do extensive surveys and monitoring across Council's estate. However staff do undertake monitoring of priority threatened species. Staff undertake a quarterly flying fox census at 6 flying fox camps on Council/Crown land. Council also undertakes koala activity surveys in the Coastal Koala Plan of Management Area, and we are able to do this due to grant funding from NSW DPE under the NSW Koala Strategy. The NSW Koala strategy has also recently funded monitoring to assess the impacts of the 2022 floods on koala habitat plantings, on both Council and private land in Byron Shire. 12-month post flood monitoring is currently underway and can be reported to the BAC once the monitoring program is complete.

### Council Sewage Treatment Plants (STPs)

**[Including West Byron STP Cell H and areas of forest, woodland and shrubland in the NW part of the site, and Vallances Road STP including land linking to the Ocean Shores STP]**

Note: Council does not manage any land linking Vallances Rd STP with Ocean Shores STP.

The bush regen team manage 14 sites, covering over 300ha, at Council's STPs. Current work sites include Cells D, E and H at West Byron Wetlands, plus sites at Vallances Rd and Bangalow STP. Once all these sites are at a maintenance level, the team will have capacity to move on to other priority sites, including the NW section of West Byron STP.

At W Byron STP, Council's bush regen team work in Cells D, E and H 4-5 times/year (hours worked are presented in Table 1 below). They have spent 100s of hours getting rid of hairy commelina and have recently got on top of salvinia in Cell H by reintroducing the salvinia weevil. It is hoped the weevil will also take off in the other cells as the weather warms later in the year. In the northern area they do targeted groundsel eradication but, to date, haven't done any more intensive regen work in this area as they are currently focussing on other sites.



**Table 1. Bush Regeneration hours at West Byron Wetlands**

Location	Year	Hours worked	Cost
West Byron Wetlands	2019-20	2938	\$161,590
West Byron Wetlands	2020-21	1518.5	\$83,517
West Byron Wetlands	2021-22	1161	\$63,855

Council is currently developing a Biodiversity Management Plan for West Byron STP, in partnership with Australian Wetlands Consulting (AWC). This plan is intended to collate other biodiversity and ecological reports that have been developed previously for different parts of the site, into one simpler, more accessible document. The Biodiversity Management Plan will list all threatened species that have been recorded from the site (Table 2), and will include a monitoring plan. The draft plan should be complete by August 2023 and Council will be seeking some expert peer review of the plan and would welcome review by interested BAC members.

As part of the Biodiversity Management Plan, AWC would like to establish a reference group for the site, including Council operations staff as well as stakeholder groups such as Byron Bird Buddies and ecological/wetland experts. To date AWC have been prioritising some immediate site management actions (e.g. acid sulfate soils), but they see a reference group as a good opportunity to bring different skill sets together to guide management of this large and complex site.

AWC report that some preliminary monitoring has begun, and seasonal monitoring for Grass Owl, Wallum Froglet and Wallum Sedge Frog is planned for later in the year. Since salvinia has been removed from Cell H, Byron Bird Buddies have reported an increase in waterbird use, however there are some complexities in trying to manage this site for both Comb-crested Jacana and migratory shorebirds, which require different water depths. Monitoring reports can be provided to the BAC as they become available.

Monitoring of Avifauna at West Byron Wetlands and Valances Rd is done by Byron Bird Buddies, funded by Council's Utilities department. The most recent BBB report was reported to the BAC on 15 September 2022 (I2022/1178).

**Table 2 Threatened fauna known to occur within the Byron Bay Integrated Waste Management Reserve**

Scientific name	Common name	BC Act	EPBC Act	Potential Habitat within BBIWMR	Specific Habitat Requirements
<b>Amphibians</b>					
<i>Crinia tinnula</i> *	Wallum Froglet	V		Frog & Grass Owl Habitat, Constructed Treatment Cells (F, G, J and I), Cell H	PH range 3-5.7
<i>Litoria olongburensis</i> *	Wallum Sedge Frog / Olongburra Frog	V	V	Frog & Grass Owl Habitat, Constructed Treatment Cells (F and G)	PH range from 3 – 5.7, dense sedges, moist substrate, water
<b>Birds</b>					
<i>Amauornis moluccana</i>	Pale-vented Bush-hen	V		24 Hectare Melaleuca Regeneration Habitat, Frog & Grass Owl Habitat	Dense edge vegetation, Paperbark forest. Nests in middle of dense sedges
<i>Anseranatidae semipalmata</i>	Magpie Goose	V		Constructed Treatment Cells (D, EI and J), Cell H	Open water, wet marshlands
<i>Botaurus poiciloptilus</i> *	Australasian Bittern	E	E	Cell H, Constructed Treatment Cells (F and G)	Dense sedge edges, wet sedge/marsh, ephemeral open water
<i>Calidris ferruginea</i>	Curlew Sandpiper	E	CE	Cell H, Constructed Treatment Cells (D and E)	Mudflats

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 1

Scientific name	Common name	BC Act	EPBC Act	Potential Habitat within BBIWMR	Specific Habitat Requirements
<i>Calyptrorhynchus lathamii</i>	Glossy Black-Cockatoo	V		24 Hectare Melaleuca Regeneration Habitat, Frog & Grass Owl Habitat	Sheoaks in coastal forests and woodlands, timbered watercourses, and moist and dry eucalypt forests of the coast and the Great Divide up to 1,000 m.
<i>Ephippiorhynchus asiaticus</i> *	Black Necked Stork	E		Cell H	Open water fringes up to about 30cm depth. Primarily feeds on eels and mullet
<i>Grus rubicunda</i>	Brolga	V		Cell H	Open water and associated edges
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V		Whole site may provide foraging habitat	Coastal habitats and around terrestrial wetlands characterised by the presence of large areas of open water (larger rivers, swamps, lakes, ocean).
<i>Hirundapus caudacutus</i>	White-throated Needletail		V	Whole site may provide foraging habitat	Aerial foraging generally over woodland and forest.
<i>Irediparra gallinacean</i> *	Comb-crested Jacana	V		Cell H	Lily pads/open water and dense sedge edges
<i>Ixobrychus flavicollis</i> *	Black Bittern	V		Cell H, Constructed Treatment Cells (F and G)	Dense vegetated edges (wet heath) Tree or shrub vegetation adjacent to watercourses
<i>Ptilinopus regina</i>	Rose-crowned Fruit Dove	V		24 Hectare Melaleuca Regeneration Habitat, Frog &	Subtropical and dry rainforest, moist eucalypt forest and swamp forest.

Scientific name	Common name	BC Act	EPBC Act	Potential Habitat within BBIWMR	Specific Habitat Requirements
				Grass Owl Habitat, Coastal Wetland	
<i>Sternula albifrons</i>	Little Tern	E		n/a	Almost exclusively coastal, preferring sheltered environments; low dunes or on sandy beaches
<i>Stictonetta naevosa</i>	Freckled Duck	V		Cell H	Open water, wet sedge/marsh with sedge edges
<i>Tyto capensis</i> <sup>#</sup>	Eastern Grass Owl	V		Frog & Grass Owl Habitat	Areas of tall grass, including tussocks in swampy areas, grassy plains, swampy heath, cane grass, sedges on flood plains.
<b>Insectivorous Bats:</b>					
<i>Miniopterus australis</i>	Little Bentwing Bat	V		24 Hectare Melaleuca Regeneration Habitat, Cell H, Constructed Treatment Cells (D and E)	Forage over open water, roost in caves, sometimes in tree hollows (bat roost boxes)
<i>Myotis macropus</i>	Southern Myotis	V		24 Hectare Melaleuca Regeneration Habitat, Cell H, Constructed Treatment Cells (D, E, F and G)	Forage over open water, Potential roost sites in dense forest (bat roost boxes)
<i>Pteropus poliocephalus</i>	Grey-headed Flying Fox	V	V	24 Hectare Melaleuca Regeneration Habitat, Coastal Wetland, Constructed	Nectar, fleshy fruits. Roosts at colonial sites

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 1

Scientific name	Common name	BC Act	EPBC Act	Potential Habitat within BBIWMR	Specific Habitat Requirements
				Treatment Cells (F and G)	
<i>Syconycteris australis</i>	Common Blossom Bat	V		24 Hectare Melaleuca Regeneration Habitat, Coastal Wetland, Constructed Treatment Cells (F and G)	Nectar, fleshy fruits. Roosts in dense foliage
<b>Mammalia</b>					
<i>Phascolarctos cinereus</i>	Koala	E	E	Recorded from Swamp Mahogany ( <i>Eucalyptus robusta</i> ) on southwest edge of Cell H. <b>Main habitat outside of BBIWMR</b>	Koala feed tree species (not present with BBIWMR)
<i>Planigale maculata</i>	Common Planigale	V		STP Future Development Area, Coastal Wetland, Frog & Grass Owl Habitat	Dense ground strata – prey items House Mouse, Insects, Pollen
<i>Potorous tridactylus</i>	Long-nosed Potoroo	V	V	Coastal Wetland, Frog & Grass Owl Habitat	Inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat.
<b>Gastropoda</b>					
<i>Thersites mitchellae</i>	Mitchell's Rainforest Snail	E		STP Future Development Area, Coastal Wetland, Frog & Grass Owl Habitat, 24 Hectare Melaleuca	Lowland subtropical and swamp forest

Scientific name	Common name	BC Act	EPBC Act	Potential Habitat within BBIWMR	Specific Habitat Requirements
				Regeneration Habitat	

CE = Critically Endangered; E = Endangered; V = Vulnerable

- NB:
- Under the conditions laid out in NPWS Concurrence Report, Byron Shire Council has specific obligations to consider potential impacts on species marked with \* when undertaking activities with the BBIWMR
  - Targeted fauna surveys should be undertaken for species marked with # to confirm presence within the BBIWMR
  - While some species (listed above), such as the Koala, Grey-headed Flying-fox and White-bellied Sea Eagle, have been recorded within the BBIWMR, they are not considered to have optimal habitat within the reserve. Specific mitigation measures have thus not been designed for these species.

At Valances Rd, the bush regen team is currently working in 6 zones. 3 of these zones are at maintenance level and one is close.

Ocean Shores STP site is not currently being worked although it has been in the past. The team will move onto this site once all the aforementioned STP sites are at a maintenance level – this should be fairly soon as Bangalow and Vallances Rd STPs are close to maintenance level. Their work is much more effective if they focus on fewer sites at a time, rather than spreading themselves across all 140 council sites requiring management. In total they are currently working 90 sites, with 50 more on the list. The land between Valances Rd STP and Ocean Shores STP is private, with 4 separate landholders.

At Valances Rd, Earthscapes have also been engaged to do photo point monitoring, which began 1 year ago. Valances Rd, Ocean Shores and West Byron STP sites are also included in Council's koala activity monitoring program.

**Land to the east of Lilli Pilli Drive. Includes: Lot 66 DP863772, Lot 46 DP860353, Lot 47 DP854800, Lot 46 DP848543, Lot 24 DP845454, Lot 7 DP809005.**

This is a biobanking site, set up as part of the offsets for the Byron Bypass. As such, flora and fauna have been surveyed and there has been rigorous six-monthly monitoring and annual reporting by Earthscapes for the past 4 years (Attachments 1-10).

The restorations team currently work at this site and it is at a maintenance level for most weeds, although they are having difficulty eradicating salvinia from the melaleuca swamp.



**Land to the east of the Byron Bypass - Lot 2 DP1289363**

This site is owned by the Transport Asset Holding Entity of NSW. Council's bush regeneration team leader has contacted them to request funding for restoration, but so far none has been forthcoming. To date Council has funded restoration of the smaller section of this land immediately north of the bus station (Figure 1 below). Council has also funded restoration of Butler St Reserve (Figure 1), as part of the above and beyond compensatory works for the Byron bypass. Both sites are close to a maintenance level.



**Figure 1. Council restoration sites adjacent to Butler St**



## FULL SITE ACTION PLAN

### Lilly Pilly Swamp Byron Bay

March 2020



*Report prepared for Byron Shire Council  
by Earthscapes Consulting Pty Ltd  
version 3: March 6<sup>th</sup>, 2020.*



Lilly Pilly Swamp -Site Action Plan

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Lilly Pilly Swamp -Site Action Plan

## SITE ACTION PLAN SUMMARY

This Site Action plan was prepared by Earthscapes Pty Ltd at the request of Byron Shire Council (the landowner) to aid in the implementation of the Biobanking Agreement (ID BA352) for Lilly Pilly Swamp in Byron Bay. The following credits have been issued and the Total Fund Deposit has been achieved through BSC purchase of the credits. Credits are achieved through permanent protection of the land on the land title and annual payments are made by the Biodiversity Conservation Trust, based on the future gain in biodiversity values on the site. Annual monitoring and reporting are required, and the site and reporting may be subject to audit (with notice only).

### Ecosystem credits summary

Plant Community Type	Area (ha)	Credits created	Credits created after application of additionality of 20%
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	7.69	80.00	64.00
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	0.96	8.00	6.00
<b>Total</b>	8.65	88	70

### Species credits summary

Common name	Scientific name	Extent of impact Ha or individuals	Number of species credits created	Credits created after application of additionality of 20%
Mitchell's Rainforest Snail	<i>Thersites mitchellae</i>	8.65	61	49

Council have received the first year's funding under the Agreement and have commenced restoration work on the site.

The aim of this plan is to ensure that Lilly Pilly Swamp is managed in perpetuity to retain and improve the inherent biodiversity values following the *Biodiversity Banking and Offsets Scheme* Biobanking agreement ID number BA352

The plan summarizes and clarifies all the on-ground tasks required by the terms of the Agreement to be undertaken or required not to be undertaken; as well as advising of the legislative and physical constraints that apply to staff working on the site.

This Summary of the larger plan (first 10 pages) is intended to be printed out for use by the project team leader. It explains in brief the tasks required to be achieved on the ground for each of Years 1 to 6, and then on an ongoing basis, and the extent of funds allocated to each. It explains monitoring and reporting requirements in brief and attaches pro-forma and maps. Any detail not sufficiently understood will have more detail provided on that subject in the **Appendix** document.



Lilly Pilly Swamp -Site Action Plan

The plan provides specific detail to guide on-ground actions to ensure compliance with the Biobanking Agreement Management Plans including weed control, feral pest management, fire and grazing avoidance and human disturbance. It includes restoration actions, monitoring and reporting methods and pro-forma to complete annually, with templates included in the final Appendix.

Earthscapes provides additional recommendations regarding adaptation of management actions (should monitoring indicate the necessity to do so); considerations for methods to safely introduce small-scale, low intensity ecological burning to avoid the long-term loss of koala habitat and primary Koala food trees and protection of leaf litter and habitat for Mitchells Rainforest Snail.

A summary of tasks timing and budget available for Years 1-6 is provided here.

**Year 1 -Tasks, timing and budget**

<b>Task</b>	<b>Timing</b>	<b>Budget</b>
Primary weed control, all species	3-4 sessions during year	\$12,000
Install Biobank signage – Standard OEH BioBanking signage is to be installed at the four primary biobank site entrances, as shown on Figure 5 Property action plan	Prior to June 30,2020	\$250
Install fence along western edge, with gate, as per site action plan -550 m of 4-strand plain wire and star pickets with timber posts at corners.	Prior to June 30, 2020 Intent is to delineate the biobank site from nearby residential properties and to assist in controlling impacts from human access	\$5250
Rubbish removal and remove wire from old fence as per Property action plan	Prior to June 30. 2020	\$2400
Vertebrate pest control - feral cats and foxes -Baiting and/or active trapping are only methods in current Management Plan	Initiate feral pest survey to determine presence - prior to June 30	\$1200
Project management, landowner monitoring and reporting (Earthscapes)	Monitoring - six-monthly Reporting – annually - after completion of Year 1 works	\$2900
Annual reporting - to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site</b>		<b>\$24,000</b>
GST	Paid annually	\$2400
<b>TOTAL YEAR 1</b>		<b>\$26,400</b>





Lilly Pilly Swamp -Site Action Plan

**Year 2 -Tasks, timing and budget**

<b>Task</b>	<b>Timing</b>	<b>Budget</b>
Primary weed control, all species	3-4 sessions during year	\$12,000
Fire prevention	Annual slashing/mowing edges	\$900
Fence and gate maintenance	Annual payment Ongoing from Year 2	\$450
Project management, landowner monitoring and reporting	Monitoring - six-monthly Reporting - annually -after completion of Year 2 works	\$2900
Annual reporting fee to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site</b>		<b>\$16250</b>
GST	Paid annually	\$1625
<b>TOTAL YEAR 2</b>		<b>\$17875</b>

**Year 3 -Tasks, timing and budget**

<b>Task</b>	<b>Timing</b>	<b>Budget</b>
Primary weed control (all species except Bamboo, which is funded Year 1 and 2 only)	3-4 sessions during year	\$7200
Vertebrate pest control – foxes, feral cats – baiting, trapping	Ongoing	\$1200
Fence and gate maintenance ongoing		\$450
Project management, landowner monitoring and reporting	Monitoring - six-monthly Reporting - annually -after completion of Year 2 works	\$2900
Annual reporting fee to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site</b>		<b>\$11750</b>
GST	Paid annually	\$1175
<b>TOTAL YEAR 3</b>		<b>\$12,925</b>



Lilly Pilly Swamp -Site Action Plan

**Year 4 -Tasks, timing and budget**

<b>Task</b>	<b>Timing</b>	<b>Budget</b>
Weed control in perpetuity, all species	3 sessions during year	\$2700
Fire prevention	Annual slashing edges	\$900
Fence and gate maintenance ongoing	Check and fix every two years	\$450
Project management, landowner monitoring and reporting	Monitoring - six-monthly Reporting – annually - after completion of Year 1 works	\$2900
Annual reporting fee to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site</b>		<b>\$6950</b>
GST	Paid annually	\$695
<b>TOTAL YEAR 4</b>		<b>\$7645</b>

**Year 5 -Tasks, timing and budget**

<b>Task</b>	<b>Timing</b>	<b>Budget</b>
Weed control in perpetuity, all species	3 sessions during year	\$2700
Fence and gate maintenance		\$450
Vertebrate pest control – foxes, feral cats – baiting, trapping	Ongoing	\$1200
Project management, landowner monitoring and reporting	Monitoring - six-monthly Reporting – annually - after completion of Year 1 works	\$2900
Annual reporting fee to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site</b>		<b>\$7250</b>
GST	Paid annually	\$725
<b>TOTAL YEAR 5</b>		<b>\$7975</b>



Lilly Pilly Swamp -Site Action Plan

**Year 6 and ongoing -Tasks, timing and budget**

<b>Task</b>	<b>Timing</b>	<b>Budget</b>
Ongoing weed control, all species	3 sessions during year Ongoing from Year 6 onward	\$2700
Weed Management Plan review and vegetation condition assessment	Prior to June 30, 2025	\$2600
Fire prevention	Annual slashing edges	\$900
Vertebrate pest control plan review	Prior to June 30, 2025	\$1600
Fence and gate maintenance in perpetuity	Annual check and fix	\$450
Project management, landowner monitoring and reporting (	Monitoring – twice @ 6-months Reporting – annually - after completion of Year 1 works Paid annually from Year 6 onwards	\$1800
Annual reporting fee to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site Year 6</b>		<b>\$10050</b>
GST	Paid annually	\$1005
<b>TOTAL YEAR 6</b>		<b>\$11055</b>



Lilly Pilly Swamp -Site Action Plan

Monitoring



Lilly Pilly Swamp -Site Action Plan

## INTRODUCTION

This Site Action plan was prepared by Earthscapes Pty Ltd at the request of Byron Shire Council (the landowner) to aid in the implementation of the Biobanking Agreement (ID BA352) for Lilly Pilly Swamp. The reserve's locational and physical attributes are described below.

LILLY PILLY SWAMP	
Location Detail	
<b>Lot Numbers</b>	Lot 66 DP 863772 Lot 7 in DP 809005 Lot 24 in DP 845454 Lot 46 in DP 848543 Lot 46 in DP 860353 Lot 47 in DP 854800
<b>Address</b>	Lilly Pilly Drive Byron Bay NSW 2482
<b>Land use zoning</b>	E2
<b>Ownership</b>	Byron Shire Council
<b>Property size</b>	8.65ha

The landowner has agreed to undertake the management actions and implement the management plans to improve the biodiversity values of the biobank site as set out in the Biobanking Agreement (tabled here within Appendix 1), as well as to monitor, report and keep records as required by the Agreement.

Details for management actions, monitoring and reporting are provided in this Action Plan.

The biobank site is shown in Figure 1: *Biobank site boundary; Lilly Pilly biobank site*, dated 13/06/2017 in Appendix 1.

### Aim

- To ensure that Lilly Pilly Swamp is managed in perpetuity to retain and improve the inherent biodiversity values following the *Biodiversity Banking and Offsets Scheme* Biobanking agreement ID number BA352

### Objectives

- to provide specific detail to guide on-ground actions to ensure compliance with the Biobanking Agreement Management Plans
- To monitor restoration actions and adapt the management actions as required
- To report on the implementation of the actions and review the success of methodology



## SITE DESCRIPTION

### Location and context

Lilly Pilly Swamp lies on the edge of the village of Byron Bay on the NSW north coast (see inset Figure 1) and was dedicated to Council as part of a residential subdivision in the 1990's. The reserve is 8.65ha in area with an elevation around 6m AHD.

The site contains low-lying forested land subject to periodical inundation; with one main drainage channel traversing the site from north to south. The reserve is bounded by a low-speed local road to the west; a typical residential road to the south; a now disused railway line to the east and additional Council reserves used for cemetery purposes to the north.

### Land Tenure and Zoning

The land is owned in Torrens title by Byron Shire Council.  
Land Use Zoning is E2 Environmental Protection.

### Physical attributes

Climate is subtropical with rainfall primarily in the hotter months of the year. Soils are classified by Morand (2006) as Tyagarah soil landscape and are often wet with some potential for acidity. The site is largely covered with a forest canopy and has deep leaf litter at all times of year, including palm fronds.

## ECOLOGICAL VALUES

The site contains habitat important to koalas (primarily Swamp Mahogany (*Eucalyptus robusta*)) as well as habitat containing several records of the threatened invertebrate species Mitchell's Rainforest Snail (*Thersites mitchellae*).

### Vegetation Communities

Plant Community Type	Area (ha)
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	7.69
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	0.96

The site contains two Plant Community Types as recognized by OEH. The swamp community has an open - dense tree layer dominated by Paperbarks (*Melaleuca quinquenervia*); with palms dominating along the drainage line and *Casuarina glauca* (swamp oak) present. *Eucalyptus robusta* (Swamp Mahogany) dominates the smaller area of higher ground on the site with *Lophostemon suaveolens* (Swamp Turpentine) nearby.



Lilly Pilly Swamp -Site Action Plan

A layer of small trees is present in parts, including *Macaranga tanarius*, *Cupaniopsis anarcardioides* (Tuckeroo), *Elaeocarpus reticulatus* (Blueberry Ash) and *Glochidion ferdinandi* (Cheese Tree). Occasional vines include *Parsonsia straminea*, and *Morinda jasminoides*. The groundcover is composed of abundant sedges, ferns, forbs, and grasses including *Gahnia clarkei*, *Pteridium esculentum*, *Hypolepis muelleri*, *Calochlaena dubia*, *Dianella caerulea*, *Viola hederacea*, *Lomandra longifolia*, *Entolasia marginata* and *Imperata cylindrica*.

### Endangered Ecological Community

Both Plant Community Types listed above are recognized as being included in the EEC known as:

#### *Swamp Sclerophyll Forest on the Coastal Floodplains*

of the NSW North Coast, Sydney Basin and South-east corner Bioregions

Further information on the community characteristics and the reasons for listing as an endangered community are contained in the Appendix.

Because the Biobanking Agreement refers to the two PCT types, that form will be used throughout this Site Action Plan and separate monitoring is required for each PCT.

The EEC listing has no additional relevance to the site or to any proposed on-ground works because these characteristics were examined during the Biobanking Agreement Process and the subsequently approved Management Plans for the site reflect protection and restoration rather than any potential damage to the EEC. Should physical works be required that could cause any adverse effects (such as clearing or change to the drainage line or dewatering), separate approvals would be required.

### Threatened Species

#### Threatened Flora species

Although the entire plant community is regarded as threatened; no threatened flora species listed under the BC or EPBC Act have been detected to date within the site boundaries. BioNet records indicate a number of littoral rainforest and wetland species nearby. Nearby species with potential to occur within the habitat types on site are listed within Appendix.

Should any threatened flora be found and identified within the reserve during restoration work, the GPS location and species should be recorded and submitted with BioNet records, at minimum, annually. Such new records must also be included within Biobank annual monitoring and reporting.

#### Threatened Fauna species

Mitchells Rainforest Snail (MRS) (*Thersites mitchellae*) and Koala (*Phascolarctus cinereus*) use of Lilly Pilly Swamp is known through recent survey (MRS) and BioNet and community records.

A number of other fauna species are likely to use the reserve opportunistically or as part of larger range areas. A list of additional species to consider is contained in Appendix 4.





Should any additional threatened flora be found and identified within the reserve during restoration work, the GPS location and species should be recorded and submitted with BioNet records, at minimum, annually. Such new records must also be included within Biobank annual monitoring and reporting.

For the purposes of the Biobank Agreement, particular consideration must be given to Mitchell's Rainforest Snail and no other threatened fauna species, since it assumed that ecosystem restoration will improve habitat for all those species as well.

### Mitchells Rainforest Snail

#### *Description of MRS and its habitat (NSW SCI Comm 2014)*

Mitchell's Rainforest Snail is a large land snail that is restricted to the coastal plains of northern NSW, between the Richmond and Tweed Rivers. It is found only in undisturbed remnant lowland subtropical rainforest and swamp sclerophyll forest with a rainforest understorey. Key habitat components for Mitchell's Rainforest Snail are a well-developed leaf litter layer (providing food, shelter and breeding sites) and an intact forest canopy (maintaining a moist microclimate and providing a source of leaf litter).

Museum collections from last century show the Mitchell's Rainforest Snail was previously common within its range but has since declined in abundance. Since this time, much of the habitat that the species occupied has been cleared. Recent research shows that Mitchell's Rainforest Snail now has a restricted and fragmented geographic distribution, with an area of occupancy estimated to be less than 5km<sup>2</sup>, and a low number of individuals, with a population of less than 500 mature individuals. Ongoing decline is projected due to continuing degradation of habitat.

The species is eligible for listing as critically endangered.

Lilli Pilli Swamp has been studied by Dr Jonathan Parker of Southern Cross University since 2009. The following is an extract of his report on the suitability of Lilly Pilly Swamp as habitat for MRS.

#### *MRS at Lilli Pilli Drive, Byron Bay*

*This area adjacent to Lilli Pilli Drive is considered primary T. mitchellae habitat. I have conducted surveys throughout the Lilly Pilli Drive residential area since 2009. The proposed offset area (Lilly Pilly Swamp) is the major source of snails for the recolonization of the residential housing estate nearby. Within the area, the presence of live adult and juvenile snails is indicative of a persistent, breeding population. As the species is preyed upon by the Noisy Pitta (Pitta versicolor), we surveyed the rail line adjacent to the site and found numerous shells and shell fragments of T. mitchellae. Birds prey upon large juveniles and adults near dusk just prior to snails selecting their daytime shelters. Snails are taken to 'anvils' and the shell apex is repeatedly smashed. ... (site) indicate(s) a diverse snail fauna indicative of prime snail habitat.*

*A number of modified channels run in a north-easterly direction under Lilli Pilli Drive and drain to the proposed offset area. Though intermittent flow is through cleared grassland, some banks consists of mature trees, including Eucalyptus spp., Brushbox (Lophostemon confertus), Sally Wattle (Acacia floribunda), and Broad-leaved Paperbark (Melaleuca quinquenervia), and there is some revegetation of Bangalow Palms (Archontophoenix cunninghamiana) forming mid-storey canopy cover, with a ground*

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cover of Tall Sawsedge (*Gahnia clarkei*), and ferns (*Histioglossis incia*) throughout the.. (reserve). Recent surveys throughout the species historical range indicate that *T. mitchellae* utilize natural or artificial drainage channels on the coastal plains to move between suitable habitats. Snails will periodically recolonize these habitats, or become locally extinct, as environmental conditions change.

A Species Profile; the Scientific Committee determination and the expert report referred above are contained in Appendix 4; which includes a detailed description of the species, its' recorded location and habitat, threats to its survival and recovery actions proposed.

#### *MRS requirements under the Biobank Agreement*

Lilli Pilli Biobanking Agreement is based (in most part) on retaining and improving habitat for this species; which is listed as *Endangered* in NSW and *Critically Endangered* as a national level.

On the Lilli Pilli site this means the actions listed under Point 1 in the table below must be undertaken as stated and at the frequency stated.

Some specific recommendations have been added by Earthscapes under Point 2 in the table below to clarify some matters not specifically covered by the agreement.

MITCHELLS RAINFOREST SNAIL	
1. Actions required by Biobank Agreement	
Required Action	Reason
Control miscellaneous feral pests	To retain best habitat conditions for the species in the reserve by controlling non-native pest predators or competitors

#### *Consultant recommendations for additional voluntary actions*

MITCHELLS RAINFOREST SNAIL	
2. Voluntary additional Actions recommended by Earthscapes	
Consultant Recommended Action	Reason
Consider the proportion of mature palms remaining along drainage line before removing further Alexander Palms	Snails depend on moist leaf litter for survival. When times are dry, palm fronds, particularly Bangalow and Alexander Palms drop large fronds that have ridges that hold water. Snails have often been found in gallery rainforest and other areas sheltering in dry times with the use of these fronds. If there are plenty of Bangalow Palms along the drainage channel and few Alexander then remove; otherwise wait for more canopy and leaf drop before removal. Retain fallen palm fronds.  Most important habitat is moist leaf litter of any kind. Snails will climb when flooding occurs, but this is unusual.
Bamboo	Similarly, MRS was first found on-site under the bamboo

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MITCHELLS RAINFOREST SNAIL	
2. Voluntary additional Actions recommended by Earthscapes	
Consultant Recommended Action	Reason
Consider herbicide use carefully - Careful targeted spot-spraying ok, Blanket sprays should not be undertaken. Frog-friendly herbicide should be used throughout the reserve. Hand-pulling is preferred along drainage line wherever feasible for weed control	Whether the herbicide would directly affect or kill snails is unknown, however, snails move through moist mucus-like substance they excrete which allows some liquid transfer into bodies. They would have some similarities to frogs who absorb through their skins. Additionally, snails are herbivores so they may be munching on the weeds you just killed.
Review availability of connections during a high water or flood event. Does it drain north-south through culverts or are they blocked, is there low moist cover available in the vicinity of culverts? Carry out minor improvements such as clearing branches or weeds in vicinity	It is important to allow movement and spread into and out of the reserve as additional refuges for a rare species with a very restricted distribution.



*Plates 1 & 2: Examples of numerous shells and shell fragments of T. mitchellae found in June 2016 along the rail line adjacent to proposed Lilly Pilli offset area – likely to have been consumed by a Noisy Pitta or similar ground-dwelling birds.*



*Plate 3: This local drainage culvert is likely to act as snail movement corridor*



## Koala

Koalas (*Phascolarctus cinereus*) feed preferentially on four local Eucalyptus species;

- Swamp Mahogany (*Eucalyptus robusta*),
- Forest Red Gum (*Eucalyptus tereticornis*),
- Tallowwood (*Eucalyptus microcorys*) and
- Small-fruited Grey Gum (*Eucalyptus* .

Within Lilly Pilly Swamp, the only preferred koala food tree species present is Swamp Mahogany.

Koalas tend to also prefer trees within moist areas, as they seldom drink water directly. Thus, the location of favoured trees within a favoured environment should make conditions conducive to use.

Koala records exist within the reserve since the adjacent residential subdivision proceeded in the 1990's. However, recent sightings are uncommon

### *Koala requirements under the Biobank Agreement*

There are no requirements within the Biobank Agreement that apply specifically to the Koala species. Protection and rehabilitation of Swamp Mahogany habitat is the primary aim for the species within the Biobank Agreement.

### *Consultant recommendations -voluntary actions to assist the species*

Due to the presence of the critically endangered Mitchells Rainforest Snail and the primary intent to manage the reserve of the benefit of that species (including retaining deep, moist leaf litter), the Biobank Agreement currently states that no ecological burning should be undertaken within any part of the reserve.

However, the understorey species (comprised of smaller rainforest trees and palms) as well as the adjacent dense Melaleuca canopy, are now ensuring low light levels at the forest floor (at least in most areas of sufficient elevation for Swamp Mahogany to thrive). As canopy closure occurs the chance of Eucalypt and associated species regenerating becomes scarcer, yet the Biobanking Agreement clearly states that the community be retained as improved as PCT Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion



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## OVERVIEW OF RELEVANT LEGISLATION

### Matters of NATIONAL Environmental Significance and their relevancy to the site

Under the Environmental Planning and Biodiversity Conservation Act (EPBC Act)

Matter of National Environmental Significance	Relevancy to the proposed activity
World Heritage Properties	No
National Heritage Places	No
Wetlands of International Significance (Ramsar Sites)	No
Great Barrier Reef Marine Park	No
Commonwealth Marine Areas	No
Threatened Ecological Communities	None listed at federal level
Threatened Species	One – <b>Mitchells Rainforest Snail</b> ( <i>Thersites mitchellae</i> ) <b>Critically Endangered</b>
Migratory Species	13 identified, comprised of 2 marine bird species, 7 terrestrial birds and 4 wetland specialists. All other species identified are marine species (birds, whales, sharks and turtles) or terrestrial birds. These species are highly mobile and the disturbance footprint and type of development proposed represents a small area relative to their home ranges. Accordingly, these species are not expected to be significantly impacted upon by the vegetation management works.

### Matters of STATE Environmental Significance and their relevancy to the site

Under legislation as listed

NSW legislation	Environmental Significance/ Relevancy to the proposed activity
<b>Biodiversity Conservation Act 2016</b>	<ul style="list-style-type: none"> <li>The site is mapped as <b>High Biodiversity Value</b> on the Biodiversity Values Map.</li> <li>The entire site is subject to a <b>Biobanking Agreement</b></li> </ul>
	Listed Endangered Ecological Communities (EEC) known on site - One recorded <ul style="list-style-type: none"> <li><b>Swamp Sclerophyll Forest on Coastal Floodplains</b></li> </ul>
	Listed Plant Community Types (PCTs) classed as EEC - Two recorded <ul style="list-style-type: none"> <li><b>Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion</b></li> <li><b>Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion</b></li> </ul>
	Threatened Species - Two recorded on site: <ul style="list-style-type: none"> <li><b>Mitchells Rainforest Snail – Endangered</b></li> </ul>



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NSW legislation	Environmental Significance/ Relevancy to the proposed activity	
	<ul style="list-style-type: none"> <li><b>Koala – Vulnerable</b></li> </ul>	
<b>Relevant Environmental Planning Instruments</b>	<b>Relevant?</b>	
<b>State Environmental Planning Policy Coastal Management</b>	Yes	The subject site is located within the coastal zone and is mapped as Coastal Wetland. Any development within areas so mapped must conform to <b>Clauses</b>
<b>State Environmental Planning Policy No 44—Koala Habitat Protection (SEPP 44)</b>	Yes	Vegetation within the site dominated by Swamp Mahogany 'potential and core koala habitat' due to historical site records. No additional relevance unless action proposed that could lead to loss or harm.

**BIODIVERSITY CONSERVATION ACT - BIOBANKING AND BIODIVERSITY OFFSETS SCHEME - BIOBANK AGREEMENT SUMMARY**

Under the terms of Biobank Agreement ID number BA352, Byron Shire Council is required to undertake the Management Plan Actions in the manner and at the frequency detailed in the approved Management Plans. All actions are subject to annual reporting and audit. Actions which must not be undertaken are prohibited.

The biobank site covered by BA352 consists of approximately 8.65 hectares. The landowner (Byron Shire Council) has agreed to undertake the management actions and implement the management plans to improve the biodiversity values of the biobank site as set out in Annexure C of the Biobanking Agreement and tabled here within Appendix 1. The landowner has agreed to undertake monitoring, reporting and record keeping as set out in Annexure D of the agreement and tabled here within Appendix 1.

**Ecosystem credits summary**

Plant Community Type	Area (ha)	Credits created	Credits created after application of additionality of 20%
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	7.69	80.00	64.00
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	0.96	8.00	6.00
<b>Total</b>	<b>8.65</b>	<b>88</b>	<b>70</b>

**Species credits summary**

Common name	Scientific name	Extent of impact Ha or individuals	Number of species credits created	Credits created after application of additionality of 20%
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Mitchell's Rainforest Snail	<i>Thersites mitchellae</i>	8.65	61	49
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## BIOBANK AGREEMENT MANAGEMENT ACTIONS

### OVERVIEW OF MANAGEMENT ACTIONS

#### Permissible Human Activities

Permissible human activities on the biobank site	
Description of human activities	Management zone/s
Any activity or any development permitted or required as part of a management action under Annexure C, including but not limited to mustering stock or feral herbivores including with mechanised vehicles, spraying or mechanically removing weeds, planting tubestock or sowing seeds of native vegetation, using drip torches, thinning native vegetation, disturbing soil temporarily to control erosion, encouraging regeneration, controlling nutrients or restoring natural flow regimes, laying baits, trapping or otherwise controlling vertebrate pests and feral herbivores and overabundant native herbivores.	All zones
Any human activity reasonably considered necessary to remove or reduce an imminent risk of serious personal injury or damage to property.	All zones
Traditional Aboriginal cultural activities, except commercial activities.	All zones
Any activity required to undertake permissible development.	All zones
Other - Bushwalking and passive environmental activities such as bird watching	All zones

#### General Terms of Agreement

By the terms of Biobank Agreement ID number BA352, Byron Shire Council is required to undertake the following actions at the following frequency. All actions are subject to annual reporting and audit. Actions which must not be undertaken are prohibited. This table is a summary only. All contractors or staff working within the reserve should be aware of the full provisions of the Agreement. These are provided in the following section.

Action	Task	Timing/ Frequency
Avoid harm  Undertake actions in timely manner as specified  Permit OEH officers entry for audit or research	Below tasks are to commence on the first payment date; and must be carried out in perpetuity unless otherwise indicated. Management actions must be carried out within the specified timeframe.	Ongoing



**BIOBANK AGREEMENT-REQUIRED PRIORITY MANAGEMENT ACTIONS**

Theme	Action	Timing / frequency
<b>Management of grazing for conservation</b>	<p><u>Do:</u></p> <ul style="list-style-type: none"> <li>-Repair fence or other action necessary to avoid stock entry to reserve.</li> </ul> <p><u>Do not:</u></p> <ul style="list-style-type: none"> <li>-Allow stock to graze or be present on the biobank site.</li> </ul>	Ongoing
<b>Weed Control</b>	<p><u>Do:</u></p> <ul style="list-style-type: none"> <li>-Follow detailed schedule and methodology within the Weed Management Plan.</li> <li>-Ensure daily and annual monitoring reports are completed.</li> <li>-Review the weed management plan at intervals of no less than 4 years and no more than 6 years.</li> <li>-Detail on monitoring record sheets any Adaptive Management measures used.</li> <li>-Seek Biobank permission for any alteration or update to the weed management plan and methods. Review date must be notified.</li> <li>-Update weed management plan if requested by Biobank staff following any review of annual reporting submitted.</li> </ul>	Ongoing
<b>Management of Fire for conservation</b>	<p><u>Do:</u></p> <ul style="list-style-type: none"> <li>-Comply with the Fire Management Plan.</li> <li>-Monitor and record any actions under the plan</li> <li>- Use minor adaptations where necessary, if recorded and reported.</li> <li>-Notify any updated plan (if undertaken by BSC) or can be requested by OEH staff.</li> <li>-Exclude fire - Fires must not be lit on the biobank site other than for the purpose of ecological burning in accordance with the fire management plan</li> </ul> <p><u>Do Not:</u></p> <ul style="list-style-type: none"> <li>-Undertake Ecological burning or light or permit any fires on the site- These areas should not be subjected to targeted ecological burn regime since the site includes Mitchell's Rainforest Snail, not adapted to habitats which are conducive to active burning.</li> </ul>	Ongoing
<b>Management of Human Disturbance</b>	<p><u>Do:</u></p> <ul style="list-style-type: none"> <li>- Regularly remove any waste dumped on site</li> <li>-Install 550 m of new 'simple' rural fencing on the western boundary of the site (Figure 5) and maintain it to deter human disturbance. Fencing</li> </ul>	Ongoing



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	<p>to be 4-strand plain wire and star pickets with timber posts at corners or as necessary.</p> <p>-Remove wire from old internal fence.</p> <p>- Install Standard OEH BioBanking signage (available from OEH) at the four primary biobank site entrances, as shown on Figure 5.</p> <p><u>Do Not</u></p> <p>-Undertake or permit any human activities that adversely affect biodiversity values, unless such action is in accordance with the Biobanking Agreement (such as weed removal).</p> <p>-Dump waste or permit waste to be dumped</p>	
<b>Retention of Dead Timber</b>	<p><u>Do</u></p> <p>-Introduce additional suitable timber to improve biodiversity values (e.g nest boxes, hollow logs) <i>but such actions are optional on this site.</i></p> <p>-Record all details of any timber introduced to reserve from an external source.</p> <p><u>Do Not:</u></p> <p>-Remove any dead timber (whether standing or fallen and including branches and leaf litter) from or move dead timber within the biobank site.</p>	Ongoing
<b>Retention of regrowth and remnant native vegetation</b>	<p><u>Do</u></p> <p>-native vegetation may be burnt in accordance with an approved Fire Management Plan (<i>note this Agreement does not currently permit ecological burning in any part of the reserve.</i></p> <p><u>Do Not:</u></p> <p>-Native vegetation (whether remnant native vegetation or regrowth) on the biobank site must not be cut down, felled, thinned, logged, killed, destroyed, poisoned, ringbarked, uprooted, burnt or otherwise removed.</p>	Ongoing
<b>Erosion Control</b>	<p><u>Do</u></p> <p>-Take all reasonable steps and use best practice to prevent, control and remedy erosion on the biobank site.</p>	Ongoing
<b>Retention of Rocks</b>	<p><u>Do</u></p> <p>-Place rocks on the biobank site to improve habitat for threatened species (<i>optional</i>)</p> <p>-Rocks, once placed on the biobank site, must be retained with records of the source, location and date placed.</p> <p><u>Do Not:</u></p> <p>-Remove or allow rocks to be moved from the biobank site or within the biobank site.</p>	Ongoing
<b>Control of feral and overabundant native herbivores</b>	<p><u>Do:</u></p> <p>Comply with the management plan to control feral and overabundant native herbivores (<i>no plan in Agreement</i>)</p>	In accordance with management plan schedule



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	Review the plan at intervals of no less than 4 years and no more than 6 years. Record all actions taken and any additional controls undertaken	
<b>Vertebrate pest management</b>	<u>Do:</u> -Comply with the management plan to control vertebrate pests - <i>feral cats and foxes are only species considered in Agreement</i> -Baiting and/or active trapping are only methods in current Management Plan -Review the plan at intervals of no less than 4 years and no more than 6 years -Record all actions taken and any additional controls undertaken	In accordance with management plan schedule
<b>Nutrient control</b>	<u>Do Not:</u> -Fertilisers, pesticides and herbicides must not be applied on the biobank site, except where required to undertake the management actions.	Never
<b>Control of exotic fish species</b>	Not applicable – no actions required	N/A
<b>Maintenance or reintroduction of natural flow regimes</b>	Artificial structures such as dams or levee banks that impede the natural flow regimes on the biobank site must not be constructed	Never



### BIOBANK REQUIRED ADDITIONAL MANAGEMENT ACTIONS

Additional management actions are required for:

Vegetation type or threatened species	Management action details
Mitchell's Rainforest Snail	Exclude miscellaneous feral species
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Control of feral pigs
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Exclude commercial apiaries
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Exclude miscellaneous feral species
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Feral and/or over-abundant native herbivore control
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Fox control
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Maintain or re-introduce natural flow regimes
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Slashing
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Control of feral pigs
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Exclude commercial apiaries
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Exclude miscellaneous feral species
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Feral and/or over-abundant native herbivore control
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Fox control
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Slashing



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**NOT REQUIRED - RECOMMENDED SUPPLEMENTARY ACTIONS**

*The following actions are not required by the terms of the Biobank Agreement Priority or Additional Actions; nor by any of the Management Plans. They are suggestions that attempt to improve habitat for the listed species only.*

Target Species	Recommended action	Reason
<b>Mitchells Rainforest Snail</b>	Review rate of Alexander Palm removal	Retain high levels of leaf litter at all times
	Review herbicide use throughout reserve	Consider potential ingestion or loss of plant food sources
	Check local culvert conditions	Can act as movement corridor; species has very limited range
<b>Koala PCT</b>	Consider a review of ecological burn regime if can be limited to Swamp Mahogany PCT only and longer time frames	Rainforest species causing dense canopy, low light and lack of fire means new germination of primary Koala food trees unlikely.
<b>Feral Pests</b>	<ul style="list-style-type: none"> <li>-Install Camera traps throughout reserve and surrounds;</li> <li>-Undertake Scat and track identification</li> <li>-Compile knowledge of pest presence from the site</li> <li>-Review Pest Management Plan with site knowledge gained by above on additional issues, such as presence of roaming domestic dogs and cats, presence of cane toads, rats and mice, all of which could be problematic for snails.</li> <li>-Consider fencing types and purpose</li> </ul>	<p>Need to understand which Feral pests (if any) are a problem in the reserve now; in particular for threatened fauna, so that funds and effort can be effectively targeted.</p> <p>-Research project could be undertaken through MRS study extension at SCU with Jonathyn Parkyn overseeing – Noisy Pitta use of the reserve and proportion of its food source comprised of MRS through scat analysis; could/ should habitat be skewed to favour MRS rather than not Noisy Pitta at this site (because MRS so scarce), Noisy Pitta is a native predator on MRS and the railway line adjacent is perfect anvil to smash open snail shells. Possibly buffer or fence? so as to make it more difficult to move between reserve and railway line.</p>



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**Year 1 -Tasks, timing and budget**

<b>Task</b>	<b>Timing</b>	<b>Budget</b>
Primary weed control, all species	3-4 sessions during year	\$12,000
Install Biobank signage – Standard OEH BioBanking signage is to be installed at the four primary biobank site entrances, as shown on Figure 5 Property action plan	Prior to June 30,2020	\$250
Install fence along western edge, with gate, as per site action plan -550 m of 4-strand plain wire and star pickets with timber posts at corners.	Prior to June 30, 2020 Intent is to delineate the biobank site from nearby residential properties and to assist in controlling impacts from human access	\$5250
Rubbish removal and remove wire from old fence as per Property action plan	Prior to June 30. 2020	\$2400
Vertebrate pest control - feral cats and foxes -Baiting and/or active trapping are only methods in current Management Plan	Initiate feral pest survey to determine presence - prior to June 30	\$1200
Project management, landowner monitoring and reporting (Earthscapes)	Monitoring - six-monthly Reporting – annually - after completion of Year 1 works	\$2900
Annual reporting - to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site</b>		<b>\$24,000</b>
GST	Paid annually	\$2400
<b>TOTAL YEAR 1</b>		<b>\$26,400</b>





**Year 2 -Tasks, timing and budget**

Task	Timing	Budget
Primary weed control, all species	3-4 sessions during year	\$12,000
Fire prevention	Annual slashing/mowing edges	\$900
Fence and gate maintenance	Annual payment Ongoing from Year 2	\$450
Project management, landowner monitoring and reporting	Monitoring - six-monthly Reporting - annually -after completion of Year 2 works	\$2900
Annual reporting fee to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site</b>		<b>\$16250</b>
GST	Paid annually	\$1625
<b>TOTAL YEAR 2</b>		<b>\$17875</b>

**Year 3 -Tasks, timing and budget**

Task	Timing	Budget
Primary weed control (all species except Bamboo, which is funded Year 1 and 2 only)	3-4 sessions during year	\$7200
Vertebrate pest control – foxes, feral cats – baiting, trapping	Ongoing	\$1200
Fence and gate maintenance ongoing		\$450
Project management, landowner monitoring and reporting	Monitoring - six-monthly Reporting - annually -after completion of Year 2 works	\$2900
Annual reporting fee to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site</b>		<b>\$11750</b>
GST	Paid annually	\$1175
<b>TOTAL YEAR 3</b>		<b>\$12,925</b>



**Year 4 -Tasks, timing and budget**

<b>Task</b>	<b>Timing</b>	<b>Budget</b>
Weed control in perpetuity, all species	3 sessions during year	\$2700
Fire prevention	Annual slashing edges	\$900
Fence and gate maintenance ongoing	Check and fix every two years	\$450
Project management, landowner monitoring and reporting	Monitoring - six-monthly Reporting – annually - after completion of Year 1 works	\$2900
Annual reporting fee to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site</b>		<b>\$6950</b>
GST	Paid annually	\$695
<b>TOTAL YEAR 4</b>		<b>\$7645</b>

**Year 5 -Tasks, timing and budget**

<b>Task</b>	<b>Timing</b>	<b>Budget</b>
Weed control in perpetuity, all species	3 sessions during year	\$2700
Fence and gate maintenance		\$450
Vertebrate pest control – foxes, feral cats – baiting, trapping	Ongoing	\$1200
Project management, landowner monitoring and reporting	Monitoring - six-monthly Reporting – annually - after completion of Year 1 works	\$2900
Annual reporting fee to landowner		\$1500
OEH costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site</b>		<b>\$7250</b>
GST	Paid annually	\$725
<b>TOTAL YEAR 5</b>		<b>\$7975</b>



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**Year 6 and ongoing -Tasks, timing and budget**

<b>Task</b>	<b>Timing</b>	<b>Budget</b>
Ongoing weed control, all species	3 sessions during year Ongoing from Year 6 onward	\$2700
Weed Management Plan review and vegetation condition assessment	Prior to June 30, 2025	\$2600
Fire prevention	Annual slashing edges	\$900
Vertebrate pest control plan review	Prior to June 30, 2025	\$1600
Fence and gate maintenance in perpetuity	Annual check and fix	\$450
Project management, landowner monitoring and reporting (	Monitoring – twice @ 6-months Reporting – annually - after completion of Year 1 works Paid annually from Year 6 onwards	\$1800
Annual reporting fee to landowner		\$1500
OEK costs – annual reporting assessment fee		-\$1500
<b>Total funds available for site Year 6</b>		<b>\$10050</b>
GST	Paid annually	\$1005
<b>TOTAL YEAR 6</b>		<b>\$11055</b>



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## MONITORING

This section has been approved as a property management plan prepared by the landowner under the section 113B of the *Threatened Species Conservation Act 1995* (now *Biodiversity Conservation Act 2016*).

### Monitoring requirements

- 1.1 The landowner must ensure that photographs are taken at photo-points at each of the locations and in the direction identified in the table below titled 'Locations of photo points' within 12 months of the commencement date and then at least every 12 months thereafter.
- 1.2 The photo points are identified on the map entitled Figure 5 Photo points; Lilly Pilly biobank site dated 05/07/2017 in Annexure A of this agreement. The purpose of the photographs is to show changes over time. Photographs should be taken at approximately the same direction, location, height and time of day (during daylight hours) in each reporting period (as defined in item 2.2 of this Annexure D) and retained for the life of this agreement. All photographs must be dated, stating the direction in which they were taken and identified with their locations.

Locations of photo points			
Projected coordinate system: GDA94			
Photo point reference	Easting	Northing	Direction of photo (magnetic degrees)
A	559711	6829647	90
B	559814	6829307	90
C	559735	6829376	180

- 1.3 An inspection of the biobank site must be undertaken by, or on behalf of, the landowner in accordance with the table 'Site inspection and monitoring schedule' below, for the purposes specified in column A and at the relevant interval specified in column B. The inspections are to occur at the intervals indicated starting from the commencement date. The inspections are additional to any inspections and monitoring required by Annexure C.

Site inspection and monitoring schedule	
A. Purpose	B. Interval
The percentage of ground cover present on the biobank site for the purposes of item 1.1 of Section 1 of Annexure C.	Every 12 months
Number of stock and date/s when stock have entered the management zones on the biobank site.	Every 3 months



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Physical condition of fencing and gates to determine whether they are maintained to a standard that can:	Every 12 months
<ul style="list-style-type: none"> <li>control the movement of stock if required under item 1 in Section 1 of Annexure C</li> </ul>	
<ul style="list-style-type: none"> <li>control human disturbance if required under item 4 in Section 1 of Annexure C</li> <li>control the movement of feral and overabundant native herbivores if required under item 10 of Section 2</li> <li>control vertebrate pests if required under item 11 of Section 2</li> </ul>	
Records of any human disturbance on the biobank site. Note: items 4.1 and 4.2 in Section 1 of Annexure C and clause 2 of this agreement place restrictions on human activities on the biobank site.	Every 6 months
Evidence of erosion. Note: item 8 in Section 1 of Annexure C contains requirements for erosion control.	Every 6 months
Evidence of waste. Note: item 4.4 in Section 1 of Annexure C contains requirements for storing and disposing of waste on the biobank site.	Every 6 months

Template for reporting of monitoring activities –			
Management zone/s	Date	Current level of impact on vegetation or threatened fauna species <small>This column must record impact as Negligible, Minimal, Moderate or High</small>	Observations and assessment of monitoring



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Diary template for vertebrate pest management			
Date of activity	Management zone/s	Description and type of activity undertaken This column must include details of the vertebrate pests targeted, control techniques applied and numbers controlled.	Minor variations (details and reasons)



**REPORTING:**

**Reporting requirements – annual report**

- 1.4 The landowner must complete and submit to the Chief Executive for approval an annual report using the annual reporting template provided in this Annexure or, if the Chief Executive has approved an amended version of the annual reporting template after the date of this agreement, such an amended version of the annual reporting template as has been approved by the Chief Executive from time to time and supplied to the landowner.
- 1.5 An annual report must be prepared for each reporting period. A reporting period means:
  - 1.5.1 prior to the first payment date, the period of 12 months after the commencement date, and each subsequent period of 12 months
  - 1.5.2 after the first payment date, the period of 12 months after that date, and each subsequent period of 12 months.

The annual report submitted after the first anniversary of the first payment date must also include the period between the last anniversary of commencement date and the first payment date.
- 1.6 The annual report for the report period must be supplied to the Chief Executive by registered post not later than 30 days after the end of each reporting period.
- 1.7 If there is a change in land ownership during a reporting period, each landowner must submit the annual report required under items 1.2, 1.3 and 1.4 of this Annexure D for the period for which they were the landowner.
- 1.8 The annual report must:
  - 1.8.1 contain the results of any monitoring, inspections or surveys required in Annexure C
  - 1.8.2 contain the results of the inspections required to be conducted by item 1.2 of this annexure D, including details of the date, time, location and nature of the inspection, the name of the person conducting the inspection and observations from the inspection
  - 1.8.3 include the photographs taken at the photo points listed in Annexure D
  - 1.8.4 include any other information required in the annual reporting template.

**Record keeping requirements**

- 1.9 The following written records and photographs must be created and retained by the landowner:
  - 1.9.1 for a management action required by this agreement (other than a management action requiring the landowner to refrain from an activity), the date and location/s the management action was carried out and a description of the actions that were undertaken





Lilly Pilly Swamp -Site Action Plan

- 1.9.2 for a management action which is permitted to be carried out only in accordance with the Chief Executive's consent or approval, a copy of that consent or approval
- 1.9.3 a copy of any management plan (or updated management plan) required by Annexure C of this agreement that has been approved by the Chief Executive, a copy of the Chief Executive's approval of the management plan (or updated management plan) and a copy of any review of a management plan required by Annexure C
- 1.9.4 the diaries for recording actions undertaken in accordance with the management plans required by this agreement including the details (management zone/s, date, alternative action) of any minor alterations made to the implementation of those management plans and the reasons for the minor alterations
- 1.9.5 all photographs required by item 1 of this Annexure D and the information that item requires to be recorded on the photographs
- 1.9.6 for an inspection required by this agreement, the date, time, location and nature of the inspection, the name of the person conducting the inspection and observations from the inspection
- 1.9.7 the results of monitoring, inspections or surveys required to be conducted by this agreement or any management plan that is required to be implemented under this agreement
- 1.9.8 a brief description of any climatic, weather, ecological/environmental or unplanned events that have a significant adverse effect on the biodiversity values of the biobank site.
- 1.10 The landowner must retain a copy of each annual report.
- 1.11 All records required to be kept by this agreement must be:
  - 1.11.1 in a legible form, or in a form that can readily be reduced to a legible form (this includes photographs taken as part of this agreement);
  - 1.11.2 kept for at least 10 years after the event to which they relate took place, unless specified otherwise; and
 

Note: item 1.1 of this Annexure D requires the photographs required to be taken under that item to be retained for the life of this agreement.
  - 1.11.3 produced to any authorised officer on request by an authorised officer.



Lilly Pilly Swamp -Site Action Plan

**Payment schedule**

Payment schedule (including GST)	
Payment timing	Amount
At the beginning of the first year	\$ 26,400
At the beginning of the second year	\$ 17,875
At the beginning of the third year	\$ 12,925
At the beginning of the fourth year	\$ 7,645
At the beginning of the fifth year	\$ 7,975
At the beginning of the sixth year	\$ 11,055
At the beginning of the seventh year	\$ 6,765
At the beginning of the eighth year	\$ 6,435
At the beginning of the ninth year	\$ 6,765
At the beginning of the tenth year	\$ 6,600
At the beginning of the eleventh year	\$ 6,435
At the beginning of the twelfth year	\$ 11,055
At the beginning of the thirteenth year	\$ 6,435
At the beginning of the fourteenth year	\$ 6,435
At the beginning of the fifteenth year	\$ 6,435
At the beginning of the sixteenth year	\$ 6,435
At the beginning of the seventeenth year	\$ 6,435
At the beginning of the eighteenth year	\$ 6,435
At the beginning of the nineteenth year	\$ 7,755
At the beginning of the twentieth year	\$ 6,600
At the beginning of each following year	Amount equal to the sum of the in-perpetuity management cost that apply for each following year as determined by the table of in perpetuity costs below.

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 2



Lilly Pilly Swamp -Site Action Plan

### Payment Allocation Years 1 to 5

Management action costs	Timing			Estimated annual cost (\$)	1	2	3	4	5
	Start year	End year	Frequency						
Signage installation	1	1	1	250	250	0	0	0	0
New fence (simple) 550 m @ \$9 p/m + 1 gate (\$300 each)	1	1	1	5,250	5,250	0	0	0	0
Primary weed control (4 sessions per yr @ \$1,200) (Weed A)	1	2	1	4,800	4,800	4,800	0	0	0
Primary weed control (3 sessions per yr @ \$1,200) (Weed B)	1	3	1	3,600	3,600	3,600	3,600	0	0
Primary weed control (4 sessions @ \$900) (Weeds C, D, E, F & G)	1	3	1	3,600	3,600	3,600	3,600	0	0
					0	0	0	0	0
Weed control in perpetuity (3 sessions per year)	4		1	2,700	0	0	0	2,700	2,700
Weed management plan review and vegetation condition assessment	6	17	6	2,600	0	0	0	0	0
Removal rubbish removal and removal of wire from old fence	1	1	1	2,400	2,400	0	0	0	0
263	2		2	900	0	900	0	900	0
Vertebrate pest control	1	9	2	1,200	1,200	0	1,200	0	1,200
Vertebrate pest control plan review - qualified professional	6	17	6	1,600	0	0	0	0	0
					0	0	0	0	0
					0	0	0	0	0
Project management/landowner reporting and monitoring	1	5	1	2,900	2,900	2,900	2,900	2,900	2,900
					0	0	0	0	0
					0	0	0	0	0

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 2



Lilly Pilly Swamp -Site Action Plan

Other recurring costs										
Annual reporting fee	1		1	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Project management/landowner reporting and monitoring	6		1	1,800	0	0	0	0	0	0
Access track maintenance (N/A)	1				0	0	0	0	0	0
Fence maintenance and gate in perpetuity	2		1	450	0	450	450	450	450	450
Biobank sign replacement	10		10	150	0	0	0	0	0	0
Weed management plan review (in perpetuity)	19		6	1,200	0	0	0	0	0	0
Vertebrate pest control (in perpetuity)	11		2	900	0	0	0	0	0	0
					0	0	0	0	0	0
<b>Biobank site management cost in today's value</b>					<b>25,500</b>	<b>17,750</b>	<b>13,250</b>	<b>8,450</b>	<b>8,750</b>	
<b>Present Value (PV) of the biobank site management cost</b>					<b>25,500</b>	<b>17,150</b>	<b>12,369</b>	<b>7,621</b>	<b>7,625</b>	

Discount factors	100%	97%	93%	90%	87%
------------------	------	-----	-----	-----	-----

	1	2	3	4	5
<b>Annual biobank site management costs in today's values</b>	\$25,500	\$17,750	\$13,250	\$8,450	\$8,750
<b>Annual reporting fee</b>	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
<b>Total amount payable to landowner (excluding GST)</b>	\$24,000	\$16,250	\$11,750	\$6,950	\$7,250
<b>GST payable to landowner</b>	\$2,400	\$1,625	\$1,175	\$695	\$725
<b>Total amount payable to landowner (including GST)</b>	\$26,400	\$17,875	\$12,925	\$7,645	\$7,975



Lilly Pilly Swamp -Site Action Plan

### In-perpetuity Management Costs

In perpetuity management costs (on and from the twenty-first year) (excluding GST and subject to rate of return)		
Description of ongoing management action	Frequency	Amount (\$)
Fence/gate maintenance	The twenty second year and every year thereafter	450
Weed control	The twenty fourth year and every year thereafter	2,700
Removal of rubbish and human disturbance	The twenty first year and every two years thereafter	900
Weed management plan review	The twenty first year and every six years thereafter	1,200
Vertebrate pest control	The twenty first year and every two years thereafter	900
Project management/landowner reporting and monitoring	The twenty sixth year and every year thereafter	1,800
Biobank sign replacement	The thirtieth year and every ten years thereafter	150
Annual reporting fee	The twenty first year and every year thereafter	1,500
<b>Total present value of payments after 20 years (incl. GST)</b>		\$98,943
<b>Total present value of payments after 20 years (excl. GST)</b>		\$89,948

#### Agreement to issue recipient created tax invoices

The parties acknowledge that, if the landowner is registered for GST, recipient created tax invoices will be issued from the BioBanking Trust Fund (Australian Business Number 83 639 386 285) to the landowner (Australian Business Number 14 472 131 473).

#### Payment timing and amount

- 1.1 Subject to clause 12 of the agreement, the Minister is to direct the Fund Manager to make the management payments to the landowner in accordance with the payment schedules above.
- 1.2 The first year of the payment timing, as set out in the payment schedules, commences from the first payment date. Received August 2019.



Lilly Pilly Swamp -Site Action Plan

Nominated bank account

- 1.3 The management payments will be paid into a bank account as nominated by the landowner

Annual contribution

- 1.4 The landowner authorises the Minister to retain the annual contribution from each management payment made to the landowner.
- 1.5 The Minister will, following each management payment, issue the landowner with an invoice confirming that the annual contribution has been deducted from the relevant management payment.

**REFERENCES**

Bailey, D (2009) - Site Action Plan for South Byron incl Cemetery

Biobanking agreement  
Expert Snail report Dr Jonathan Parkyn

NSW National Parks and Wildlife Service (2001) Mitchell's Rainforest Snail *Thersites mitchellae* (Cox, 1864) Recovery Plan. NPWS, Sydney

NSW Scientific Committee (1997) Mitchell's rainforest snail - Endangered species determination - final. DEC (NSW), Sydney.





Lilly Pilly Swamp -Site Action Plan

### APPENDIX 1: MAPS

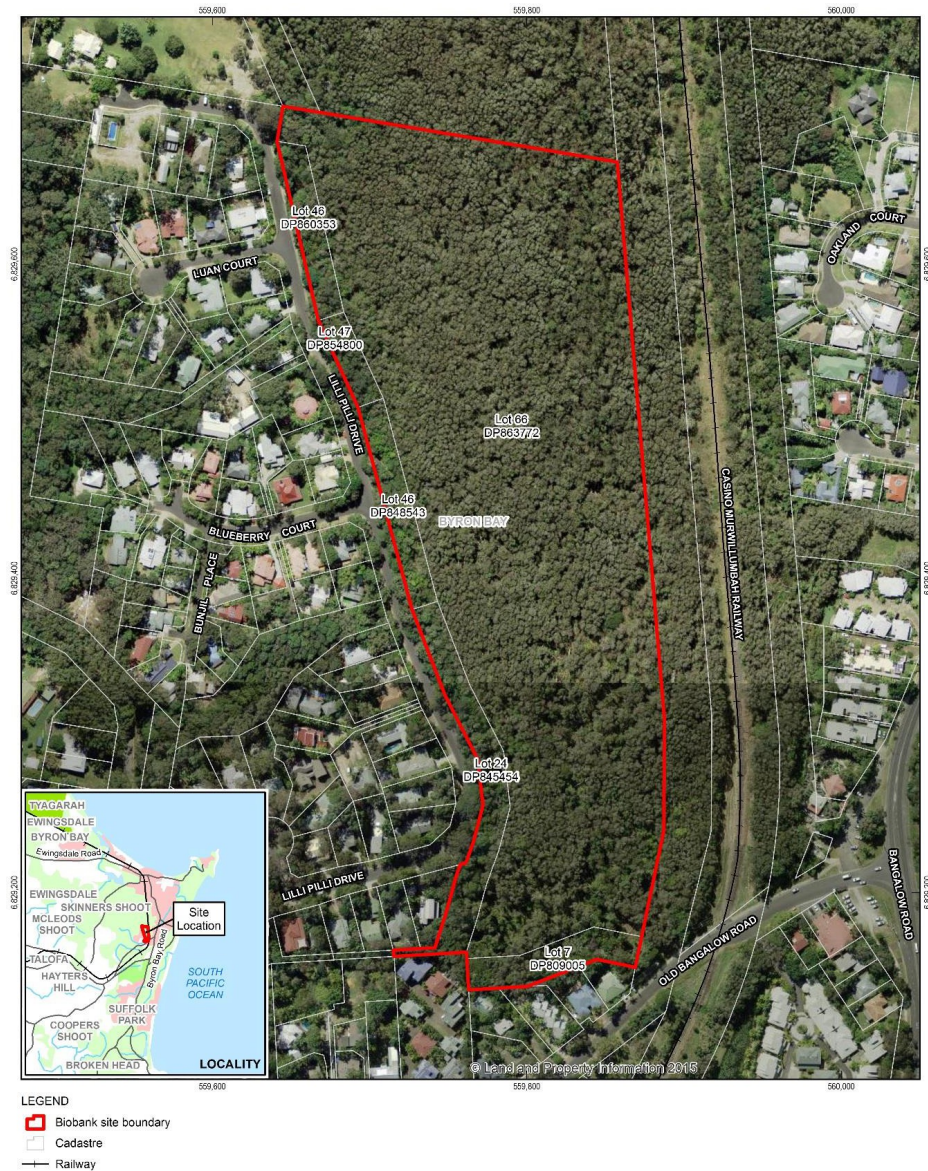


Figure 1 Biobank site boundary Lilly Pilly biobank site (13/06/2017)





### Lilly Pilly Swamp -Site Action Plan



Figure 2: Vegetation zones





### Lilly Pilly Swamp -Site Action Plan



**LEGEND**

- Biobank site boundary
- Cadastre
- ~~~~~ Watercourse
- M21, Natural regeneration in NR217
- M22, Natural regeneration in NR254

Paper Size A4  
0 10 20 40 60 80  
Metres  
Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1984  
Grid: GDA 1004 MGA Zone 56



Byron Shire Council  
Lilly Pilly BioBanking Assessment

Job Number 22-1748419  
Revision 0  
Date 10 May 2018

#### Management Zones

Level 3, 0/10 Tower, 241 Lonsdale Drive, Newcastle NSW 2300 P 31 3 4979 9889 F 61 2 4978 9800 E [crimwell@ghd.com](mailto:crimwell@ghd.com) W [www.ghd.com.au](http://www.ghd.com.au)  
G:\22\1748\GIS\Map\Variables\2217\6419\Biobanking\LillyPilly\221748419\_LPO\ManagementZones\_0.mxd  
© 2018. Whilst every care has been taken to prepare this map, GHD, BSC and LPS make no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages, actions or claims (including indirect or consequential damages) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.  
Data source: 1:50,000 Topographic, 1:50,000 Aerial imagery 2018, BSC Vegetation 2018. Created by: bradley

Figure 3 Management zones; Lilly Pilly biobank site (10/05/2018)





### Lilly Pilly Swamp -Site Action Plan

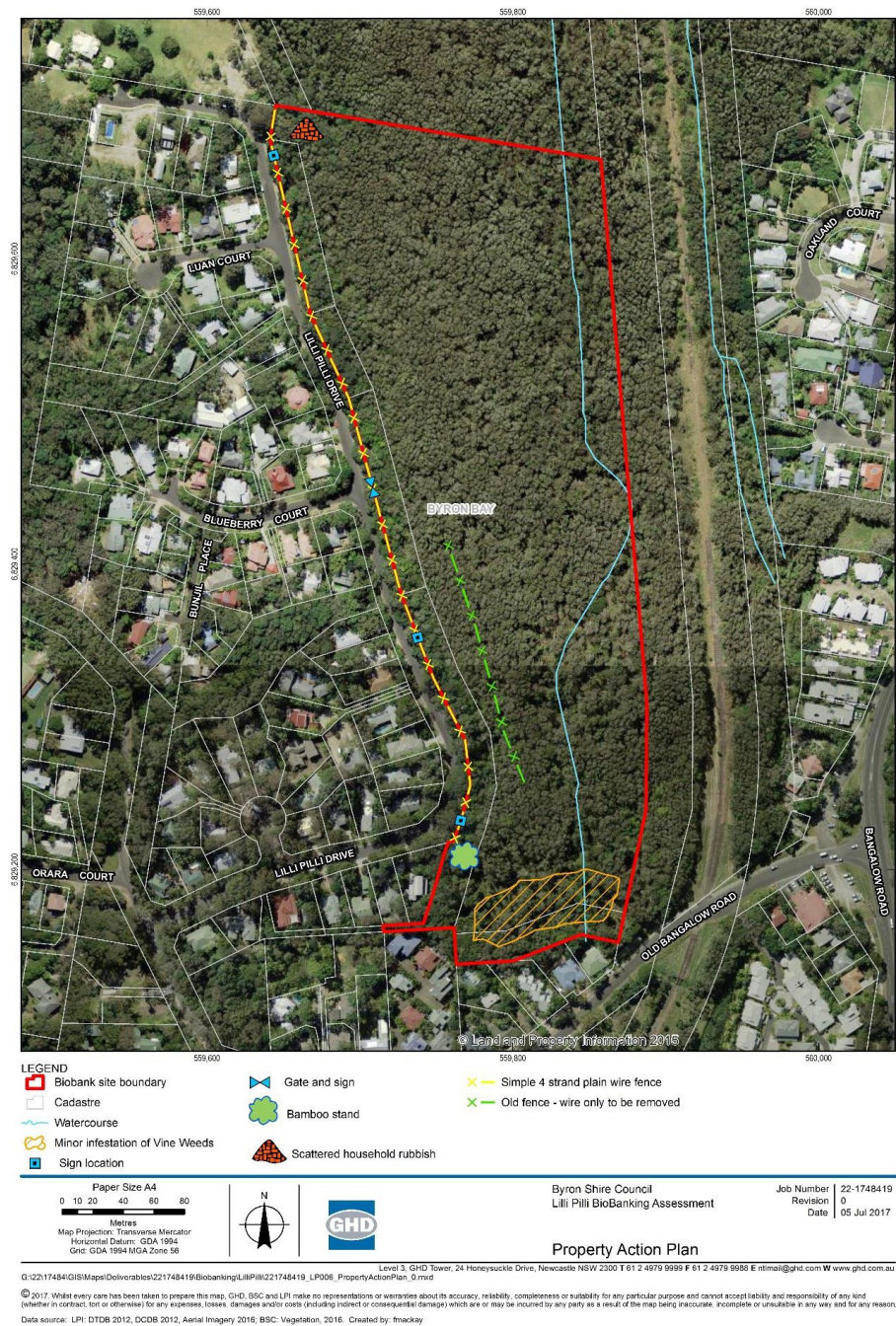


Figure 4 Property action plan; Lilly Pilly biobank site (05/07/2017)





### Lilly Pilly Swamp -Site Action Plan



- LEGEND**
- ▬ Biobank site boundary
  - Cadastre
  - Watercourse
  - ↑ Photo location and direction

Paper Size A4  
0 10 20 40 60 80  
Metres  
Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 56



Byron Shire Council  
Lilli Pilly BioBanking Assessment

Job Number 22-1748419  
Revision 0  
Date 05 Jul 2017

#### Photo Points

Level 3, GHD Tower, 24 Honeyeater Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E ntimail@ghd.com W www.ghd.com.au  
G:\22\1748419\Maps\Deliverables\221748419\Biobanking\LilliPilly\221748419\_LP005\_PhotoPoints\_0.mxd  
© 2017. Whilst every care has been taken to prepare this map, GHD, BSC and LPI make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.  
Data source: LPI: DTDB 2012, DCDB 2012, Aerial Imagery 2016, BSC: Vegetation, 2016. Created by: trackkey

Figure 5 Biobank Photo points; Lilly Pilly biobank site (05/07/2017)



Lilly Pilly Swamp -Site Action Plan

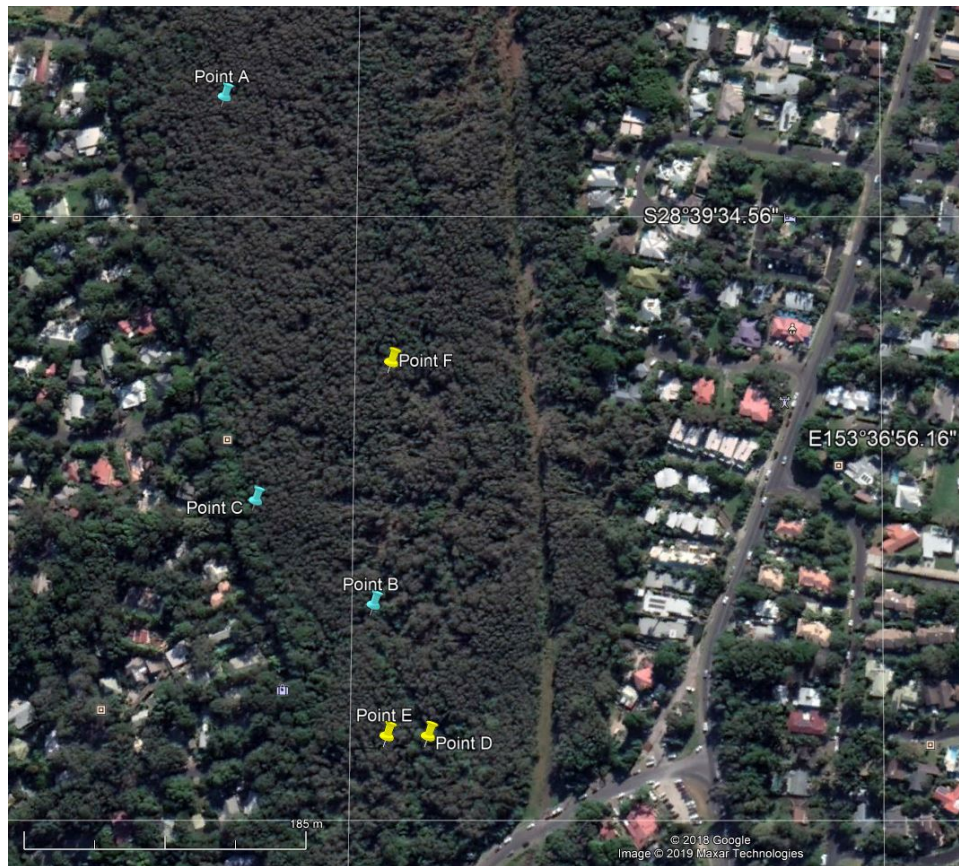


Figure 6: Biobank plus additional selected Photo points; Lilly Pilly biobank site (05/09/2019)

Locations of photo points					
Projected coordinate system: GDA94					
Photo point reference	Easting	Northing	Latitude	Longitude	Direction of photo (magnetic degrees)
A	559711	6829647	-28° 39' 32"	153° 36' 40"	East (90)
B	559814	6829307	-28° 39' 43"	153° 36' 44"	East (90)
C	559735	6829376	-28° 39' 41"	153° 36' 41"	South (180)
D	559851	6829221	-28° 39' 46"	153° 36' 45"	North (360)
E	559824	6829221	-28° 39' 46"	153° 36' 44"	South (180)
F	559825	6829468	-28° 39' 38"	153° 36' 44"	South (180)

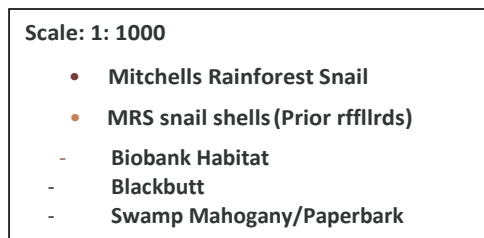




Lilly Pilly Swamp -Site Action Plan



Figure 7: MRS Snail records by Dr Jonathan Parkyn (2016)





Lilly Pilly Swamp -Site Action Plan

## APPENDIX 2: FLORA LIST

Comprehensive Native Flora Species List for Lilly Pilly Swamp	
# Includes planted non-local native species	
Botanical Name	Common Name
<b>TREES AND SHRUBS</b>	
<i>Acacia floribunda</i>	White Sally
<i>Acacia melanoxylon</i>	Blackwood
<i>Acmena smithii</i>	Common Lilly Pilly
<i>Archontophoenix cunninghamiana</i>	Bangalow Palm
<i>Astrotricha longifolia</i>	Astrotricha
<i>Austromyrtus dulcis</i>	Midyim
# <i>Brachychiton acerifolius</i>	Flame Tree
<i>Breynia oblongifolia</i>	Breynia
<i>Buckinghamia celissima</i>	Ivory Curl
<i>Callicoma serratifolia</i>	Callicoma
<i>Callistemon salignus</i>	Willow Bottlebrush
<i>Casuarina glauca</i>	Swamp Oak
<i>Commersonia bartramia</i>	Brown Kurrajong
<i>Cryptocarya microneura</i>	Murrogun
<i>Cupaniopsis anacardioides</i>	Tuckeroo
# <i>Davidsonia jerseyana</i>	Davidson's plum
<i>Dodonaea triquetra</i>	Large-leaf Hop-bush
<i>Duboisia myoporoides</i>	Corkwood
<i>Elaeocarpus obovatus</i>	Hard Quandong
<i>Elaeocarpus reticulatus</i>	Blueberry Ash
<i>Eucalyptus microcorys</i>	Tallowood
<i>Eucalyptus pilularis</i>	Blackbutt
<i>Eucalyptus resinifera</i>	Red Mahogany
<i>Eucalyptus robusta</i>	Swamp Mahogany
<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark
<i>Eupomatia laurina</i>	Bolwarra
<i>Ficus coronata</i>	Creek Sandpaper Fig
<i>Ficus obliqua</i>	Small-leaved Fig
# <i>Ficus rubiginosa</i>	Rock Fig
<i>Ficus virens</i>	White Fig
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Glochidion sumatranum</i>	Umbrella Cheese Tree





Lilly Pilly Swamp -Site Action Plan

# <i>Grevillea baileyana</i>	White Oak
* <i>Harpullia pendula</i>	Tulipwood
<i>Hibiscus diversifolius</i>	Swamp Hibiscus
<i>Hovea acutifolia</i>	Purple Pea Bush
<i>Lophostemon confertus</i>	Brush Box
<i>Lophostemon suaveolens</i>	Swamp Box
<i>Macaranga tanarius</i>	Macaranga
# <i>Melaleuca leucadendron</i>	Weeping Paperbark
<i>Melaleuca quinquinervia</i>	Broad-leaved Paperbark
<i>Melastoma affine</i>	Blue Tongue
<i>Melicope elleryana</i>	Pink Euodia
<i>Myrsine variabilis</i>	Muttonwood
<i>Nematolepis squamea</i>	Satinwood
<i>Persoonia adenantha</i>	Geebung
# <i>Podocarpus elatus</i>	Plum Pine
* <i>Psidium cattleianum</i>	Cherry Guava
<i>Psychotria loniceroides</i>	Hairy Psychotria
<i>Symplocos thwaitesii</i>	Buff Hazelwood
<i>Synoum glandulosum</i>	Scentless Rosewood
<i>Trema tomentosa</i>	Native Peach
<i>Trochocarpa laurina</i>	Tree Heath
<i>Zieria smithii</i>	Sandfly Zieria
# <i>Araucaria bidwillii</i>	Bunya Pine
<b>VINES AND CLIMBERS</b>	
<b>Botanical Name</b>	<b>Common Name</b>
<i>Geitonoplesium cymosum</i>	Scrambling Lily
<i>Hibbertia scandens</i>	Twining Guinea Flower
<i>Marsdenia rostrata</i>	Common Milk Vine
<i>Morinda jasminoides</i>	Veiny Morinda
<i>Parsonsia straminea</i>	Common Silkpod
<i>Rubus moluccanus</i>	Molucca Bramble
<i>Smilax australis</i>	Austral Sarsaparilla
<i>Stephania japonica</i> var. <i>discolor</i>	Snake Vine
<b>HERBS AND GROUNDCOVERS</b>	
<b>Botanical Name</b>	<b>Common Name</b>
<i>Alocasia brisbanensis</i>	Cunjevoi
<i>Alpinia caerulea</i>	Native Ginger
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Enydra fluctuans</i>	Enydra
<i>Hydrocotyle peduncularis</i>	A Pennywort



Lilly Pilly Swamp -Site Action Plan

<i>Persicaria strigosa</i>	Prickly Knotweed
<i>Pratia purpurascens</i>	Whiteroot
<i>Typha domingensis</i>	Cumbungi
<i>Villarsia exaltata</i>	Villarsia
<i>Viola banksii</i>	Ivy-leaf Violet
<b>FERNS</b>	
<b>Botanical Name</b>	<b>Common Name</b>
<i>Adiantum hispidulum</i>	Rough Maidenhair
<i>Blechnum cartilagineum</i>	Gristle Fern
<i>Blechnum indicum</i>	Swamp Water Fern
<i>Blechnum wattsi</i>	Hard Water Fern
<i>Cyathea australis</i>	Straw Tree Fern
<i>Cyathea cooperi</i>	Scaly Tree Fern
<i>Cyclosorus interruptus</i>	Cyclosorus
<i>Gleichenia dicarpa</i>	Pouched Coral Fern
<i>Histiopteris incisa</i>	Bats Wing fern
<i>Hypolepis muelleri</i>	Harsh Ground Fern
<i>Lygodium microphyllum</i>	Climbing Maidenhair Fern
<i>Psilotum nudum</i>	Skeleton Fork Fern
<i>Pteridium esculentum</i>	Bracken
<i>Sticherus lobatus</i>	Spreading Fan fern
<b>GRASSES</b>	
<i>Baloskion tetraphyllum</i>	Swamp Foxtails
<i>Baumea rubiginosa</i>	A Twigrush
<i>Carex appressa</i>	Tall Sedge
<i>Carex maculata</i>	Carex
<i>Entolasia stricta</i>	Wiry Panic
<i>Gahnia clarkei</i>	Tall Saw Sedge
<i>Gahnia sieberiana</i>	Red-fruited Saw Sedge
<i>Leersia hexandra</i>	Swamp Rice Grass
<i>Lepironia articulata</i>	Grey Rush
<i>Lomandra hystrix</i>	Creek Mat-rush
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush
<i>Microlaena stipoides</i>	Awn Grass
<i>Phragmites australis</i>	Common Reed
<i>Rhynchospora corymbosa</i>	Rhynchospora
<i>Schoenus apogon</i>	Common Bog-rush



Lilly Pilly Swamp -Site Action Plan

### APPENDIX 3:

#### A3.1 WEED LIST – March 2020

TREES AND SHRUBS		
Botanical Name	Common Name	Comments
<i>*Ardisia crenata</i>	Coral Berry	
<i>*Cestrum parqui</i>	Green Cestrum	New weed introduced since bushland plan Possible misidentification as <i>C. nocturnum</i> ?
<i>Cestrum nocturnum</i>	Night-flowering Jasmine	
<i>*Cinnamomum camphora</i>	Camphor Laurel	
<i>#*Corymbia torelliana</i>	Cadaghi	
<i>Eugenia uniflora</i>	Brazilian Cherry	
<i>#*Jacaranda mimosifolia</i>	Jacaranda	
<i>*Lantana camara</i>	Lantana	
<i>Ligustrum lucidum</i>	Large-leaved Privet	New weed introduced since bushland plan Possible misidentification as <i>L. sinense</i> ?
<i>*Ligustrum sinense</i>	Small-leaved Privet	
<i>*Mangifera indica</i>	Mango	
<i>*Morus nigra</i>	Mulberry	
<i>Ochna serrulata</i>	Mickey-mouse Bush	New weed introduced since bushland plan
<i>*Psidium cattleianum</i>	Cherry Guava	
<i>*Schefflera actinophylla</i>	Umbrella Tree	
<i>*Schinus terebinthifolia</i>	Broad-leaved Pepper Tree	
<i>*Senna pendula var. glabrata</i>	Winter Senna	
<i>*Solanum mauritianum</i>	Tobacco Bush	
<i>Strelitzia nicolai</i>	Giant white bird of paradise	New weed introduced since bushland plan
<i>*Syagrus romanzoffianum</i>	Cocos Palm	
<i>Viburnum odoratissimum</i>	Sweet Viburnum	New weed introduced since bushland plan Possible previous mid-identification as <i>Gardenia</i> ?
VINES AND CLIMBERS		
Botanical Name	Common Name	
<i>*Desmodium uncinatum</i>	Silver-leaved Desmodium	
<i>Lonicera japonica</i>	Japanese Honeysuckle	New weed introduced since bushland plan
<i>*Passiflora edulis</i>	Common Passionfruit	
<i>*Passiflora suberosa</i>	Corky Passionfruit	
<i>*Syngonium podophyllum</i>	Syngonium	
HERBS AND GROUNDCOVERS		
Botanical Name	Common Name	
<i>*Ageratina adenophora</i>	Crofton Weed	
<i>*Ageratina riparia</i>	Mistflower	



Lilly Pilly Swamp -Site Action Plan

* <i>Ageratum houstonianum</i>	Blue Billy Goat Weed	
* <i>Bidens pilosa</i>	Cobbler's Pegs	
* <i>Canna indica</i>	Canna Lily	
* <i>Commelina benghalensis</i>	Hairy Commelina	
* <i>Cuphea carthagenensis</i>	Cuphea	
<b>GRASSES</b>		
<b>Botanical Name</b>	<b>Common Name</b>	
<i>Andropogon virginicus</i>	Whiskey Grass	
<i>Chloris gayana</i>	Rhodes grass	
<i>Melinis minutiflora</i>	Molasses Grass	
<i>Paspalum mandiocanum</i>	Broad-leaved paspalum	
* <i>Phyllostachys aurea</i>	Creeping Bamboo	
* <i>Setaria sphacelata</i>	Setaria	
* <i>Urochloa mutica</i>	Para Grass	
<b>AQUATIC PLANTS</b>		
<b>Botanical Name</b>	<b>Common Name</b>	
<i>Sagittaria platyphylla</i>	Sagittaria	
<i>Salvinia molesta</i>	Salvinia	
*Denotes exotic species/ environmental weeds		
# Planted natives introduced to site		



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A3.2 Weeds no longer present \_ March 2020

Comparison of previous with current weed list– <b>species in red no longer present in reserve</b> (previous list from Comprehensive Flora List for the South Byron Urban Bushland Remnants)		
TREES AND SHRUBS		
Botanical Name	Common Name	Eradicated prior to BBA start date
# <i>Agathis robusta</i>	Kauri Pine	# <i>Agathis robusta</i>
# <i>Araucaria bidwillii</i>	Bunya Pine	# <i>Araucaria bidwillii</i>
* <i>Ardisia crenata</i>	Coral Berry	
# <i>Brachychiton acerifolius</i>	Flame Tree	# <i>Brachychiton acerifolius</i>
* <i>Cestrum parqui</i>	Green Cestrum	
* <i>Cinnamomum camphora</i>	Camphor Laurel	
#* <i>Corymbia torelliana</i>	Cadaghi	
# <i>Davidsonia jerseyana</i>	Davidson's plum	# <i>Davidsonia jerseyana</i> – listed as weed but threatened species – still present?
* <i>Eugenia uniflora</i>	Brazilian Cherry	* <i>Eugenia uniflora</i>
# <i>Ficus rubiginosa</i>	Rock Fig	# <i>Ficus rubiginosa</i>
#* <i>Gardenia jasminoides</i>	Common Gardenia	#* <i>Gardenia jasminoides</i>
# <i>Grevillea baileyana</i>	White Oak	# <i>Grevillea baileyana</i>
#* <i>Jacaranda mimosifolia</i>	Jacaranda	
* <i>Lantana camara</i>	Lantana	
* <i>Ligustrum sinense</i>	Small-leaved Privet	
* <i>Mangifera indica</i>	Mango	
# <i>Melaleuca leucadendron</i>	Weeping Paperbark	# <i>Melaleuca leucadendron</i>
* <i>Morus nigra</i>	Mulberry	
* <i>Psidium cattleianum</i>	Cherry Guava	
* <i>Schefflera actinophylla</i>	Umbrella Tree	
* <i>Schinus terebinthifolia</i>	Broad-leaved Pepper Tree	
* <i>Senna pendula</i> var. <i>glabrata</i>	Winter Senna	
* <i>Solanum mauritianum</i>	Tobacco Bush	
* <i>Syagrus romanzoffianum</i>	Cocos Palm	
VINES AND CLIMBERS		
Botanical Name	Common Name	Previously present_eradicated
* <i>Desmodium uncinatum</i>	Silver-leaved Desmodium	
* <i>Dioscorea bulbifera</i>	Aerial Yam	* <i>Dioscorea bulbifera</i>
* <i>Epipremnum aureum</i>	Devil's Ivy	* <i>Epipremnum aureum</i>
* <i>Monstera deliciosa</i>	Fruit Salad Plant	* <i>Monstera deliciosa</i>
* <i>Neonotonia wightii</i>	White Glycine	* <i>Neonotonia wightii</i>
* <i>Passiflora edulis</i>	Common Passionfruit	
* <i>Passiflora suberosa</i>	Corky Passionfruit	



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<i>*Passiflora subpeltata</i>	White Passionflower	<i>*Passiflora subpeltata</i>
<i>*Philodendron spp.</i>	Philodendron	<i>*Philodendron spp.</i>
<i>*Syngonium podophyllum</i>	Syngonium	
<b>HERBS AND GROUNDCOVERS</b>		
<b>Botanical Name</b>	<b>Common Name</b>	<b>Previously present_eradicated</b>
<i>*Ageratina adenophora</i>	Crofton Weed	
<i>*Ageratina riparia</i>	Mistflower	
<i>*Ageratum houstonianum</i>	Blue Billy Goat Weed	*
<i>*Bidens pilosa</i>	Cobbler's Pegs	
<i>*Canna indica</i>	Canna Lily	
<i>*Cirsium vulgare</i>	Spear Thistle	<i>*Cirsium vulgare</i>
<i>*Commelina benghalensis</i>	Hairy Commelina	
<i>*Ctenanthe lubbersiana</i>	Bamburanta	<i>*Ctenanthe lubbersiana</i>
<i>*Cuphea carthagenensis</i>	Cuphea	
<i>*Eclipta prostrata</i>	White Eclipta	<i>*Eclipta prostrata</i>
<i>*Hedychium gardnerianum</i>	Kahili Ginger	<i>Hedychium gardnerianum</i>
<i>Pratia purpurascens</i>	Whiteroot	<i>Pratia purpurascens</i>
<i>*Protasparagus aethiopicus</i>	Ground Asparagus	<i>*Protasparagus aethiopicus</i>
<i>*Salvia coccinea</i>	Salvia	<i>*Salvia coccinea</i>
<i>*Sphagneticola trilobata</i>	Singapore Daisy	
<b>GRASSES</b>		
<b>Botanical Name</b>	<b>Common Name</b>	
<i>*Andropogon virginicus</i>	Whiskey Grass	
<i>*Melinis minutiflora</i>	Molasses Grass	
<i>*Panicum maximum</i>	Guinea Grass	
<i>*Pennisetum purpureum</i>	Bana Grass	
<i>*Phyllostachys aurea</i>	Creeping Bamboo	
<i>*Setaria sphacelata</i>	Setaria	
<i>*Urochloa mutica</i>	Para Grass	

\*Denotes exotic species/ environmental weeds

# Planted natives introduced to site





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**APPENDIX 4: Threatened Fauna and their Habitat**

(recorded on site or with potential to occur in Lilly Pilly Swamp)

Potential Fauna using habitats on site

Scientific Name	Common Name	Status	Status	Known/ Potential	Important Habitat Features
		TSC Act	EPBC Act		
<i>Amaurionis olivaceus</i>	Bush Hen	V		P	Dense vegetation/ Breeds in summer
<i>Miniopterus australis</i>	Little Bentwing-bat	V		P	Caves, hollow bearing trees
<i>Miniopterus schreibersii</i>	Common Bentwing-bat	V		P	Caves, hollow bearing trees
<i>Phascolarctos cinereus</i>	Koala	V	V	KNOWN	Feed trees include Swamp Mahogany, Tallowood, Flooded Gum
<i>Planigale maculata</i>	Common Planigale	V		P	Nests in crevices, hollow logs and beneath bark
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	P	Nectar, pollen and fruits. Dense vegetation for roosting
<i>Ptilinopus regina</i>	Rose-crowned Fruit-dove	V		P	Fruit bearing trees
<i>Ptilinopus superbus</i>	Superb Fruit-dove	V		P	Fruit bearing trees
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V		P	Caves, hollow bearing trees Nectar from heat and Paperbark swamps
<i>Syconycteris australis</i>	Common Blossum-bat	V		P	
<i>Thersites mitchellae</i>	Mitchell's Rainforest Snail	E	CE	KNOWN	Leaf Litter, palm fronds, moist microclimate
<i>Tyto tenebricosa</i>	Sooty Owl	V		P	Tall trees with hollows

CE: Critically Endangered, E: Endangered, V: Vulnerable




### Mitchells Rainforest Snail -biology and ecology

#### Mitchell's Rainforest Snail - profile

**Scientific name:** *Thersites mitchellae*

**Conservation status in NSW:** **Endangered**

**Commonwealth status:** **Critically Endangered** 

**Gazetted date:** 14 Mar 1997

**Profile last updated:** 21 Jun 2019

#### Description

Mitchell's Rainforest Snail is a large native land snail with a shell up to 55 mm wide and 50 mm high, triangular in profile, and with a thickened lip. The shell is deep reddish chestnut to black in colour with two prominent yellow bands. The body colour is black with a thin lighter line along the back.

#### Distribution

Found in remnant vegetation on the coastal plain between the Richmond River and Tweed River on the NSW north coast. It has also been recorded from some adjacent mid-elevation areas including Wilsons River and Mount Jerusalem.

#### Habitat and ecology

- Remnant areas of lowland subtropical rainforest and swamp forest on alluvial soils. Slightly higher ground around the edges of wetlands with palms and fig trees are particularly favoured habitat.
- Typically found amongst leaf litter on the forest floor, and occasionally under bark in trees.
- Active at night and feeds on leaf litter, fungi and lichen.

#### Regional distribution and habitat

Click on a region below to view detailed distribution, habitat and vegetation information.

- [South Eastern Queensland](#)

#### Threats

- Clearing of lowland rainforest, swamp forest and wetland margins for agriculture.
- Clearing of lowland rainforest, swamp forest and wetland margins for urban development.
- Damage to remnant areas of habitat from grazing by domestic stock.
- Damage to remnant areas of habitat by fire.
- Damage to remnant areas of habitat by weed invasion.
- Predation of snails by introduced rats.
- Habitat fragmentation increasing edge effects including increasing the severity of disturbance from fire, weeds and predation by introduced rats .
- Use of herbicides and pesticides in and near areas of habitat.
- Impacts on habitat as a result of dieback caused by root rot fungus (*Phytophthora cinnamomi*).
- Loss of coastal populations from sea level rise and climate change



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- Damage to habitat from changes in hydrology
- Poor knowledge of species distribution
- Lack of awareness of the species within the community

### Recovery strategies

A targeted strategy for managing this species has been developed under the Saving Our Species program; click [here](#) for details. For more information on the Saving Our Species program click [here](#)

[Hide section details](#)

### Activities to assist this species

- Support a local Landcare groups or bush regeneration teams to rehabilitate habitat.
- Control introduced rats in urban areas adjoining areas of potential habitat.
- Protect rainforest and wetland margins from fire.
- Retain and protect areas of rainforest, swamp forest and forest on wetland margins. Even small areas of habitat can be valuable.
- Avoid the use of snail baits, pesticides and herbicides in or near known and potential habitat.
- Fence rainforest remnants and wetland margins to exclude grazing by stock.
- Undertake weed control in known and potential habitat ensuring minimal disturbance of leaf litter and fallen logs.
- Monitor status of known populations.
- Prevent ornamental plants and weeds from escaping into native forest and wetland areas.
- Report any sightings of Mitchell's Rainforest Snail to the OEH. Empty shells or photographs of live snails can be sent to confirm identification, but leave live snails.
- Research into ecology and genetics of species to provide information to assist in its conservation.
- Model and map the predicted habitat for Mitchell's Rainforest Snail.
- Survey of areas of potential habitat to identify any additional populations.

[Hide section details](#)

### Information sources

- Murphy, M.J. (2002) Mollusc conservation and the New South Wales Threatened Species Conservation Act 1995: the recovery program for Mitchell's Rainforest Snail *Thersites mitchellae*. Australian Zoologist 32(1): 1-11.
- Murphy, M.J. and Nally, S. (2004) Case studies in implementing the NSW Threatened Species Conservation Act 1995 for invertebrate conservation. Australian Zoologist.
- NSW National Parks and Wildlife Service (2001) Mitchell's Rainforest Snail *Thersites mitchellae* (Cox, 1864) Recovery Plan. NPWS, Sydney.
- NSW National Parks and Wildlife Service (2002) Threatened Species of the Upper North Coast of NSW: Fauna. (NSW NPWS, Coffs Harbour)
- NSW Scientific Committee (1997) Mitchell's rainforest snail - Endangered species determination - final. DEC (NSW), Sydney.



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## Advice to the Federal Minister for threatened species

### ***Thersites mitchellae* (Mitchell's Rainforest Snail)**

Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the list of Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

#### **1. Scientific name, common name (where appropriate), major taxon group**

*Thersites mitchellae* (Mitchell's Rainforest Snail)

#### **2. National Context**

Mitchell's Rainforest Snail is a large land snail that is restricted to the coastal plains of northern NSW, between the Richmond and Tweed Rivers. Within this range, however, land clearing has been extensive and Mitchell's Rainforest Snail is now restricted to remaining areas of suitable habitat. The largest known population and largest remaining single area of suitable habitat is in Stotts Island Nature Reserve on the Tweed River, in northern NSW.

Mitchell's Rainforest Snail is found only in undisturbed remnant lowland subtropical rainforest and swamp sclerophyll forest with a rainforest understorey. Key habitat components for Mitchell's Rainforest Snail are a well developed leaf litter layer (providing food, shelter and breeding sites) and an intact forest canopy (maintaining a moist microclimate and providing a source of leaf litter).

Under the *Threatened Species Conservation Act 1995* (NSW), Mitchell's Rainforest Snail is listed as endangered, and Stotts Island Nature Reserve has been declared critical habitat for the species under the NSW Act.

#### **3. How judged by TSSC in relation to the EPBC Act criteria.**

TSSC judges the species to be eligible for listing as critically endangered under the EPBC Act. The justification against the criteria is as follows:

##### **Criterion 1 - Decline in numbers**

Museum collections from last century show the Mitchell's Rainforest Snail was previously common within its range but has since declined in abundance. However, there is no quantitative data available against this criterion. Therefore, the species is **not eligible** for listing under this criterion.

##### **Criterion 2 - Geographic distribution**

Mitchell's Rainforest Snail is a large land snail that is restricted to the coastal plains of northern NSW, between the Richmond and Tweed Rivers. The number of specimens from last century in museum collections indicate the Mitchell's Rainforest Snail was previously common within its range. Within this range and habitat, however, land clearing for agriculture and urban development has been extensive. Over 90% of suitable habitat for the Mitchell's Rainforest Snail has been cleared. Suitable habitat for the species now occurs only in small, fragmented areas or remnants, which form part of the endangered ecological community - Lowland Rainforest on Floodplain in the NSW North Coast Bioregion, which was listed under the *Threatened Species Conservation Act 1995* (NSW) in 1999. Between 1955 and 1995, Mitchell's Rainforest Snail was recorded at only 2-3 sites, despite the Queensland Museum extensively collecting for species of snails in the littoral rainforests of the area. Since 1995, NSW National Parks and Wildlife has conducted surveys for Mitchell's Rainforest Snail, that targeted suitable habitat, and undertaken public awareness campaigns for the species. This research has found the species at a number of sites at five locations- Stotts Island, Banora Point, Byron Bay, Suffolk Park and Lennox Head. It is considered that specimens that were collected at a site at Wilsons Creek, west of Mullumbimby, in 1979-1980, outside the normal range for the species, may have been translocated specimens. This site is more elevated than other sites, and a targeted search of the area in 1999 did not find the species. Other snail species present at the site were indicative of an upland snail fauna assemblage rather than the lowland snail assemblage usually associated with Mitchell's Rainforest Snail.



The largest known subpopulation and largest remaining single area of suitable habitat (120 ha) is in Stotts Island Nature Reserve in the Tweed River near Murwillumbah. The other known subpopulations are much smaller in number and occur in smaller areas of remnant habitat, most of which are found outside conservation reserves. The extent of occurrence of Mitchell's Rainforest Snail is estimated to be less than 400 km<sup>2</sup>, which appears the same as it was in the past. However, its current area of occupancy is estimated to be less than 5 km<sup>2</sup>, which indicates a severely restricted distribution. The greatest threat to Mitchell's Rainforest Snail is loss of habitat, through continuing agriculture and urban development. Within the species' range, the main local government areas, Tweed, Byron and Ballina are experiencing sustained and rapid development, particularly on the coastal plain, and many of the small pockets of surviving habitat for this species remain at risk from clearing and development. Recent information indicates that a number of sites providing known or high potential habitat for the species have been cleared for development or are currently subject to development proposals. If agricultural and urban development continues in areas of suitable habitat for the snail, it will result in further habitat loss for the species and an ongoing decline in numbers.

Additional threats to Mitchell's Rainforest Snail are predation and fire. The species appears to be vulnerable to predation from introduced mammals, such as rats. It is also known that the Noisy Pitta *Pitta versicolor* preys on these snails, and although the bird is a natural predator, it may have a considerable impact on the low numbers of Mitchell's Rainforest Snail that now remain. Fire will also impact adversely on the key habitat requirements for the Mitchell's Rainforest Snail, which are a well-developed leaf litter layer and an intact forest canopy.

The majority of known remaining populations of Mitchell's Rainforest Snail occur in small areas of remnant rainforest, including narrow strips of rainforest bordering coastal wetlands. Though breeding populations of the snail can persist in narrow strips of remnant rainforest, the long-term viability of populations at such sites is uncertain. These small remnant areas have a high perimeter to area ratio, and, thus, are at risk from edge-effects. Edge-effects on a particular habitat is the way adjoining habitats impact on that particular habitat along their adjoining edges. Edge-effects can result in increased loss of moisture from rainforest remnants, habitat disturbance, frequent fires, and invasion by exotic weeds and feral animals. There is little data available on the impact of these factors associated with remnants on land snails, but they are likely to be adverse.

In summary, Mitchell's Rainforest Snail, a species that was common last century, is now rare and has a very restricted geographic distribution, with its current area of occupancy estimated to be less than 5 km<sup>2</sup>. The species' distribution and habitat is now extremely limited and severely fragmented. On-going agriculture and urban development and other threatening processes could lead to a continuing decline in the area of occupancy, extent and quality of habitat, number of locations where the species is found and number of mature individuals. Therefore, the species is **eligible** for listing as **critically endangered** under this criterion.

### Criterion 3 - Population size and decline in numbers or distribution

The number of specimens from last century in museum collections indicate the Mitchell's Rainforest Snail was previously common within its range in suitable habitat. Within this range and habitat, land clearing for agriculture and urban development has been extensive. Over 90% of its original habitat has been cleared. Recent surveys for the species, that targeted suitable habitat, and public awareness campaigns conducted by NSW National Parks and Wildlife Service have shown Mitchell's Rainforest Snail is now extremely rare. One estimate is that total population now numbers less than 500 mature individuals.

Recent research has found Mitchell's Rainforest Snail occurs at a number of sites at five locations (Stotts Island, Banora Point, Byron Bay, Suffolk Park and Lennox Head) distributed along the coastal plain of northern NSW. The largest known population, and largest remaining area of habitat, is in Stotts Island Nature Reserve. The status and occurrence of Mitchell's Rainforest Snail and its habitat on Stotts Island was investigated by the NSW NPWS and Queensland Museum in 1999. The total subpopulation on Stotts Island is estimated to be several hundred, and its long-term viability is considered good. It is claimed that the number of mature individuals within this population is less than 250. Other subpopulations are considerably smaller - most occur in very small habitat remnants and are known from between one and three specimens.





Mitchell's Rainforest Snail's greatest threat is loss of habitat, through continuing agriculture and urban development. Additional potential threats include predation by birds and introduced mammals, fire, and those threats associated with subpopulations that occur in small remnants (e.g. invasion of weeds and predators). For details of these threats, see Criterion 2.

Mitchell's Rainforest Snail has a very restricted geographic distribution, with its current area of occupancy estimated to be less than 5 km<sup>2</sup>. The species' distribution and habitat is now extremely limited and severely fragmented. On-going threats could lead to a continuing decline in the area of occupancy, extent and quality of habitat, and the number of locations where the species is found. Mitchell's Rainforest Snail is eligible to be listed under this criterion because: its estimated population size of less than 500 mature individuals is low, with no subpopulation considered to contain more than 250 mature individuals; a continuing decline is projected because of ongoing threats; and its geographic distribution is precarious for its survival.

Therefore, the species is **eligible** for listing as **endangered** under this criterion.

#### Criterion 4 - Population size

Recent surveys for the Mitchell's Rainforest Snail, that targeted suitable habitat, and public awareness campaigns conducted by NSW National Parks and Wildlife Service have shown the species to be extremely rare. The estimated number of mature individuals is low, with an estimated total population of less than 500 mature individuals.

Therefore, the species is **eligible** for listing as **vulnerable** under this criterion.

#### Criterion 5 - Probability of extinction in the wild

There is no quantitative data available against this criterion.

### 4. Conclusion

Museum collections from last century show the Mitchell's Rainforest Snail was previously common within its range, but has since declined in abundance. Since this time, much of the habitat that the species occupied, remnant lowland subtropical rainforest and swamp sclerophyll forest, has been cleared. Recent research shows that Mitchell's Rainforest Snail now has a restricted and fragmented geographic distribution, with an area of occupancy estimated to be less than 5km<sup>2</sup>, and a low number of individuals, with a population of less than 500 mature individuals. Ongoing decline is projected due to continuing degradation of habitat.

The species is eligible for listing as critically endangered under criterion 2.

### 5. Recommendation

TSSC recommends that the list referred to in section 178 of the EPBC Act be amended by **including** in the list in the **critically endangered** category:

*Thersites mitchellae* (Mitchell's Rainforest Snail)



### Koala -biology and ecology

#### *BioNet threatened Species profile*

**Scientific name:** *Phascolarctos cinereus*

**Conservation status in NSW:** **Vulnerable**

**Commonwealth status:** **Vulnerable** 

**Profile last updated:** 10 Apr 2019

#### **Description**

The Koala is an arboreal marsupial with fur ranging from grey to brown above, and is white below. It has large furry ears, a prominent black nose and no tail. It spends most of its time in trees and has long, sharp claws, adapted for climbing. Adult males weigh 6 - 12 kg and adult females weigh 5 - 8 kg. During breeding, males advertise with loud snarling coughs and bellows.

#### **Distribution**

The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In New South Wales, koala populations are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests, with some smaller populations on the plains west of the Great Dividing Range.

#### **Habitat and ecology**

- Inhabit eucalypt woodlands and forests.
- Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species.
- Inactive for most of the day, feeding and moving mostly at night.
- Spend most of their time in trees, but will descend and traverse open ground to move between trees.
- Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size.
- Generally solitary, but have complex social hierarchies based on a dominant male with a territory overlapping several females and sub-ordinate males on the periphery.
- Females breed at two years of age and produce one young per year.

#### **Threats**

- Loss, modification and fragmentation of habitat
- Vehicle strike
- Predation by roaming or domestic dogs
- Intense prescribed burns or wildfires that scorch or burn the tree canopy
- Koala disease
- Heat stress through drought and heatwaves
- Human-induced climate change
- Inadequate support for fauna rehabilitation



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- Poor understanding of sources of trauma and mortality
- Poor understanding of population distribution and trend
- Poor understanding of animal movements and use of habitat

**Recovery strategies**

A targeted strategy for managing this species has been developed under the Saving Our Species program

**Activities to assist this species**

- Undertake planting to restore and increase the area of koala habitat
- Negotiate agreements with landholders, particularly in-perpetuity covenants or stewardship agreements that promote the protection and retention of high-quality koala habitat
- Undertake koala habitat studies and mapping using standardised methods
- Identify blackspots where koala road mortalities are greatest and target proven mitigation techniques
- Liaise with government agencies in the development of new/existing roads to plan koala barrier fencing and crossings
- Conduct local community awareness campaigns in areas where attacks by domestic dogs on koalas are prevalent
- Liaise with relevant authorities or land managers to ensure that identified koala habitat areas are defined as assets for protection in fire planning tools
- Liaise with authorities or land managers to ensure that any unavoidable prescribed burns within koala habitat are conducted in a way that minimises impacts on koala habitat and individual koalas
- Improve understanding of the role of chlamydia in koala population dynamics and mortality
- Support carer and vet networks in their response to the management of koala health and welfare during extreme weather conditions
- Research and trial adaptation management actions such as installation of artificial water sources and the establishment of refuge habitat and promote connectivity through habitat restoration
- Use predicted climate change data and modelling techniques to predict the possible impacts on koalas from climate change.
- Support koala rehabilitation groups and vets to rehabilitate sick and injured koalas through training, provision of materials, and promotion of state-wide protocols
- Engage with koala rehabilitation groups and other information sources to better understand the causes of koala trauma and mortality
- Develop standardised method and reporting for monitoring change in koala populations and distribution through time
- Support the collation of koala survey records and monitoring information through a centralised database for state-wide reporting and analysis
- Improve understanding of koala movements and use of their habitat in the landscape by conducting targeted research on individuals using GPS collars and mark-recapture techniques

**APPENDIX 5: BIOBANK AGREEMENT**  
**-DETAIL OF MANAGEMENT ACTIONS**

Management of grazing for conservation

Item 1	Management of grazing for conservation	Timing
1.1	Stock must not be permitted to graze in any area of the biobank site.	Ongoing from commencement date.
1.2	This item is not applicable.	N/A
1.3	Stock must not be permitted to be present on the biobank site in areas where replanting has been undertaken in accordance with item 6 of this Section, except as specified in items 6.2 and 6.3.	Ongoing from first payment date.
1.4	If, at any time, the landowner observes stock in any area of the biobank site, other than an area on the biobank site where grazing is permitted, the landowner must take necessary measures to remove the stock from the area immediately.	Ongoing from first payment date.



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## Weed control

Item 2	Weed control	Timing
2.1	<p>The landowner must implement and, at all relevant times, comply with, the integrated weed management plan included in the following Section (<b>'the weed management plan'</b>) (or such updated integrated weed management plan as has been approved by the Chief Executive under item 2.2 below).</p> <p>To allow for adaptive management, minor alterations can be made to the implementation of the weed management plan. Any alterations must be recorded in writing in accordance with Biobanking Agreement.</p>	Ongoing from first payment date.
2.2	<p>The weed management plan must be reviewed at intervals of no less than 4 years and no more than 6 years by an appropriately qualified person. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the current plan that are outlined in the dot points below. Notification of the date of the review commencement must be provided to the Chief Executive in writing within 14 days of the commencement of the review. The findings of the review must be submitted to the Chief Executive within 3 months of commencing the review.</p> <p>Where the Chief Executive determines from the review that an update of the plan is required, the Chief Executive will notify the landowner in writing that an update of the plan is required. The landowner must update the plan and submit it to the Chief Executive for approval within 3 months of receiving written notification from the Chief Executive that an update of the plan is required. The revised plan must be prepared by an appropriately qualified person and must cover the matters outlined below and any additional matters specified by the Chief Executive in writing:</p> <ul style="list-style-type: none"> <li>• a description of the target weed/s at the biobank site and their location/s, linked to each management zone where weeds are present</li> <li>• the method/s of weed control in each zone</li> <li>• the frequency of weed control activities at the site, taking into account management practices where weeds are providing habitat for native species</li> </ul>	Ongoing from first payment date.



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	<ul style="list-style-type: none"> <li>the timing of any planting of native plant species required in each management zone to provide alternative habitat for native species affected by weed control activities</li> <li>methods for monitoring the success of weed control activities</li> <li>a timetable/measures for inspections to identify new weed species or exotic plant species (including noxious weeds under the <i>Noxious Weeds Act 1993</i>)</li> <li>additional weed control activities to destroy or remove any new weed species that are found on the site</li> <li>measures for assessing and reporting monitoring results</li> <li>a diary for recording actions taken in accordance with the weed management plan and minor alterations to this plan permitted for adaptive management. The details (management zone/s, date, alternative action) and reasons for the minor alterations must be recorded in the diary.</li> </ul>	
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#### Management of Fire for conservation

Item 3	Management of fire for conservation	Timing
3.1	<p>The landowner must implement, and at all relevant times, comply with the fire management plan included in the following Section (or such updated fire management plan as has been approved by the Chief Executive under item 3.2 below) (<b>‘the fire management plan’</b>).</p> <p>To allow for adaptive management and weather conditions, minor alterations can be made to the implementation of the fire management plan, and must be recorded in writing in accordance with Section 3 of this Annexure.</p>	Ongoing from first payment date.





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3.2	<p>The fire management plan must be reviewed at intervals of no less than 4 years and no more than 6 years by an appropriately qualified person. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the current plan that are outlined in the dot points below. Notification of the date of the review commencement must be provided to the Chief Executive in writing within 14 days of the commencement of the review. The findings of the review must be submitted to the Chief Executive within 3 months of commencing the review.</p> <p>Where the Chief Executive determines from the review that an update of the fire management plan is required, the Chief Executive will notify the landowner in writing that an update of the plan is required. The landowner must update the plan and submit it to the Chief Executive for approval within 3 months of receiving written notification from the Chief Executive that an update of the plan is required. The revised plan must be prepared by an appropriately qualified person and cover the matters outlined below and any additional matters specified by the Chief Executive in writing:</p> <ul style="list-style-type: none"> <li>• the year the last fire went through, the type of fire and the extent of the fire and location, where known</li> <li>• frequency of natural fires in the area of the biobank site, where known</li> <li>• a description of locations and management zones where ecological burns will be conducted and areas that will not be burnt</li> <li>• the methods that will be used for ecological burns</li> <li>• the fire frequency intervals recommended for the vegetation types and threatened species present, including any required adjustment to the schedule in the event of a wildfire or activities undertaken under the <i>Rural Fires Act 1997</i> to ensure minimum frequency between ecological burns</li> <li>• the fire intensity for the recommended vegetation types</li> <li>• the time of year suitable for ecological burns</li> <li>• the diary for recording actions taken in accordance with the fire management plan and minor alterations to fire management plan permitted for adaptive management. The details (management zone/s, date, alternative action) and reasons for the minor alterations must be recorded in the diary.</li> </ul>	Ongoing from first payment date.
3.3	<p>Fires must not be lit on the biobank site other than for the purpose of ecological burning in accordance with the fire management plan or as permitted as a permissible human activity on the biobank site under item 4 of this Annexure or clause 3.6 of this agreement.</p>	Ongoing from commencement date.



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Management of Human Disturbance

Item 4	Management of human disturbance	Timing
4.1	Except as permitted under clause 3 of this agreement or item 4.2 (below), human activities that adversely affect biodiversity values on the biobank site, including repeated disturbance of native animals, must not be carried out, or caused or permitted to be carried out, on the biobank site.	Ongoing from commencement date.
4.2	Human activities that may have a negative impact on biodiversity values on the biobank site are permitted if they are listed as permissible activities under clause 3.6 of this agreement or if they are undertaken as part of the management actions or management plans.	Ongoing from commencement date.
4.3	All waste shown on <i>Figure 5 Property action plan; Lilly Pilly biobank site</i> , dated 05/07/2017 must be removed from the biobank site in an appropriate manner. Waste was limited to scattered household waste items only.  A line item has been included in the TFD to remove waste and manage human disturbance in perpetuity as well.	Commencing from first payment date.
4.4	The landowner must not store, dispose of, or cause or permit to be disposed of, any waste on the biobank site.  Note: The storage or disposal of waste on the biobank site may require an approval under the <i>Protection of the Environment Operations Act 1997</i> .	Ongoing from commencement date.
4.5	The landowner must take all reasonable steps to remove waste deposited by others on the biobank site, or which is otherwise present on the biobank site.	Ongoing from first payment date.
4.6	Fencing and/or signage must be installed and maintained to deter human disturbance including waste dumping. Signage must be the BioBanking signs available from the OEH. Specific requirements:  <b>Proposed Fencing</b> Approximately 550 m of new 'simple' rural fencing is proposed to be installed. Fencing will consist of 4-strand plain wire and star pickets with timber posts at corners or as necessary. This fencing will be installed on the western boundary of the biobank only as shown on the <i>Figure 5 Property action plan; Lilly Pilly biobank site</i> , dated 05/07/2017 to delineate the biobank site from nearby residential properties and to assist in controlling impacts from human access.  There is also a small section of old fence in the southern portion of the site as shown on the <i>Figure 5 Property action plan; Lilly Pilly biobank site</i> , dated 05/07/2017 which will have the wire removed.  <b>Signage</b> Standard OEH BioBanking signage is to be installed at the four primary biobank site entrances, as shown on <i>Figure 5 Property action plan; Lilly Pilly biobank site</i> , dated 05/07/2017.	Ongoing from first payment date.



**Retention of Dead Timber**

Item 7	Retention of dead timber	Timing
7.1	<p>Dead timber (whether standing or fallen and including branches and leaf litter) must not be removed from or moved within the biobank site except for the personal (non-commercial) use by the landowner for firewood for one dwelling only or for repair of fencing (not for construction of fencing).</p> <p>Dead timber used for fencing repair must be documented by the landowner in writing and records must be kept in accordance with the record keeping requirements. The landowner must record the approximate amount of dead timber collected from the biobank site for use in fencing, the location that that dead timber was collected from and the date it was collected (month, year).</p> <p>Specific requirements: N/A</p>	Ongoing from commencement date.
7.2	<p>Timber from outside the biobank site may be introduced to and placed on the biobank site to improve biodiversity values. Once the timber has been brought onto the site, it is subject to the requirements of item 7.1 above.</p> <p>Timber brought from outside the biobank site must be documented by the landowner in writing and records must be kept in accordance with the record keeping requirements. The landowner must record the approximate amount of timber brought from outside the biobank site, the location where the timber was placed on the biobank site and the date on which it was placed (month, year).</p> <p>Specific requirements: N/A</p>	When required but not required before the first payment date.

**Retention of regrowth and remnant native vegetation**

Item 5	Retention of regrowth and remnant native vegetation	Timing
	<p>Note: An approval under the <i>biodiversity Conservation Act 2003</i> may be required to carry out thinning or any other removal or damage to native vegetation under this item.</p>	
5.1	<p>Native vegetation (whether remnant native vegetation or regrowth) on the biobank site must not be cut down, felled, thinned, logged, killed, destroyed, poisoned, ringbarked, uprooted, burnt or otherwise removed, except in accordance with item 5.2 below, or if it is required as part of the management actions or it is essential for the carrying out of permissible development under clause 3.5 of this agreement.</p> <p>Note: Native vegetation on the biobank site may be managed to improve biodiversity values by thinning to benchmark stem densities over no more than 80% of each management zone. Benchmark stem densities has the same meaning as defined in the Vegetation Benchmark Database as published by OEH and updated from time to time. An approval under the <i>Native Vegetation Act 2003</i> may be required to carry out thinning or any other removal or damage to native vegetation under this item.</p>	Ongoing from commencement date.
5.2	<p>Native vegetation on the biobank site must not be burnt except in accordance with the fire management plan prepared pursuant to item 3 above.</p>	Ongoing from commencement date.



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<b>6.6 Planting schedule at the biobank site</b>					
Species' common name	Species' scientific name	Management zone/s of planting	Number of plants per area	Planting method	Timing
No planting					

#### Erosion Control

Item 8	Erosion control	Timing
8.1	<p>All reasonable steps must be undertaken to prevent, control and remedy erosion on the biobank site.</p> <p>Soil management for preventing and controlling erosion is to be undertaken using best practice management, such as that developed by the Soil Conservation Service, applied as relevant for the biobank site.</p>	Commencing from first payment date.

#### Retention of Rocks

Item 9	Retention of rocks	Timing
9.1	The landowner must not remove, or cause or permit to be removed, rocks from the biobank site or move, or cause or permit to be moved, rocks within the biobank site.	Ongoing from commencement date.
9.2	Rocks from outside the site may be placed on the biobank site to improve habitat for threatened species. Rocks, once placed on the biobank site, are subject to item 9.1 above. The landowner must make and retain records of the location of the rocks placed on the site and the date the rocks were brought onto the site in accordance with the record keeping requirements.	When required but not required before the first payment date.



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Item 11	Vertebrate pest management – feral cats and foxes	Timing
11.1	The landowner must implement, and at all relevant times, comply with the vertebrate pest management plan included in Section 4 (or such updated vertebrate pest management plan as has been approved by the Chief Executive under item 11.2 below) ( <b>the vertebrate pest management plan</b> ). To allow for adaptive management, minor alterations can be made to the implementation of the vertebrate pest management plan, but these must be recorded in writing in accordance with Section 3 of this Annexure.	Ongoing from first payment date.
11.2	<p>The vertebrate pest management plan must be reviewed at intervals of no less than 4 years and no more than 6 years by an appropriately qualified person. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the current plan that are outlined in the dot points below. Notification of the review commencement must be provided to the Chief Executive in writing within 14 days of the commencement. The findings of the review must be submitted to the Chief Executive within 3 months of commencing the review.</p> <p>Where the Chief Executive determines from the review that an update of the plan is required, the Chief Executive will notify the landowner in writing that an update of the plan is required. The landowner must update the plan and submit it to the Chief Executive for approval within 3 months of receiving written notification from the Chief Executive that an update of the plan is required. The revised plan must cover the matters outlined below and any additional matters specified by the Chief Executive in writing:</p> <ul style="list-style-type: none"> <li>• a description of the target fauna species e.g. pigs, foxes or other species such as feral dogs or goats</li> <li>• consideration of relevant current OEH and other pest management programs</li> <li>• the method/s of vertebrate pest control in each management zone determined in accordance with best management practice</li> <li>• the frequency and timing of vertebrate pest control actions in each management zone</li> <li>• methods for monitoring the success of vertebrate pest control actions</li> <li>• a timetable and measures for inspections to identify new vertebrate pest species that may negatively impact on threatened species on the biobank site</li> </ul>	Ongoing from first payment date.



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	<ul style="list-style-type: none"> <li>• additional vertebrate pest control actions to destroy or remove any new vertebrate pest species that occur on-site</li> <li>• measures for assessing and reporting monitoring results</li> <li>• a diary for recording actions taken in accordance with the vertebrate pest management plan and minor alterations to this plan permitted for adaptive management. The details (management zone/s, date, alternative actions) and reasons for the minor alterations must be recorded in the diary.</li> </ul>	
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<b>Item 12</b>	<b>Nutrient control</b>	<b>Timing</b>
12.1	Fertilisers, pesticides and herbicides must not be applied on the biobank site, except where required to undertake the management actions. Use of fertilisers for establishing native vegetation through planting or seeding, use of herbicides for controlling weeds or use of pesticides for controlling vertebrate pests or feral herbivores can be undertaken in accordance with best practice management when required to undertake the management actions.	Ongoing from commencement date.
<b>Item 13</b>	<b>Control of exotic fish species</b>	<b>Timing</b>
13.1	This item is not applicable.	N/A
<b>Item 14</b>	<b>Maintenance or reintroduction of natural flow regimes</b>	<b>Timing</b>
14.1	This item is not applicable.	N/A
14.2	This item is not applicable.	N/A
14.3	Artificial structures such as dams or levee banks that impede the natural flow regimes on the biobank site must not be constructed unless approved by the Chief Executive in writing for the purpose of restoring natural flows.	Ongoing from commencement date.



## BIOBANK AGREEMENT MANAGEMENT PLANS

### Weed Management Plan

Weed management plan				
<p>The weed types, description and location (management zone/s) of weed infestations existing at the commencement date are listed in the weed management plan. The methods of weed control (management actions), monitoring and inspections are also listed.</p> <p>The landowner must perform the methods of weed control and other weed management activities and monitoring in the weed management plan by the methods described (and in accordance with item 2 of this Annexure) for all weeds. The methods of control will apply to the weeds listed in the table below as well as any other weeds that may be present on the site from time to time.</p> <p>The template for reporting of monitoring activities and the diary template for weed control management must be filled in to record observations during the implementation of the weed management plan, including any minor variations.</p>				
Weed types				
Weed	Common name of target weed	Scientific name of target weed	Description of infestation (eg intensity (% cover) & location within zone)	Management zone/s
A	Bamboo	<i>Bambusa spp</i>	One small clump in MZ2 (see located shown on Property Action Plan dated 05/07/2017)	MZ2
B	Broadleaf Paspalum	<i>Paspalum mandiocanum</i>	Minor infestations in small patches.	All Zones
C	Other introduced grasses (e.g. Whisky Grass, Vasey Grass)	<i>Andropogon virginicus, Paspalum urvillei</i>	Minor infestations in small patches.	All Zones
D	Sagittaria	<i>Sagittaria platyphylla</i>	Minor infestations in small patches.	MZ1
E	Alexander Palms	<i>Archontophoenix sp</i>	Scattered individuals only.	All Zones





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F	Small woody and Herbaceous weeds (Coral Berry & Winter Senna)	<i>Ardisia crenata</i> , <i>Senna pendula</i> var. <i>glabrata</i>	Scattered individuals only.	All Zones
G	White passionflower	<i>Passiflora subpeltata</i>	Minor infestation	MZ1
<b>Methods of weed control</b>				
Management zone/s	Weed/s	Method of weed control		Frequency
MZ2	A	<p>All weed control activities to be completed by suitably qualified and experienced contractors and staff.</p> <p><b>Control methods for Bamboo will include:</b></p> <ul style="list-style-type: none"> <li>Cut and paint stems with undiluted glyphosate.</li> <li>Foliage spray on smaller individuals and during follow-up control</li> <li>Hand removal.</li> </ul> <p><b>Performance measures:</b></p> <p>Weed control work will aim to achieve the following outcomes:</p> <ol style="list-style-type: none"> <li>Small stand of Bamboo treated by the end of year 2.</li> <li>Biobank site managed so that no mature individuals establish in perpetuity.</li> </ol>		4 sessions per year in year 1 and year 2.
All Zones	B	<p><b>Control methods will include:</b></p> <ul style="list-style-type: none"> <li>spot spraying</li> <li>Use of 'wick wiper'</li> <li>pulling/crowning of weeds</li> </ul> <p><b>Performance Measures</b></p> <p>Weed control work will aim to achieve the following outcomes:</p> <ol style="list-style-type: none"> <li>Reduce Paspalum to less than 10% of its original distribution by the end of year 3</li> <li>Maintain Paspalum at less than 10% of original distribution in perpetuity.</li> </ol>		3 sessions per year from year 1 to year 3.



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All Zones	C	<p><b>Control methods will include:</b></p> <ul style="list-style-type: none"> <li>• Ute mounted spray unit (or equivalent)</li> <li>• Spot spraying using 'back packs' throughout all zones.</li> <li>• Wick wiper application.</li> <li>• Back-pack spraying associated with edge of roadside or small patches within existing intact vegetation.</li> </ul> <p><b>Performance Measures</b> Weed control work will aim to achieve the following outcomes:</p>	4 sessions from year 1 to year 3
		<p>1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3.</p> <p>2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.</p>	
MZ1	D	<p><b>Controls methods will include:</b></p> <ul style="list-style-type: none"> <li>• Cut and paint crown/lignotuber with undiluted glyphosate for isolated plants or smaller areas of infestation.</li> <li>• Hand pulling/crowning of weeds.</li> </ul> <p><b>Performance measures:</b> Weed control work will aim to achieve the following outcomes:</p> <p>1. Individuals of mature <i>Sagittaria</i> removed by the end of year 3.</p> <p>2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Included in Weed C allocation
All Zones	E	<p><b>Control methods will include:</b></p> <ul style="list-style-type: none"> <li>• Cut and paint crown/lignotuber with undiluted glyphosate for isolated plants or smaller areas of infestation.</li> <li>• Hand pulling/crowning of weeds.</li> </ul> <p><b>Performance measures:</b> Weed control work will aim to achieve the following outcomes:</p> <p>1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3.</p> <p>2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Included in Weed C allocation



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All Zones	F	<b>Control methods will include:</b> <ul style="list-style-type: none"> <li>Cut and paint crown/lignotuber with undiluted glyphosate for isolated plants or smaller areas of infestation.</li> <li>Hand pulling/crowning of weeds.</li> </ul> <b>Performance measures:</b> Weed control work will aim to achieve the following outcomes: Individuals of Coral Berry & Winter Senna removed by the end of year 3. Biobank site managed so that no mature individuals establish in perpetuity.	Included in Weed C allocation
MZ1	G	<b>Control methods will include:</b> <ul style="list-style-type: none"> <li>Cut/scrap and paint crown/lignotuber with undiluted glyphosate for isolated plants or smaller areas of infestation.</li> <li>Spot spraying</li> <li>Hand removal (follow-up).</li> </ul> <b>Performance measures:</b> Weed control work will aim to achieve the following outcomes: 1. Individual White passionflower removed by the end of year 3. 2. Biobank site managed so that no mature vines establish in perpetuity.	Included in Weed C allocation
All Zones	All	Weed control in perpetuity activities program to be carried out by qualified person/s. Methods will include: <ul style="list-style-type: none"> <li>Spot spraying</li> <li>Use of 'wick wiper'</li> <li>Pulling/crowning of weeds</li> </ul>	3 sessions per year in perpetuity
<b>Native planting required to provide habitat for native species affected by weed control activities</b>			
<b>Management zone</b>	<b>Description of planting required</b> (reference planting schedule at item 6.6)		<b>Timing</b>
	N/A		



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Monitoring and inspections of existing and new weeds			
Management zone/s	Weed/s	Method of monitoring	Date/s required
All Zones	All weeds	<p>A monitoring and evaluation program to address weed regrowth and control measures will be undertaken annually by the landholder through the set-up of fixed photo-points across all restoration zones. Photos should be taken by digital camera and recorded in the project file by date and discrete photo-point number. Photo-point locations should be clearly marked on site and/or recorded using a GPS.</p> <p>The photo-point monitoring will be augmented by a completion of a weed management log (included below) describing actions and observations.</p>	Annually
		<p>The photographic records and observations log will be completed by the landholder and provided to OEH.</p> <p>For each management zone, the following information will be reported:</p> <ul style="list-style-type: none"> <li>• A summary of weed control activities works undertaken for the previous 12 months in the zone and a review of their success or otherwise.</li> <li>• A description of the current condition of the zone. This may include presence/absence of canopy, shrub and/or ground-layer regeneration and any evidence of dieback etc.</li> <li>• Brief descriptions of the type and locations of any significant new or remaining weed infestations. Successful suppression of weeds should also be documented. Refer back to the performance targets in methods of weed control.</li> <li>• Recommendations, if required, of any adaptations to the weed control techniques previously applied</li> </ul>	
All Zones	All weeds	Condition mapping (floristic and habitat field survey assessment) to determine vegetation quality and ecological condition. This will be provided to OEH.	Every six years



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Notes:

**The following specifications are to be applied to all native vegetation management and restoration works. They apply to all weed species and all management zones.**

Herbicide usage

- Herbicide spraying is not to be utilised within bushland areas of diverse / resilient remnant native groundcover.
- Off-label usage of any herbicide is only to be undertaken in accordance with a permit issued by the Australian Pesticide and Veterinary Medicine Authority (APVMA).
- Herbicide usage to only be undertaken where there is no risk to any waterway or the immediate environment. Accumulation of translocated residual herbicides into waterways during wet periods is to be considered in this context.
- All herbicide usage, including storage and transport, to be in accordance with WorkCover NSW (2006) and all relevant legislation, including NSW *Pesticides Act 1999*.
- Any bush regenerator undertaking herbicide spray applications must hold a current chemicals application training certification to AQF Level 3.
- Any bush regenerator undertaking herbicide spray applications must be highly competent in native and exotic plant identification.
- All herbicide applications to weed species are to avoid off-target damage to emerging or mature native plants.

Should a herbicide spill occur, incident and spill management procedures shall be immediately implemented. All incidents shall be immediately reported to the Farm Manager.

All ecological management and restoration works are to be implemented by an appropriately qualified and experienced bush regeneration contractor. The bush regeneration contractor must:

- Comply with provisions of the National Gardening & Landscape Services Award 2010.
- Provide established Workplace Health & Safety and Environmental Management Systems. Preferably the company has third-party accredited systems in place.
- Demonstrate implementation of safe workplace and appropriate environmental management practices and procedures (e.g. appropriate transport and management of herbicides).
- Provide site supervisor(s) with minimum qualifications and experience of Certificate III Conservation & Land Management and one year full-time equivalent experience as a trained bush regenerator.
- All herbicide usage, including storage and transport, to be in accordance with the NSW Pesticides Act 1999, WorkCover NSW (2006) and all other relevant legislation.

Other contractors required may include fencing contractors etc.

One session of weed control refers to a team of 2 or 3 staff per day depending on weed control activity being completed.

Each session of weed control in perpetuity consists of a team of 2 staff for one day.

Weed control refers to the follow-up treatment of weeds listed in this MAP whereas weed control in perpetuity refers to the ongoing treatment, through time, of any weed that may inhabit the site now and in the future.



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Template for reporting of monitoring activities		
Manageme nt zone/s	Date	Observations and assessment of monitoring This table must include the information for each zone (or groups of zones) which is described in the table titled 'monitoring and inspections of existing and new weeds'.

Diary template for weed control management			
Date	Manageme nt zone/s	Description and type of activity undertaken (e.g. weed control, observation)	Minor variations (details and reasons)



## Fire for Conservation Management Plan

**Fire for conservation management plan**

The plan includes information on all known previous fire events in the 'Fire history' table to demonstrate local fire conditions including intensity and frequency.

The ecological fire requirements for each vegetation type or threatened species on the biobank site are listed in the 'Fire requirements for vegetation types and threatened species' table. These are the fire frequency intervals recommended for the vegetation types and threatened species present on the biobank site. They include any requirement adjustments to the schedule in the event of a wildfire or activities undertaken under the *Rural Fires Act (RFA) 1997* to ensure the minimum frequencies between ecological burns.

The landowner must carry out ecological burns for each management zone according to the method and frequency described (as informed by the history and requirements sections and in accordance with Section 3 of this annexure). These actions are set out in the 'Ecological burning actions table'. Monitoring and inspections (set out in the 'Fire management monitoring' table) as described must also be implemented. The landowner must also carry out the actions listed in the 'Other fire management activities' table.

The table titled 'Template of monitoring activities' must be completed to record observations during the implementation of the plan and assessment of monitoring activities. The landowner must also complete the table titled 'Diary template for fire management activities' to record the management actions undertaken or observations made, including any minor variations.

**Fire history for previous 20 years (or longer if known)**

Year of fire	Hazard reduction, wildfire or ecological burn and extent of fire	Management zone/s
	Fire history unknown	

**Fire requirements for vegetation types and threatened species**

Vegetation type and/or threatened species	Fire frequency required	Time of year for burning	Fire intensity required	Adjustment required due to wildfires or RFA activities
<b>NR217</b> Paperbark swamp forest of the coastal lowlands of the North Coast	Contains vegetation which is not recommended to be subjected to active burns.	N/A	Fire should be avoided where possible	N/A





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<b>NR254</b> Swamp Mahogany swamp forest of the coastal lowlands of the North Coast	Contains vegetation which is not recommended to be subjected to active burns.	N/A	Fire should be avoided where possible	N/A
<b>Ecological burning actions</b>				
<b>Management zone/s</b>	<b>Actions</b>	<b>Supervision &amp; extinguishing techniques</b>	<b>Time of year for burning</b>	<b>Frequency</b>
All Zones	<p>All Zones contain vegetation which does not traditionally have the same burning regimes (i.e. it is a moist vegetation types). These areas should not be subjected to targeted ecological burn regime.</p> <p>The site also includes the threatened species Mitchell's Rainforest Snail. This species is not adapted to habitats which are conducive to active burning.</p> <p>Burns in the biobank site would be restricted to potential access of wild fire only should conditions be conducive to such an event. Even then, it is anticipated efforts would be undertaken to restrict fire accessing the site by response authorities including RFS and NPWS.</p>	N/A	No active lighting	N/A
<b>Methods for monitoring the outcomes of ecological burns</b>				
<b>Management zone/s</b>	<b>Method of monitoring</b>			<b>Date/s required</b>
<b>Other fire management activities (where required)</b>				



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Template for reporting of monitoring activities		
Manageme nt zone/s	Date	Observations and assessment of monitoring

Diary template for fire management activities			
Date	Manageme nt zone/s	Description of activity undertaken or observation made	Minor variations (details and reasons)



## Vertebrate Pest Management Plan

## Vertebrate pest management plan

The management plan for vertebrate pests includes information on the vertebrate pests and their extent existing at the time of the agreement as listed in the 'Vertebrate pests' table. The possible methods of control for each species, used by OEH and other pest management programs are listed and the suitability of each method to the biobank site is described in the 'Methods considered' table.

The landowner must carry out the methods for vertebrate pest control for each management zone according to the method and frequency described in the 'Methods of control' table. The methods of control will apply to the vertebrate pests listed in the 'Vertebrate pests' table as well as any other vertebrate pests that may be present on the site from time to time.

Monitoring and inspections of existing and new vertebrate pests on the biobank site, as described in the 'Monitoring and inspections' table, must be implemented.

The table titled 'Template for reporting of monitoring activities' must be completed to record observations during the implementation of the plan and assessment of monitoring activities. The landowner must also complete the 'Diary template for vertebrate pest management' to record the management actions undertaken, including any minor variations, and observations made.

## Vertebrate pests

Pest	Name of vertebrate pest (e.g. pig, fox, goat, dog)	Description of extent	Management zone/s
A	Fox	Not observed during field assessments, however, may occur on occasion on a transient basis only. Results of desktop analysis (NPWS Wildlife Atlas) indicate the species is likely to be present in the locality.	Possibility throughout the site on occasion, although specific locations unknown.
B	Feral Cat	Not observed during field assessments, however, is possible to occur on occasion. Results of desktop analysis (NPWS Wildlife Atlas) indicate the species is likely to be present in the locality.	Possibility throughout the site on occasion, although specific locations unknown.



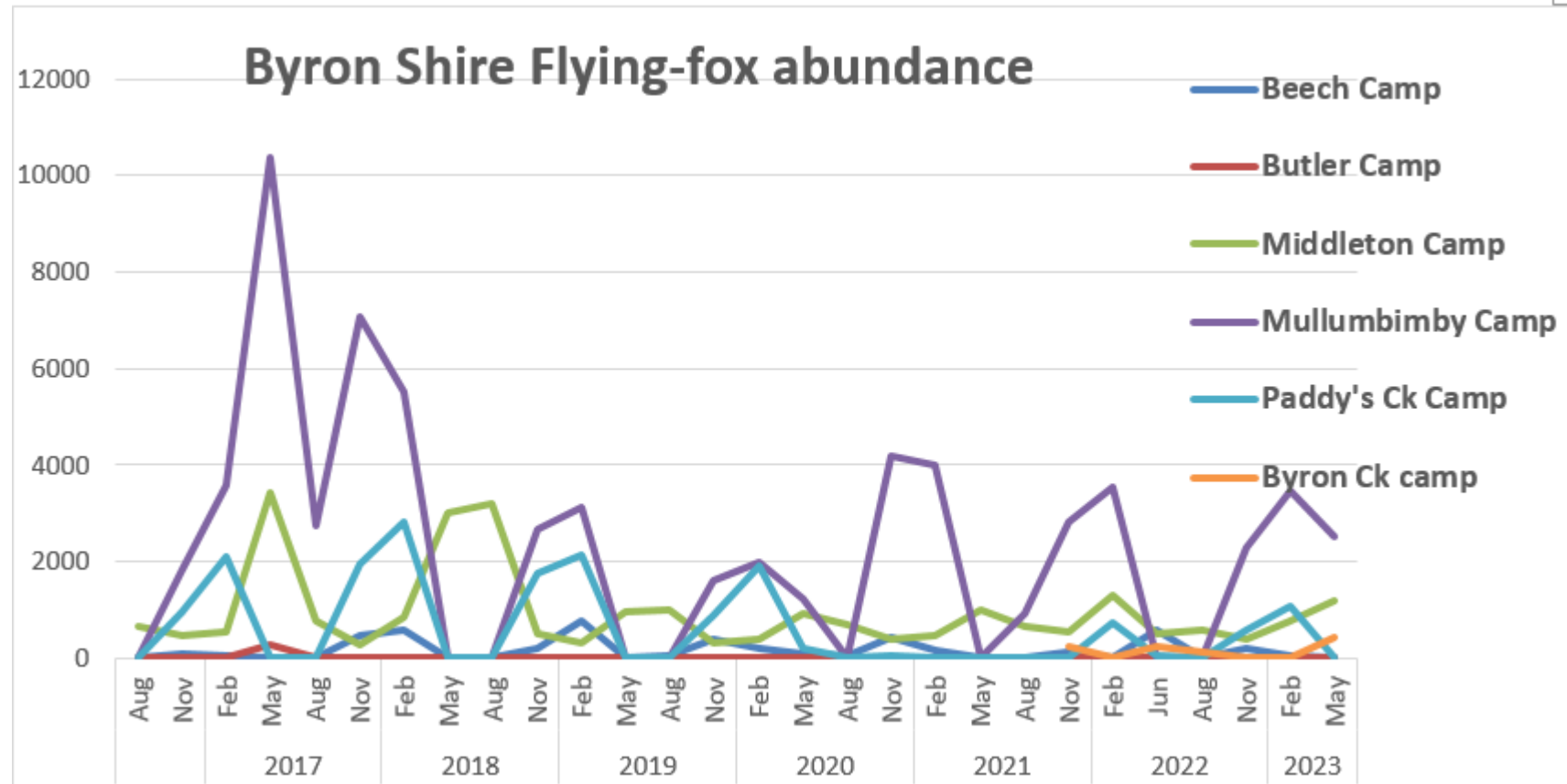
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Methods considered			
Pest type	Name and description of program or method		Describe suitability
A	Monitored and controlled in accordance with strategies outlined in best- practice guidelines for fox control contained within the <i>Predation by the red fox - threat abatement plan</i> (OEH, 2010). The methods considered include: <ul style="list-style-type: none"><li>• baiting</li><li>• shooting</li></ul>		Baiting considered most suitable if Foxes are observed. Active shooting not deemed appropriate due to proximity to nearby residencies, roads and other amenities
B	Monitored and controlled in accordance with strategies outlined in best- practice guidelines for feral cat control contained within the <i>Predation by the feral cats - threat abatement plan</i> (DWHA, 2008). The methods considered include: <ul style="list-style-type: none"><li>• baiting</li><li>• trapping</li><li>• shooting</li></ul>		Baiting and active trapping considered most suitable if Feral Cats are observed. Active shooting not deemed appropriate due to proximity to nearby residencies, roads and other amenities.
Methods of control			
Manageme nt zone/s	Pest type	Method of control	Frequency and timing
All	A	Baiting will be used as the preferred method of fox control. The correct type and method of baiting will need to consider the presence of native fauna and their feeding habits.	As required.
All	B	Baiting and/or active trapping will be used as the preferred method of feral cat control should they be identified to be using the site. The correct type and method of baiting will need to consider the presence of native fauna and their feeding habits.	As required.
Monitoring and inspections of existing and new vertebrate pests			
Manageme nt zone/s	Pest type/s	Method of monitoring	Date/s required
All	All	All observations or evidence of feral animals observed by the landholder are to be recorded in the monitoring log, including the date, location and number of animals sighted and any	Annually



Lilly Pilly Swamp -Site Action Plan

		damage noted. Monitoring of damage is essential and can include information on the size of the affected area and feral animal induced impacts.	
		Monitoring is to comprise a nocturnal walk over of the site annually and a visual estimate of the level of grazing, browsing and/or burrowing impacts. The level of impact is to be recorded as negligible, minimal, moderate or high. The monitoring is to also include recording the date, number and location of any tracks, traces scats or sightings. This information is to be used in the feral herbivores pest management plan to inform the methods of control listed in that plan.	
<b>Other management activities (where required)</b>			
Records will be kept of opportunistic pest animal observations by the landholder in the "Diary template for vertebrate pest management" included below. These records will be submitted to OEH annually for review and discussion of suitable control methods to be employed.			





**Weed Monitoring**

Template for reporting of monitoring activities		
Management zone/s	Date	<b>Observations and assessment of monitoring</b> This table must include the information for each zone (or groups of zones) which is described in the table titled 'monitoring and inspections of existing and new weeds'.

Diary template for weed control management			
Date	Management zone/s	Description and type of activity undertaken (e.g. weed control, observation)	Minor variations (details and reasons)





## Fire for Conservation monitoring

Template for reporting of monitoring activities		
Management zone/s	Date	Observations and assessment of monitoring

Diary template for fire management activities			
Date	Management zone/s	Description of activity undertaken or observation made	Minor variations (details and reasons)



**Vertebrate Pest Monitoring**

Template for reporting of monitoring activities –			
Management zone/s	Date	Current level of impact on vegetation or threatened fauna species <small>This column must record impact as Negligible, Minimal, Moderate or High</small>	Observations and assessment of monitoring

Diary template for vertebrate pest management			
Date of activity	Management zone/s	Description and type of activity undertaken <small>This column must include details of the vertebrate pests targeted, control techniques applied and numbers controlled.</small>	Minor variations (details and reasons)

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 2

### Annual reporting template

Biobank site annual report					
Location details					
Biobanking agreement ID:			Name of landowner/s:		
Reporting date:			Property address:		
Records of management actions undertaken					
Management action	Required completion time and frequency	Action completed (Yes/No)	Actual completion date/s	Description of actions undertaken (including where undertaken (including reference to management zones), any variations and the reasons for variation)	Visual observations and other comments (including reasons for non- completion)
1 Management of Grazing for conservation					
2 Weed control					
3 Management of fire for conservation					
4 Management of human disturbance					
5 Retention of native vegetation					
6 Planting or seeding					
7 Retention of dead timber					
8 Erosion control					
9 Retention of rocks					

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# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 2

<b>10 Control of feral and overabundant native herbivores</b>					
<b>11 Vertebrate pest management</b>					
<b>12 Nutrient control</b>					
<b>13 Control of exotic fish species</b>	N/A				
<b>14 Maintenance or Reintroduction of natural flow regimes</b>	N/A				
<b>Incident or event that has adverse effect on biodiversity values on biobank site</b>					
<b>Incident or event including adverse impacts (e.g. natural events)</b>				<b>Action taken and proposed recommended actions</b>	
<b>Records submitted with this report</b>					
<input type="checkbox"/> Photographs taken at the photo points set in the biobanking agreement.					
<input type="checkbox"/> Results of the inspections required to be conducted in item 1.3 of Annexure D to the biobanking agreement.					
<input type="checkbox"/> Results of any monitoring, inspections or surveys required in Annexures C and D to the biobanking agreement.					

## BYRON SHIRE COUNCIL

### STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

### 4.3 - ATTACHMENT 2

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Signature and certification	
I hereby declare that the information supplied in this report is accurate and complies with the reporting requirements under item 2 of the Annexure D to the biobanking agreement. Note: If the land that forms the biobank site is owned by multiple persons, each landowner must sign this annual report.	
Signed	Signed
Date	Date

Year 1 Baseline Monitoring Report- 2019



Figure 1: The site, with the six monitoring points identified.

Locations of photo points					
Projected coordinate system: GDA94					
Photo point reference	Easting	Northing	Latitude	Longitude	Direction of photo (magnetic degrees)
A	559711	6829647	-28° 39' 32"	153° 36' 40"	East (90)
B	559814	6829307	-28° 39' 43"	153° 36' 44"	East (90)
C	559735	6829376	-28° 39' 41"	153° 36' 41"	South (180)
D	559851	6829221	-28° 39' 46"	153° 36' 45"	North (360)
E	559824	6829221	-28° 39' 46"	153° 36' 44"	South (180)
F	559825	6829468	-28° 39' 38"	153° 36' 44"	South (180)

Baseline monitoring

26-09-2019

Point A

Time	Conditions	Ground cover (%)	Notes
1.38pm	Light cloud	60 – 80%	<i>Melaleuca quinquenervia</i> dominant canopy, minimal weed infestations, sodden ground, even after prolonged dry period.



Figure 2: Point A 260919



**Point B**

Time	Conditions	Ground cover (%)	Notes
1.01pm	Light cloud	80%	Adjacent a watercourse, with vine growth and sunlight penetration. Water colour is very opaque orange, possibly due to acid sulphate. Recommend water testing. Two scats near point B, most likely from a cat. Additional photos can be provided.



**Figure 3: Point B 260919**

11 Tristran Parade, Mullumbimby Creek NSW 2482  
 Jane: 0404 050 361 Jo: 0458 127 107 Alison 0422 994 338 Greg: 0411 844 415  
[www.earthscapes.com.au](http://www.earthscapes.com.au)  
 ABN: 58631637600

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**Point C**

Time	Conditions	Ground cover (%)	Notes
1.17pm	Light cloud	20%	This monitoring point is nearest road verge. There was rubbish present, with some weed infestations. Both rubbish and weeds should be able to be removed by hand.

**Figure 4:** Point C 260919



**Point D**

Time	Conditions	Ground cover (%)	Notes
1.54pm	Light cloud	60 - 70%	Many weed species present, including Cassia ( <i>Senna pendula</i> var. <i>glabrata</i> ) and night scented jasmine ( <i>Cestrum nocturnum</i> ), with a more open canopy than the other monitoring points. Large amounts of litter present.



Figure 5: Point D 260919

**Point E**

Time	Conditions	Ground cover (%)	Notes
9.41am	Light cloud	70 - 80%	The photo point E captures one of a number of open water sections toward the southern end of the site dominated by <i>Sagittaria</i> ( <i>Sagittaria platyphylla</i> ), an aquatic weed in NSW with aggressive growth and rapid spread - <a href="https://weeds.dpi.nsw.gov.au/Weeds/Sagittaria">https://weeds.dpi.nsw.gov.au/Weeds/Sagittaria</a> .

**Figure 6:** Point E 221019

11 Tristran Parade, Mullumbimby Creek NSW 2482  
 Jane: 0404 050 361 Jo: 0458 127 107 Alison 0422 994 338 Greg: 0411 844 415  
[www.earthscapes.com.au](http://www.earthscapes.com.au)  
 ABN: 58631637600

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**Point F**

Time	Conditions	Ground cover (%)	Notes
9.12am	Light cloud	60 -70%	The photo point F represents many of the permanent water sections through the middle of the site, with Salvinia ( <i>Salvinia molesta</i> ) becoming established. Salvinia is classed as a weed of National Significance in Australia, and is regarded as a "serious threat to waterways..." <a href="https://weeds.dpi.nsw.gov.au/Weeds/Details/118">https://weeds.dpi.nsw.gov.au/Weeds/Details/118</a> .



Figure 7: Point F 221019

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 3

BioBanking (Biodiversity Stewardship) Site landholder annual report & BCT audit				
Audit details				
BioBanking agreement year: year 3 Reporting period: 27 June 2021 to 27 June 2022 BCT site inspection date (if required): TBA BCT Auditor: Jennifer Young		BioBanking agreement ID: BA 352 – Lilli Pilli Landowner/site contact details: Phil Warner – <a href="mailto:phil.warner@byron.nsw.gov.au">phil.warner@byron.nsw.gov.au</a> – 6626 7000 Property address: Lilli Pilli Road, Byron Bay NSW		
Management actions		Annual report (landholder to complete)	BCT annual report audit	
Management actions as per Agreement	Management item description	Actions undertaken (including completion dates) and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
1. Management of grazing for conservation	1.1 Exclusion of grazing by Stock			
	1.4 Removal of Stock when observed			
2. Weed control	2.1 Implementation of the weed management plan	BCT auditor to refer to implementation of management plans in the table below.		
	2.2 Review of the weed management plan	Not required before year 4 of active management.	NA	
3. Management of fire for conservation	3.1 Implementation of the fire for conservation management plan	BCT auditor to refer to implementation of management plans in the table below.		
	3.2 Review of the fire for conservation management plan	Not required before year 4 of active management.	NA	
4. Management of human disturbance	4.1 & 4.2 Exclusion of adverse human activities			
	4.3 Removal of existing waste			

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 3

Management actions		Annual report (landholder to complete)	BCT annual report audit	
Management actions as per Agreement	Management item description	Actions undertaken (including completion dates) and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
	4.4 Excluding storage or disposal of rubbish			
	4.5 Ongoing removal of waste			
	4.6 Installation and maintenance of fencing, gates and signage to exclude human disturbance			
5. Retention of native vegetation	5.1 Retention of native vegetation			
7. Retention of dead timber	7.1 Retention of dead timber			
	7.2 Addition of dead timber			
8. Erosion control	8.1 Prevention of erosion			
9. Retention of rocks	9.1 Retention of rocks			
	9.2 Addition of rocks			
10. Control of feral and over-abundant native herbivores	10.1 Implementation of the feral and over-abundant native herbivore management plan	BCT auditor to refer to implementation of management plans in the table below.		
	10.2 Review of the feral and over-abundant native herbivore management plan	Not required before year 4 of active management.	NA	
11. Vertebrate pest management	11.1 Implementation of the vertebrate pest management plan	BCT auditor to refer to implementation of management plans in the table below.		



# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 3

Management actions		Annual report (landholder to complete)	BCT annual report audit	
Management actions as per Agreement	Management item description	Actions undertaken (including completion dates) and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
	11.2 Review of the vertebrate pest management plan	Not required before year 4 of active management.	NA	
12. Nutrient control	12.1 Restricted use of fertilisers, pesticides and herbicides			
14. Maintenance or reintroduction of natural flow regimes	14.3 Excluding construction of artificial drainage or water storage structures			

### Implementation of management plans

Weed management plan				Landholder to complete	BCT annual report audit	
Location	Weed species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
MZ1	Broadleaf paspalum	<b>Control methods:</b> Spot spraying, use of 'wick wiper' and hand pulling.  <b>Performance Measures:</b> 1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3 2. Maintain paspalum at less than 10% of original distribution in perpetuity.	Three sessions per year from year 1 to year 3.			
	Other exotic grasses	<b>Control methods:</b> Spot spray and wick-wiper application of herbicide.	Four sessions per year from			

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 3

Weed management plan				Landholder to complete	BCT annual report audit	
Location	Weed species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
		<b>Performance Measures:</b> 1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3. 2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.	year 1 to year 3.			
	Sagittaria	<b>Controls methods:</b> Cut and paint and hand pulling. <b>Performance measures:</b> 1. Individuals of mature Sagittaria removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.			
	Archontophoenix sp.	<b>Controls methods:</b> Cut and paint and hand pulling. <b>Performance measures:</b> 1. Individuals of Archontophoenix sp. removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Three sessions per year from year 1 to year 3.			
	Coral berry and winter senna	<b>Controls methods:</b> Cut and paint and hand pulling. <b>Performance measures:</b> 1. Individuals of coral berry and winter senna removed by the end of year 3.	Four sessions per year from year 1 to year 3.			

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 3

Weed management plan				Landholder to complete	BCT annual report audit	
Location	Weed species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
		2. Biobank site managed so that no mature individuals establish in perpetuity.				
	White passionflower	<b>Controls methods:</b> Cut/scrape and paint, spot spraying and hand pulling. <b>Performance measures:</b> 1. Individuals of white passionflower removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.			
MZ2	Bamboo	<b>Control methods:</b> Hand removal and cut and paint stems with undiluted glyphosate. <b>Performance measures:</b> 1. Small stand of Bamboo treated by the end of year 2. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year in year 1 and year 2.			
	Broadleaf paspalum	<b>Control methods:</b> Spot spraying, use of 'wick wiper' and hand pulling. <b>Performance Measures:</b> 1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3 2. Maintain paspalum at less than 10% of original distribution in perpetuity.	Three sessions per year from year 1 to year 3.			

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 3

Weed management plan				Landholder to complete	BCT annual report audit	
Location	Weed species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
	Other exotic grasses	<b>Control methods:</b> Spot spray and wick-wiper application of herbicide.  <b>Performance Measures:</b> 1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3. 2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.	Four sessions per year from year 1 to year 3.			
	<i>Archontophoenix</i> sp.	<b>Controls methods:</b> Cut and paint and hand pulling.  <b>Performance measures:</b> Weed control work will aim to achieve the following outcomes: 1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.			
	Coral berry and winter senna	<b>Controls methods:</b> Cut and paint and hand pulling.  <b>Performance measures:</b> Weed control work will aim to achieve the following outcomes: 1. Individuals of coral berry and winter senna removed by the end of year 3.	Four sessions per year from year 1 to year 3.			

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 3

Weed management plan				Landholder to complete	BCT annual report audit	
Location	Weed species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
		2. Biobank site managed so that no mature individuals establish in perpetuity.				

Fire for conservation management plan			Landholder to complete	BCT annual report audit	
Location	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
MZ1	Exclude fire	Ongoing			
MZ2	Exclude fire	Ongoing			

Vertebrate pest management plan				Landholder to complete	BCT annual report audit	
Location	Pest species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
All zones	Pig, fox, dog, cat	Nocturnal walk over the site	Once annually			
	Pig, fox, dog, cat	Record visual evidence of pest activity	Once annually			
	Pig, fox, dog, cat	Ground baiting program	As required in response to monitoring outcomes.			

Additional site inspection or monitoring requirements						
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# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 3

Management actions		Landholder to complete	BCT annual report audit	
Description of additional site inspection or monitoring requirement	Required timing and frequency	Completion dates, observations, actions undertaken and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
Sampling of photo-points in accordance with Section 1.2 of Annexure D of the agreement.	Every 12 months			
Inspections to record grazing by Stock in accordance with Section 1.3 of Annexure D of the agreement.	Every 3 months			
Inspections to document human disturbance, erosion or waste in accordance with Section 1.3 of Annexure D of the agreement.	Every 6 months			
Inspection to document the condition of fences and gates in accordance with Section 1.3 of Annexure D of the agreement.	Every 12 months			
Submission of diary and monitoring report templates	Every 12 months			

Details of incidents or events that have had an adverse effect on biodiversity values on biobank site (landholder to complete)	
Description of incident or event (e.g. natural events)	Action taken and/or recommended actions

Any other comments or observations regarding the biobank site
Please include any additional photos from site visits, along with any comments / observations

Landholder Annual Report signature and declaration
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## BYRON SHIRE COUNCIL

### STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

### 4.3 - ATTACHMENT 3

<p>I hereby declare that the information supplied in this report is accurate and complies with the reporting requirements under item 2 of Annexure D to the BioBanking Agreement.</p> <p>All landowners must sign this annual report. If the land that forms the Biodiversity Stewardship Site is owned by multiple persons landowners may confirm in writing to the BCT that another person can complete and submit the annual report on their behalf.</p> <p><b>Please submit a signed PDF version and a word version of your Annual Report submission to the BCT</b></p>	
Signed	Signed
Date	Date

BCT approval of recommendation			
Signature of auditor:		Authorisation signature:	
Name of auditor:		Name of authorising officer:	
Position of auditor:		Position of authorising officer:	
Date:		Date:	





Andy Erskine  
PO Box 219  
Mullumbimby NSW 2482  
aerskine@byron.nsw.gov.au

Our ref: [DOC22/775269]

01 September 2022

Attention: Sandra Pimm

Dear Mr Erskine

Thank you for submitting the 2022 (Active) Annual Report for year 3 of your Biodiversity Stewardship (Biobank) Agreement for **BSA 352** Lilli Pilli.

The BCT has completed an audit of the active management actions and advises that the required actions have been satisfactorily completed, however to ensure that your site remains on track, please note the following items will need to be addressed within the next reporting period:

- Control of *Sagittaria sp.* which has spread along the drainage line at the south end of the site following recent flooding
- Installation of star pickets at photo points, where practicable, to be used as a point of reference in each image for ongoing reporting.

As noted in the annual report and discussed with John McVicar at the site visit on Tuesday 30 August 2022, the incidence of *Sagittaria* has worsened following the flooding in the preceding 12 months and was observed choking the flow of water. Understanding that physical removal is likely to be the most effective treatment and is labour intensive, containing the spread is seen as the most practical outcome until conditions hopefully dry out to restrict the spread and allow better access for treatment. This issue will require monitoring and can be picked up in photo points E and F.

Please find enclosed the audit report with detailed comments prepared by the BCT regional reviewer. Also attached are next year's annual report, diary and monitoring templates.

The BCT will be releasing your annual management payment which will be deposited into your nominated bank account within 20 working days. Please note that payment has been adjusted for the Consumer Price Index as per your agreement.

The next annual report for your site (2023, year 4) is due by **27 July 2024**.

**NSW Biodiversity Conservation Trust**

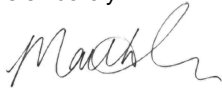
4 Parramatta Square 12 Darcy Street Parramatta 2150 | Locked Bag 5022 Parramatta NSW 2124 | ABN 37 151 321 702 | [bct.nsw.gov.au](http://bct.nsw.gov.au)

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Thank you for your ongoing commitment to managing the biodiversity on your property. You are contributing to over 26 300 hectares of land under in-perpetuity conservation agreements across NSW.

Please contact Anthony Jarvis on 6650 7134 or via [Anthony.jarvis@bct.nsw.gov.au](mailto:Anthony.jarvis@bct.nsw.gov.au) with any questions relating to your annual report.

Yours sincerely



Matt Carr

**Regional Manager, North Coast**

**Attached: Annual report template  
Site inspection and photo monitoring templates**

Please contact the BCT as early as possible if:

- Your bank details change
- You believe you will not be able to meet the management requirements for the year
- There is a new significant management issue that has arisen on your stewardship site
- You are considering selling your property or changing its ownership structure.

**NSW Biodiversity Conservation Trust**

4 Parramatta Square 12 Darcy Street Parramatta 2150 | Locked Bag 5022 Parramatta NSW 2124 | ABN 37 151 321 702 | [bct.nsw.gov.au](http://bct.nsw.gov.au)

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**Enclosed: Active audit report**

BioBanking (Biodiversity Stewardship) Site landholder annual report & BCT audit				
Audit details				
BioBanking agreement year: Year 3 Reporting period: 27 June 2021 to 27 June 2022 BCT site inspection date (if required): 30 August 2022 BCT Auditor: Anthony Jarvis		BioBanking agreement ID: BA 352 – Lilli Pilli Landowner/site contact details: Andy Erskine – <a href="mailto:aerskine@byron.nsw.gov.au">aerskine@byron.nsw.gov.au</a> – 6626 7000 Property address: Lilli Pilli Road, Byron Bay NSW		
Management actions		Annual report (landholder to complete)	BCT annual report audit	
Management actions as per Agreement	Management item description	Actions undertaken (including completion dates) and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
1. Management of grazing for conservation	1.1 Exclusion of grazing by Stock	Refer to Implementation of management plans below. 3 monthly inspections conducted – Refer to Site Inspection Checklist attached for 15/9/21, 8/11/21, 3/2/22, 10/6/22. No stock grazing occurring on site or within local residential area.	Yes	
	1.4 Removal of Stock when observed	N/A	N/A	
2. Weed control	2.1 Implementation of the weed management plan	Implemented - Refer to implementation of management plans in the table below and the Monitoring Report Template for weed control attached. Weed control has been significantly impacted in the first half of 2022 due to two significant flood events in February/March and continuing rainfall until June.	Yes	Weed control efforts have reduced all weed cover apart from Sagittaria which has increased in colonising drainage line following flooding. Signs of Viburnum odoratissimum popping up from neighbouring gardens.
	2.2 Review of the weed management plan	Not required before year 4 of active management.	NA	

**NSW Biodiversity Conservation Trust**

4 Parramatta Square 12 Darcy Street Parramatta 2150 | Locked Bag 5022 Parramatta NSW 2124 | ABN 37 151 321 702 | [bct.nsw.gov.au](http://bct.nsw.gov.au)

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 4

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3. Management of fire for conservation	3.1 Implementation of the fire for conservation management plan	Implemented - Refer to implementation of management plans in the table below.	N/A	
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Management actions		Annual report (landholder to complete)	BCT annual report audit	
Management actions as per Agreement	Management item description	Actions undertaken (including completion dates) and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
	3.2 Review of the fire for conservation management plan	Not required before year 4 of active management.	NA	
4. Management of human disturbance	4.1 & 4.2 Exclusion of adverse human activities	The site was originally to be fenced along Lilly Pilly Drive adjacent residential development. Examination of the cost and the impact (loss of preferred Koala Food Trees in use) of such a fence resulted in agreement with BCT representative Don Owner, to install educational signage along this boundary instead of fencing.  Wildlife protection, reserve information and Interpretative signage in place February 2022. See attached photos in Appendix.	Yes	
	4.3 Removal of existing waste	Rubbish washed in from flood. Removal undertaken April 2022.	Yes	
	4.4 Excluding storage or disposal of rubbish	Neighbour informed re garden waste dumping over back fence. Dumped material removed. New rubbish found June 2022..	Yes	Ongoing issue being addressed. Multiple offending piles observed.
	4.5 Ongoing removal of waste	Annual check and removal undertaken 15/9/21 and 10/6/22. Bush regen team collect any rubbish during on-ground work days.	Yes	
	4.6 Installation and maintenance of fencing, gates and signage to exclude human disturbance	Biodiversity Stewardship signs, wildlife cautionary signage, reserve signage in place. Interpretative Signage installed January 2022.  The site is not fenced or gated.	Yes	
5. Retention of native vegetation	5.1 Retention of native vegetation	Minor loss of streambank vegetation due to flooding.  No native vegetation has been removed from the BSS.	Yes	

**NSW Biodiversity Conservation Trust**

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# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

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7. Retention of dead timber	7.1 Retention of dead timber	Dead timber retained on ground	Yes	
	7.2 Addition of dead timber	No dead timber was added during the management period	N/A	
Management actions		Annual report (landholder to complete)	BCT annual report audit	
Management actions as per Agreement	Management item description	Actions undertaken (including completion dates) and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
8. Erosion control	8.1 Prevention of erosion	Ongoing weed control occurred to prevent Sagittaria re-colonising, but since recolonised from flood and inability to access site Continuing.	Yes	
9. Retention of rocks	9.1 Retention of rocks	No rocks removed during the management period.	Yes	
	9.2 Addition of rocks	No rocks brought in during the management period.	N/A	
10. Control of feral and over-abundant native herbivores	10.1 Implementation of the feral and over-abundant native herbivore management plan	Refer to implementation of management plans below.	N/A	
	10.2 Review of the feral and over-abundant native herbivore management plan	Not required before year 4 of active management.	NA	
11. Vertebrate pest management	11.1 Implementation of the vertebrate pest management plan	No vertebrate pest management plan for this site.	N/A	
	11.2 Review of the vertebrate pest management plan	N/A.	NA	
12. Nutrient control	12.1 Restricted use of fertilisers, pesticides and herbicides	No fertilisers or pesticides were used within the reserve during the management period. Herbicide use is limited due to the presence of Mitchell's Rainforest Snail. No blanket spraying was undertaken; rather spot spray, cut scrape and paint or stem injection methods are used.	Yes	

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14. Maintenance reintroduction of natural flow regimes or	14.3 Excluding construction of artificial drainage or water storage structures	No artificial drainage alterations or water storage structures undertaken.	N/A	
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Implementation of management plans

Weed management plan				Landholder to complete	BCT annual report audit	
Location	Weed species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
MZ1	Broadleaf paspalum	Control methods: Spot spraying, use of 'wick wiper' and hand pulling.  Performance Measures: 1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3 2. Maintain paspalum at less than 10% of original distribution in perpetuity.	Three sessions per year from year 1 to year 3.	Hand weeding undertaken 02/07/21, 14/09/21 & 03/02/22. Spot spray runs 16/12/21 and 15/06/22.  Extent of Broad-leaved Paspalum in Zone 1 was reduced to less than 2% of its original distribution as surveyed in December 2021, with the species present only very sparsely along the eastern boundary with railway land. Since the flood, parts of Zone 1 are still inaccessible, and review of the species presence is required once conditions dry out.	Yes	

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Other exotic grasses	Control methods: Spot spray and wick-wiper application of herbicide. Performance Measures: 1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3. 2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.	Four sessions per year from year 1 to year 3.	Spot spray runs 27/9/21, 8/11/21, 16/12/21 and 15/6/22.  Other introduced grasses reduced to less than 5% of original distribution as surveyed in December 2021. Follow up required following flood and extended inundation.	Yes	
Sagittaria	Controls methods: Cut and paint and hand pulling. Performance measures:	Four sessions per year from	Hand removal undertaken 27/09/21, 16/11/21. The species was not visibly present as at 03/02/22. It has recolonised during the flood and requires hand removal	Yes	Significant outbreak of Sagittaria observed at southern end of drainage line. Containment of spread should be a priority, noting labour intensive to remove.

Weed management plan				Landholder to complete	BCT annual report audit	
Location	Weed species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
		1. Individuals of mature Sagittaria removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	year 1 to year 3.	of mature individuals, likely on an ongoing basis while ever the species persists upstream of the reserve.		
	<i>Archontophoenix</i> sp.	Controls methods: Cut and paint and hand pulling. Performance measures: 1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Three sessions per year from year 1 to year 3.	Hand weed seedlings undertaken 02/07/21, 15/09/21, 08/11/21.  No mature Alexander Palms remained within Zone 1 as surveyed in June 2022.	Yes	

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Coral berry and winter senna	<p>Controls methods: Cut and paint and hand pulling.</p> <p>Performance measures:</p> <ol style="list-style-type: none"> <li>Individuals of coral berry and winter senna removed by the end of year 3.</li> <li>Biobank site managed so that no mature individuals establish in perpetuity.</li> </ol>	Four sessions per year from year 1 to year 3.	<p>Hand pulling undertaken 2/7/21, 15/9/21, 8/11/21.</p> <p>No mature individuals of coral berry or winter senna present in Zone 1.</p> <p>Seedling management ongoing.</p>	Yes	
White passionflower	<p>Controls methods: Cut/scrape and paint, spot spraying and hand pulling.</p> <p>Performance measures:</p> <ol style="list-style-type: none"> <li>Individuals of white passionflower removed by the end of year 3.</li> <li>Biobank site managed so that no mature individuals establish in perpetuity.</li> </ol>	Four sessions per year from year 1 to year 3.	<p>Hand weed undertaken 02/07/21, 15/09/21, 08/11/21.</p> <p>No mature or semi-mature individuals of white passionflower present in Zone 1 as at December 2021.</p>	Yes	

Weed management plan				Landholder to complete	BCT annual report audit	
Location	Weed species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
MZ2	Bamboo	<p>Control methods: Hand removal and cut and paint stems with undiluted glyphosate.</p> <p>Performance measures:</p> <ol style="list-style-type: none"> <li>Small stand of Bamboo treated by the end of year 2.</li> <li>Biobank site managed so that no mature individuals establish in perpetuity.</li> </ol>	Four sessions per year in year 1 and year 2.	<p>Stand of bamboo occurs on neighbour's private residential land and Mitchells Rainforest Snail has been found in litter adjacent.</p> <p>Suckers and seedlings of Bamboo controlled within Zone 2 as at June 2022.</p>	Yes	Bamboo still requiring control behind residences at southern end of site.

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	Broadleaf paspalum	Control methods: Spot spraying, use of 'wick wiper' and hand pulling. Performance Measures: 1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3 2. Maintain paspalum at less than 10% of original distribution in perpetuity.	Three sessions per year from year 1 to year 3.	Hand weeding undertaken 02/07/21, 15/09/21, 08/11/21. Species absent from Zone 2 as at June 2022.	Yes	
	Other exotic grasses	Control methods: Spot spray and wick-wiper application of herbicide. Performance Measures: 1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3. 2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.	Four sessions per year from year 1 to year 3.	Hand weeding undertaken 02/07/21, 15/09/21, 08/11/21. Other grass species reduced to less than 5% of original distribution in Zone 2 as at June 2022.	Yes	
Weed management plan				Landholder to complete	BCT annual report audit	
Location	Weed species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
	<i>Archontophoenix</i> sp.	Controls methods: Cut and paint and hand pulling. Performance measures: Weed control work will aim to achieve the following outcomes: 1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.	Hand weed seedlings undertaken 02/07/21, 15/09/21, 08/11/21. No mature Alexander Palms remained within Zone 2 as surveyed in June 2022.	Yes	

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# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

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	Coral berry and winter senna	<p>Controls methods: Cut and paint and hand pulling.</p> <p>Performance measures: Weed control work will aim to achieve the following outcomes:</p> <ol style="list-style-type: none"> <li>1. Individuals of coral berry and winter senna removed by the end of year 3.</li> <li>2. Biobank site managed so that no mature individuals establish in perpetuity.</li> </ol>	Four sessions per year from year 1 to year 3.	<p>Hand pulling undertaken 2/7/21, 15/9/21, 8/11/21.</p> <p>No mature individuals of coral berry or winter senna present in Zone 2 as surveyed in June 2022.</p> <p>Seedling management ongoing.</p>	Yes	
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Fire for conservation management plan			Landholder to complete	BCT annual report audit	
Location	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
MZ1	Exclude fire	Ongoing	Fire prevention signage and reporting mechanisms in place. No prescribed burns, wildfire or arson occurred within the biobank site.	Yes	
MZ2	Exclude fire	Ongoing	Fire prevention signage and reporting mechanisms in place. No prescribed burns, wildfire or arson occurred within the biobank site.	Yes	

Vertebrate pest management plan				Landholder to complete	BCT annual report audit	
Location	Pest species	Required actions and performance indicators	Required timing and frequency	Action undertaken (include completion dates) and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations

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All zones	Pig, fox, dog, cat	Nocturnal walk over the site	Once annually	Nocturnal walks over and around the edges of the site undertaken at dusk (7.30pm to 8.30pm) on 16 December 2021 and dawn (5.00am to 6.30am on 17 December 2021 with spotlight.  One domestic roaming dog spotted adjacent the site within railway corridor. Rangers called, caution discussion held with owner. No other ferals, or scats or damage attributable to ferals, located. Swamp wallabies and Koala present.	Yes	
	Pig, fox, dog, cat	Record visual evidence of pest activity	Once annually	As above.	Yes	
	Pig, fox, dog, cat	Ground baiting program	As required in response to monitoring outcomes.	Not required.  Difficult to gain approval under Pesticides Act due to proximity to residential area.	Yes	

Additional site inspection or monitoring requirements				
Management actions		Landholder to complete	BCT annual report audit	
Description of additional site inspection or monitoring requirement	Required timing and frequency	Completion dates, observations, actions undertaken and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
Sampling of photo-points in accordance with Section 1.2 of Annexure D of the agreement.	Every 12 months	Photo-points sampled June 2022 – see attached Year 3 photo monitoring report. One site underwater and unable to be sampled.	Yes	No stakes at PP. Stakes to be installed at PP (A, B & C) as a minimum for ongoing reports.

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Inspections to record grazing by Stock in accordance with Section 1.3 of Annexure D of the agreement.	Every 3 months	Inspections undertaken by observation on each occasion bush regenerators were on site. See attached Site Record sheet.  No grazing or stock presence on site or within the surrounding residential area.	Yes	
Inspections to document human disturbance, erosion or waste in accordance with Section 1.3 of Annexure D of the agreement.	Every 6 months	Inspections undertaken 16 December 2021 and 10 June 2022.  Minor creek line erosion near Old Bangalow Road due to flooding.	Yes	
Inspection to document the condition of fences and gates in accordance with Section 1.3 of Annexure D of the agreement.	Every 12 months	N/A - The are no fences or gates surrounding the reserve.  Internal fence removed Year 2.	Yes	
Submission of diary and monitoring report templates	Every 12 months	See attached report templates.	Yes	

Details of incidents or events that have had an adverse effect on biodiversity values on biobank site (landholder to complete)	
Description of incident or event (e.g. natural events)	Action taken and/or recommended actions
Significant flooding occurred in late February and early March 2022.	Recommended Actions: <ul style="list-style-type: none"> <li>• Monitor minor creek bank erosion for stability and plant coverage, replant toe with Lomandra if worsens.</li> <li>• Intensify removal efforts for mature Sagittaria washed in during flood to prevent increase in area of establishment as the site becomes accessible.</li> <li>• Introduce biological control agent for Salvinia.</li> <li>•</li> </ul>

Any other comments or observations regarding the biobank site
Please include any additional photos from site visits, along with any comments / observations See attached photos of overall condition and signage.

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# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 4

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Landholder Annual Report signature and declaration	
<p>I hereby declare that the information supplied in this report is accurate and complies with the reporting requirements under item 2 of Annexure D to the BioBanking Agreement.</p> <p>All landowners must sign this annual report. If the land that forms the Biodiversity Stewardship Site is owned by multiple persons landowners may confirm in writing to the BCT that another person can complete and submit the annual report on their behalf.</p> <p>Please submit a signed PDF version and a word version of your Annual Report submission to the BCT</p>	
<p>Signed</p> <p>Refer DOC22/777427</p>	<p>Signed</p>
<p>Date</p>	<p>Date</p>

BCT Approval of Recommendation			
Signature of auditor:		Authorisation signature:	
Name of auditor:	Anthony Jarvis	Name of authorising officer:	Matt Carr
Position of auditor:	Regional Conservation Officer	Position of authorising officer:	Regional Manager North Coast
Date:	01 September 2022	Date:	2/9/2022

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To be completed by the landholder and submitted with both passive and active annual reports

<b>Three and six-monthly site inspection checklist</b>	
This template is to be completed to record the outcomes of each three and six-monthly inspection for documenting observations of livestock, human disturbance, erosion and rubbish dumping. The completed template must be submitted with the annual report.	
<b>Completed by:</b>	<b>Inspection date:</b>
<b>Three-monthly inspection</b>	
<b>Is there evidence of livestock present on the biobank site? (YES / NO)</b> If yes, provide a brief description of type, number and location.	
<b>Six-monthly inspection</b>	
<b>Is there evidence of waste/rubbish dumping on the biobank site? (YES / NO)</b> If yes, provide a brief description. Attach photos and mark the location on a map.	
<b>Is there evidence of human disturbance on the biobank site? (YES / NO)</b> If yes, provide a brief description. Attach photos and mark the location on a map.	
<b>Is there evidence of active erosion on the biobank site? (YES / NO)</b> If yes, provide a brief description. Attach photos and mark the location on a map.	



<b>Annual site inspection checklist</b>
This template is to be completed to record the outcomes of the annual inspection of fencing, gates and signage. The completed template should be submitted with the annual report.
<b>Completed by:</b>
<b>Date of site inspection:</b>
<b>Are all fences on the perimeter of the biobank site in good condition and capable of excluding stock and human disturbance? (YES / NO)</b> If no, provide a brief description. Attach photos and mark the location on a map.
<b>Are all gates on the biobank site in good condition and capable of excluding stock from the biobank site? (YES / NO)</b> If no, provide a brief description. Attach photos and mark the location on a map.
<b>Is a legible biobanking sign installed at the one sign location identified on the property management actions map? (YES / NO)</b> If no, mark the locations of the missing signs on a map.

<b>Photo-point monitoring</b>
Take photographs at the photo-points specified in the agreement and submit this document with your annual report. If you have photos from year 1 of your agreement you can include these as a comparison.
Photo-point reference: Site A
Location co-ordinates: Easting – 559711; Northing - 6829647
Photo orientation (degrees): 90
Time and date taken:
Insert photo here
Photo-point number: Site B
Location co-ordinates: Easting – 559814; Northing - 6829307
Photo orientation (degrees): 90
Time and date taken:
Insert photo here
Photo-point number: Site C
Location co-ordinates: Easting – 559735; Northing – 6829376
Photo orientation (degrees): 180
Time and date taken:
Insert photo here



Biodiversity  
Conservation  
Trust

Mr Phil Warner  
Byron Shire Council  
PO Box 219  
MULLUMBIMBY NSW 2482

20 August 2019

Dear Phil,

We are pleased to let you know you have paid 100% of your Total Fund Deposit and the Biodiversity Conservation Trust have released your first Biodiversity Stewardship Agreement annual payment into your nominated bank account.

#### **Who is the Biodiversity Conservation Trust?**

The BCT is a statutory not-for-profit body established under the *Biodiversity Conservation Act 2016* on 25 August 2017. The BCT is charged with continuing the private land conservation functions of the Office of Environment and Heritage and the Nature Conservation Trust. This includes managing annual reporting for Biobanking Agreements, now termed Biodiversity Stewardship Agreements (BSAs), and processing new BSA applications. More information about the BCT can be found on our website [www.bct.nsw.gov.au](http://www.bct.nsw.gov.au).

#### **Why are we contacting you?**

We have been informed by the BCT Finance team that you have reached 100% of your Total Fund Deposit. As a result your first annual management payment for BSA 352 – Lilli Pilli was deposited into your nominated bank account on 27 June 2019. When you receive your first payment you are required to implement active management on your site and carry out the actions identified in the BSA. As active management of your biodiversity stewardship site has commenced and more detailed reporting on the progress of management actions is required, annual reporting will now align with your first payment date.

#### **Active management annual reporting**

Your Annual Report for Year 1 of active management, which will demonstrate compliance with your BSA, will be due on 27 June 2020. Subsequent annual reports will be due on this date each year.

The attached leaflet includes further information about completing your management actions, completing your annual report and the BCT annual audit process.

Submission of your annual report via email is preferred. However, you may submit your annual reports in one of three ways:

1. email to: [info@bct.nsw.gov.au](mailto:info@bct.nsw.gov.au)
2. post to: Agreements and Technical Services  
BIODIVERSITY CONSERVATION TRUST  
PO BOX A290  
SYDNEY SOUTH NSW 1232
3. contact us at [info@bct.nsw.gov.au](mailto:info@bct.nsw.gov.au) to arrange access through our secure file transfer service for large files.

Please contact Simone Garwood on 02 6659 8226 or at [simone.garwood@bct.nsw.gov.au](mailto:simone.garwood@bct.nsw.gov.au) to discuss any issues relating to your BSA or to advise of any changes such as contact details or bank details. Please also contact Simone Garwood if you are considering selling land for which the Biodiversity Stewardship Agreement applies.

Yours sincerely

**Catherine Gallery**  
**Manager, Agreements and Technical Services**

**Head Office: Sydney**  
Level 14, 59-61 Goulburn St  
Sydney NSW 2000  
PO Box A290, Sydney South, NSW, 1232

**[www.bct.nsw.gov.au](http://www.bct.nsw.gov.au)**  
email: [info@bct.nsw.gov.au](mailto:info@bct.nsw.gov.au)  
phone: 1300 992 688  
 NSWBC  BCT\_NSW

BioBanking (Biodiversity Stewardship) Site landholder annual report & audit (active management)				
Audit details				
Biobanking agreement reporting year: Year 2 Reporting period: 27 June 2020 to 27 June 2021 Site visit date: TBA Auditor: Don Owner		BioBanking agreement ID: BA 352 Lilli Pilli Biobank site Landowner/site contact details: Phil Warner – <a href="mailto:phil.warner@byron.nsw.gov.au">phil.warner@byron.nsw.gov.au</a> – 6626 7000 Property address: Lilli Pilli Road, Byron Bay NSW		
BBAM management actions		Annual report (landholder to complete)	Audit of annual report by BCT	
Management actions as per Agreement	Management item description	Completion dates, actions undertaken and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
1. Management of grazing for conservation	1.1 Exclusion of grazing by Stock	3 monthly inspections conducted during monitoring and bush regeneration visits – no stock grazing occurring on site or within local area. 19/8/20, 31/10/20, 21/1/21, 23/4/21.		
	1.4 Removal of Stock when observed	N/A		
2. Weed control	2.1 Implementation of the weed management plan	Refer to implementation of management plans below.		
	2.2 Review of the weed management plan	Not required before year 4 of active management.		
3. Management of fire for conservation	3.1 Implementation of the fire for conservation management plan	Refer to implementation of management plans below.		
	3.2 Review of the fire for conservation management plan	Not required before year 4 of active management.		

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 7

<b>4. Management of human disturbance</b>	4.1 & 4.2 Exclusion of adverse human activities	BMX track removed		
	4.3 Removal of existing waste	Rubbish and old fence removal undertaken 24/7/20 and 11/8/20.		
	4.4 Excluding storage or disposal of rubbish	Neighbour informed re garden waste dumping. Dumped material removed. Old rubbish found within reserve and new rubbish on edges removed 3 monthly.		
	4.5 Ongoing removal of waste	Annual check and removal undertaken 24/7/20 and 21/6/21. Bush regen team collect any rubbish seen during on-ground works. Interpretative Signage developed for installation.		
	4.6 Installation and maintenance of fencing, gates and signage to exclude human disturbance	Biodiversity Stewardship SA, site boundaries and wildlife signage erected. Interpretative Signage developed for installation.		
<b>5. Retention of native vegetation</b>	5.1 Retention of native vegetation	No native vegetation has been removed from the BSS.		
<b>7. Retention of dead timber</b>	7.1 Retention of dead timber	Dead timber retained on ground		
	7.2 Addition of dead timber	No dead timber was added during the management period		
<b>8. Erosion control</b>	8.1 Prevention of erosion	Weed control to prevent Sagittaria re-colonising.		
<b>9. Retention of rocks</b>	9.1 Retention of rocks	No rocks removed during the management period.		
	9.2 Addition of rocks	No rocks brought in during the management period.		
<b>11. Vertebrate pest management</b>	11.1 Implementation of the vertebrate pest management plan	Refer to implementation of management plans below.		
	11.2 Review of the vertebrate pest management plan	Not required before year 4 of active management.		
<b>12. Nutrient control</b>	12.1 Restricted use of fertilisers, pesticides and herbicides	No fertilisers or pesticides were used within the reserve.		

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 7

		Herbicide use is limited due to the presence of Mitchell's Rainforest Snail. No blanket spraying was undertaken; rather spot spray, cut scrape and paint or stem injection methods are used.  Broad-leaved Paspalum and other exotic grasses are brushcut around drainage lines which could be conduits for MRS movement.		
14. Maintenance or reintroduction of natural flow regimes	14.3 Excluding construction of artificial drainage or water storage structures	No artificial drainage alterations or water storage structures undertaken.		

Implementation of management plans		
Weed management plan	Landholder to complete	BCT auditor
<p><b>Landholder representative's comment</b> - We find the way these two tables below are set out of little relevance to the way works are undertaken on site by the qualified and experienced Council bush regeneration team. Generally, all weeds encountered are treated, moving together in a horizontal line some 5-10m between team members (usually 3-4 persons) across the site. This means the two zones as listed below are treated as per each other and at the same time, although two restoration zones are listed in the table. We would prefer to address one zone only and more weeds, with less specific techniques for control, since herbicide use is limited in the reserve by the presence of MRS.</p> <p>For the first two years, works are concentrating on the more invasive weeds (many of which are not listed in the BSA table below. Please see attached Weed Reduction Table for full list of weed species known from the BSA.</p> <p>BL Paspalum is only hand weeded, while other grasses occur in patches unless specifically targeted. Salvinia and Sagittaria are within very wet areas that are inaccessible in wet times, forming part of the creek, including Jan- April 2021.</p> <p>Species which have been or could be problematic within the reserve and should be more focused upon with the BSA weed management plan are not included, yet many such as Ochna, Mulberry, Umbrella Tree and Cocos Palm have been reduced to almost zero.</p>		

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 7

Location (e.g. management zone)	Weed species	Required actions and performance indicators	Required timing and frequency	Completion dates, actions undertaken and performance outcomes (e.g. sessions completed)	Action completed Yes/No/N/A	Auditor comments and recommendations
MZ1	Broadleaf paspalum	<b>Control methods:</b> Spot spraying, use of 'wick wiper' and hand pulling.  <b>Performance Measures:</b> 1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3 2. Maintain paspalum at less than 10% of original distribution in perpetuity.	Three sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  Broad-leaved Paspalum has mainly been controlled by hand weeding and brush-cutting, since it occurs in wetter areas and adjacent drainage lines which form Mitchells Rainforest Snail habitat.  Overall numbers are largely the same because of this and greater effort has gone to other more problematic weeds for the first two years.		
	Other exotic grasses	<b>Control methods:</b> Spot spray and wick-wiper application of herbicide.  <b>Performance Measures:</b> 1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3. 2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  Reduced from original by half.		
	Sagittaria	<b>Controls methods:</b> Cut and paint and hand pulling.  <b>Performance measures:</b> 1. Individuals of mature Sagittaria removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  See Photo Monitoring Report attached.  Reduced from original numbers but same as previous year.		



# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 7

	<i>Archontophoenix</i> sp.	<b>Controls methods:</b> Cut and paint and hand pulling.  <b>Performance measures:</b> 1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Three sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  Seedlings recruit continually; significant reduction in adults, present total one-third of highest numbers.		
	Coral berry and winter senna	<b>Controls methods:</b> Cut and paint and hand pulling.  <b>Performance measures:</b> 1. Individuals of coral berry and winter senna removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  Coral Berry reduced to one-tenth original numbers.  Senna recruits continually, presently one-fifth of highest numbers.		
	White passionflower	<b>Controls methods:</b> Cut/scrape and paint, spot spraying and hand pulling.  <b>Performance measures:</b> 1. Individuals of white passionflower removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  Not present. Results in Weed Reduction Table for Corky and Edible Passionfruit.		
MZ2	Bamboo	<b>Control methods:</b> Hand removal and cut and paint stems with undiluted glyphosate.  <b>Performance measures:</b> 1. Small stand of Bamboo treated by the end of year 2. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year in year 1 and year 2.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  Not present in reserve.		

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 7

Broadleaf paspalum	<p><b>Control methods:</b> Spot spraying, use of 'wick wiper' and hand pulling.</p> <p><b>Performance Measures:</b> 1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3 2. Maintain paspalum at less than 10% of original distribution in perpetuity.</p>	Three sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  See above – as per Zone 1.		
Other exotic grasses	<p><b>Control methods:</b> Spot spray and wick-wiper application of herbicide.</p> <p><b>Performance Measures:</b> 1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3. 2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.</p>	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  See above – as per Zone 1.		
<i>Archontophoenix</i> sp.	<p><b>Controls methods:</b> Cut and paint and hand pulling.</p> <p><b>Performance measures:</b> Weed control work will aim to achieve the following outcomes: 1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  See above – as per Zone 1.		
Coral berry and winter senna	<p><b>Controls methods:</b> Cut and paint and hand pulling.</p> <p><b>Performance measures:</b> Weed control work will aim to achieve the following outcomes: 1. Individuals of coral berry and winter senna removed by the end of year 3.2. 2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached.  See above – as per Zone 1.		

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 7

Fire for conservation management plan				Landholder to complete	BCT auditor	
Location (e.g. management zone)	Required actions and performance indicators	Required timing and frequency	Completion dates, actions undertaken and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations	
All zones	Exclude fire	Ongoing	No fire during management period.			
Vertebrate pest management plan				Landholder to complete	BCT auditor	
Location (e.g. management zone)	Pest species	Required actions and performance indicators	Required timing and frequency	Completion dates, actions undertaken and performance outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
All zones	Pig, fox, dog, cat	Nocturnal walk over the site	Once annually	Nocturnal walk around site perimeter and into tracks and access areas for visual surveillance, April 2021. No pest activity observed  Swamp Wallaby congregation area in use in the reserve at night  Observations taken during photo and other monitoring.  Diggings attributable to native Bandicoot and Echnida present. Wallaby and Koala scats present.		
	Pig, fox, dog, cat	Record visual evidence of pest activity	Once annually	No pest activity observed  Not required.		
	Pig, fox, dog, cat	Ground baiting program	As required in response to monitoring outcomes.	N/A		

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 7

Additional site inspection or monitoring requirements				
Management actions		Landholder to complete	BCT auditor	
Description of additional site inspection or monitoring requirement	Required timing and frequency	Completion dates, observations, actions undertaken and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
Sampling of photo-points in accordance with Section 1.2 of Annexure D of the agreement.	Every 12 months	Six photo-point locations sampled November 2020.		
Inspections to record grazing by Stock in accordance with Section 1.3 of Annexure D of the agreement.	Every 3 months	With bush regerators visits. No stock grazing during the management period.		
Inspections to document human disturbance, erosion or waste in accordance with Section 1.3 of Annexure D of the agreement.	Every 6 months	Rubbish removed when encountered during bush regen visits and collected by BSC.		
Inspection to document the condition of fences and gates in accordance with Section 1.3 of Annexure D of the agreement.	Every 12 months	Gates and fences not applicable to this reserve. Interpretative signage developed.		
Submission of diary and monitoring report templates	Every 12 months	Attached.		

Details of incidents or events that have had an adverse effect on biodiversity values on biobank site (landholder to complete)	
Description of incident or event (e.g. natural events)	Action taken and/or recommended actions
Any other comments or observations regarding the biobank site	
Please include any additional photos from site visits, along with any comments / observations	
Landholder Annual Report signature and declaration	

## BYRON SHIRE COUNCIL

### STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

### 4.3 - ATTACHMENT 7

<p>I hereby declare that the information supplied in this report is accurate and complies with the reporting requirements under item 2 of Annexure D to the BioBanking Agreement.</p> <p>All landowners must sign this annual report. If the land that forms the Biodiversity Stewardship Site is owned by multiple persons landowners may confirm in writing to the BCT that another person can complete and submit the annual report on their behalf.</p> <p><b>Please submit a signed PDF version and a word version of your Annual Report submission to the BCT</b></p>			
Signed		Signed	
Date		Date	
<b>BCT approval of recommendation</b>			
Signature of auditor:		Authorisation signature:	
Name of auditor:		Name of authorising officer:	
Position of auditor:		Position of authorising officer:	
Date:		Date:	



**BioBanking agreement  
ID number: 352**

**Under the  
Threatened Species Conservation Act 1995  
for  
Byron Shire Council  
for  
Lilli Pilli Biobank site**

**Lot 7 in Deposited Plan number 809005  
Lot 24 in Deposited Plan number 845454  
Lot 46 in Deposited Plan number 848543  
Lot 46 in Deposited Plan number 860353  
Lot 47 in Deposited Plan number 854800  
Lot 66 in Deposited Plan number 863772**



Version 1.5 November 2017

Biodiversity Banking and Offsets Scheme  
Biobanking agreement ID number BA352

**BioBanking agreement under Part 7A Division 2 of the *Threatened Species Conservation Act 1995***

**This agreement** made on the \_\_\_\_\_ day of \_\_\_\_\_ between the Minister for the Environment of the State of New South Wales, being the Minister currently administering the *Threatened Species Conservation Act 1995* (**'the Minister'**, which expression shall where the context admits, be deemed to include his or her successors in office) on the one part and Byron Shire Council (ABN 14 472 131 473) (**'the landowner'**) of Lilli Pilli Road Byron Bay NSW 2481 on the other part.

**Background**

- A The landowner is the owner of those parcels of land being:
  - Lot 7, Deposited Plan number 809005, Parish of Byron, County of Rous;
  - Lot 24, Deposited Plan number 845454, Parish of Byron, County of Rous;
  - Lot 46, Deposited Plan number 848543, Parish of Byron, County of Rous;
  - Lot 46, Deposited Plan number 860353, Parish of Byron, County of Rous;
  - Lot 47, Deposited Plan number 854800, Parish of Byron, County of Rous; and
  - Lot 66, Deposited Plan number 863772, Parish of Byron, County of Rous,
 known as Lilli Pilli Biobank site (**'the land'**).
- B The biobank site that is the subject of this agreement forms part of the land and is shown on the Figure 1 Biobank site boundary; Lilli Pilli biobank site dated 13/06/2017. The biobank site covered by this agreement consists of approximately 8.65 hectares.
- C The landowner has requested the Minister to enter into a biobanking agreement under clause 14 of the BioBanking Regulation for the purpose of designating the biobank site on the land.
- D The Minister and landowner recognise that the landowner will receive biodiversity credits determined in accordance with the BioBanking Assessment Methodology (and set out in Annexure B) relating to the impact or likely impact of the management actions required to be carried out under Clause 3 and Annexure C of this agreement regarding the biodiversity values listed in Annexure B.
- E The landowner and the Minister recognise that the biobank site contains the following known Aboriginal objects and/or Aboriginal places as defined by the *National Parks and Wildlife Act 1974*:
 

None applicable

Note: This biobanking agreement only recognises the existence of known Aboriginal objects and/or Aboriginal places. It does not provide for the protection of Aboriginal objects or Aboriginal places. The protection of Aboriginal objects and Aboriginal places is dealt with by the *National Parks and Wildlife Act 1974*. This agreement does not authorise any person to damage or to cause or permit damage to an Aboriginal object or Aboriginal place in, on or under the biobank site land (see clause 2.2).
- F The landowner and the Minister recognise that this biobanking agreement is being entered into for the purposes of the BioBanking Scheme established under Part 7A of the Act.



Biodiversity Banking and Offsets Scheme

Biobanking agreement

ID number BA352

- G The landowner agrees to undertake the management actions and implement the management plans to improve the biodiversity values of the biobank site as set out in Annexure C.
- H The landowner agrees to undertake monitoring, reporting and record keeping as set out in Annexure D.
- I Accordingly, the parties hereby enter into the following biobanking agreement under section 127D of the Act.
- J The Minister has delegated the power to enter into this biobanking agreement to the Chief Executive of the Office of Environment and Heritage.

Biodiversity Banking and Offsets Scheme  
Biobanking agreement ID number BA352

**Now this agreement witnesses:**

## 1. Interpretation

1.1 In this agreement, unless the contrary intention appears:

the **'Act'** means the *Threatened Species Conservation Act 1995* and any regulations from time to time in force thereunder

**'adaptive management'** means a process for improving management where the outcomes of monitoring indicate that minor alterations to the management actions or management plans are required to improve biodiversity values

**'agreement'** means this biobanking agreement entered into by the Minister and the landowner under section 127D of the Act for this biobank site

**'animal'** has the same meaning as in section 4 of the Act

**'Annexure A'** means Annexure A to this agreement entitled 'Maps of the biobank site'

**'Annexure B'** means Annexure B to this agreement entitled 'BioBanking Agreement Credit Report'

**'Annexure C'** means Annexure C to this agreement entitled 'Management actions and management plans'

**'Annexure D'** means Annexure D to this agreement entitled 'Monitoring, reporting and record keeping requirements'

**'Annexure E'** means Annexure E to this agreement entitled 'Payment schedules'

**'annual report'** means the annual report to be prepared by the landowner in accordance with item 2 of Annexure D

**'authorised officer'** means a person appointed under section 156B of the *National Parks and Wildlife Act 1974*

**'biobank site'** means that part of the land shown as the "biobank site" on the biobank site boundary map

**'biobank site boundary map'** means the map entitled Figure 1 Biobank site boundary; Lilli Pilli biobank site dated 13/06/2017 and included in Annexure A

**'Biobanking Agreement Credit Report'** means the report contained in Annexure B generated by a BioBanking Assessor for the biobank site using the BioBanking Assessment Methodology and the BioBanking Credit Calculator which includes the number and type of biodiversity credits to be created on the biobank site

**'biobanking agreements register'** means the register of biobank sites kept by the Chief Executive under Part 7A of the Act

**'BioBanking Assessment Methodology'** means the rules established under section 127B of the Act

Biodiversity Banking and Offsets Scheme  
Biobanking agreement ID number BA352

**‘BioBanking Regulation’** means the Threatened Species Conservation (Biodiversity Banking) Regulation 2008

**‘BioBanking Scheme’** means the Biodiversity Banking and Offsets Scheme established under Part 7A of the Act

**‘BioBanking Trust Fund’** means the fund established under Part 7A of the Act to hold funds from the sale of biodiversity credits (the Total Fund Deposit)

**‘biodiversity credits’** means biodiversity credits created under Part 7A of the Act

**‘biodiversity credits register’** means the register of biodiversity credits kept by the Chief Executive under Part 7A of the Act

**‘biodiversity values’** has the same meaning as in section 4A of the Act

**‘Chief Executive’** means the Chief Executive of the Office of Environment and Heritage

**‘commencement date’** means the date this agreement commences under clause 18 of this agreement

**‘critical habitat’** has the same meaning as in section 4 of the Act

**‘day’** means any day including Saturdays, Sundays and public holidays

**‘development’** has the same meaning as in section 127(1) of the Act

**‘Chief Executive’** has the same meaning as in section 4 of the Act

**‘ecological burn’** means a burn to improve biodiversity values carried out as part of the management of fire for conservation

**‘fee unit’** has the same meaning as in the BioBanking Regulation

**‘first payment date’** means the date the balance in the relevant biobank site account is equal to or greater than 80% of the Total Fund Deposit for the first time

**‘Fund Manager’** means the person appointed by the Minister from time to time under Part 7A of the Act as the Fund Manager to manage the BioBanking Trust Fund

**GST** has the same meaning as given to that term in *A New Tax System (Goods and Services Tax) Act 1999* (Commonwealth) and any other Act or regulation relating to the imposition or administration of the GST

**‘land’** means that parcel or parcels of land which contains the biobank site as described in paragraph A of this agreement

**‘management action’** means the actions to be carried out by the landowner on the biobank site to improve biodiversity values for which biodiversity credits may be created. Such actions are set out in of Annexure C. A reference to a management action includes a reference to refraining from doing anything, whether or not that thing was being done beforehand

**‘management of fire for conservation’** means the controlled application of fire under specified environmental and weather conditions to a predetermined area and

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Biobanking agreement

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at the time, intensity and rate of spread required to attain planned improvement of biodiversity values

**‘management of grazing for conservation’** is the implementation of a variable and adaptive stock grazing regime for improving biodiversity values, such as for controlling exotic weeds or vegetation biomass, or enhancing the competitiveness of native perennial species. Typically it involves short periods of intensive grazing between long periods of little or no grazing. Management of grazing for conservation differs with site condition, specific management goals, seasonal conditions and regions

**‘management payments’** means the payments to be made to the landowner in accordance with the payment schedules and the requirements in Annexure E

**‘management plans’** means the management plans to be implemented by the landowner in carrying out the management actions and included in Section 3 and Section 4 of Annexure C (or such other management plans as approved by the Chief Executive in accordance with the provisions of Annexure C)

**‘management zone’** means those areas of the biobank site identified on the map entitled Figure 3 Management zones; Lilli Pilli biobank site dated 10/05/2018 and included in Annexure A

**‘maximum operational surplus’** has the same meaning as in clause 33(2) of the BioBanking Regulation

**‘Minister’** means the Minister for the time being administering the Act and where not repugnant to the context includes the servants and agents of the Minister

**‘native animal’** has the same meaning as in section 5 of the NPW Act

**‘native plant’** has the same meaning as in section 5 of the NPW Act

**‘native vegetation’** has the same meaning as in section 6 of the NV Act

**‘NPW Act’** means the *National Parks and Wildlife Act 1974* and any regulations from time to time in force thereunder

**‘NV Act’** means the *Native Vegetation Act 2003* (NSW)

**‘OEH’** means the Office of Environment and Heritage

**‘ongoing’** in relation to the timing of carrying out a management action means commencing on the commencement date or first payment date (as indicated) and continuing in perpetuity, unless specified otherwise

**‘operational deficit’** has the same meaning as in clause 31(2) of the BioBanking Regulation

**‘operational deficit threshold’** has the same meaning as in clause 32(2) of the BioBanking Regulation

**‘operational surplus’** has the same meaning as in clause 31(3) of the BioBanking Regulation

**‘owner’** has the same meaning as in section 127(1) of the Act and includes successors in title referred to in section 127J of the Act

Biodiversity Banking and Offsets Scheme

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**'party'** means a party to this agreement

**'payment schedules'** means the tables entitled 'payment schedule' and 'in perpetuity management costs' included in Annexure E

**'pesticide'** has the same meaning as in section 5 of the *Pesticides Act 1999* which includes herbicides, insecticides, fungicides, baits and rodenticides

**'plant'** has the same meaning as in section 4 of the Act

**'planting schedule'** means the schedule at item 6.6 of Section 1, Annexure C

**'processing fee'** means the processing fee which is to accompany an application to enter into a biobanking agreement as required by clause 14 of the BioBanking Regulation

**'record keeping requirements'** means those record keeping requirements set out in item 3 of Annexure D

**'regrowth'** has the same meaning as in section 9 of the NV Act

**'relevant biobank site account'** means the biobank site account within the BioBanking Trust Fund kept by the Fund Manager in accordance with clause 30(1) of the BioBanking Regulation

**'remnant native vegetation'** has the same meaning as in section 9 of the NV Act

**'sensitive threatened species'** means any threatened species, populations or ecological communities or any critical habitat (or any area or areas of land proposed to be identified as critical habitat), information relating to the location of which must not be made available to the public on a register kept under Part 7A of the Act, as required by clause 48(1)(a) or (b) of the BioBanking Regulation

**'threatened species, populations and ecological communities'** and **'threatened species, population or ecological community'** have the same meaning as in the Act

**'Total Fund Deposit'** has the same meaning as in clause 26(1) of the BioBanking Regulation

**'waste'** has the same meaning as in the *Protection of the Environment Operations Act 1997*.

- 1.2 A word or expression that indicates one or more particular genders shall be taken to indicate every other gender. A reference to a word or expression in the singular form includes a reference to the word or expression in the plural form, and vice versa.
- 1.3 Any reference to an action, or carrying out an action, includes a reference to doing anything or refraining from doing anything.
- 1.4 Any reference to a person shall be deemed to include a corporate body and vice versa.
- 1.5 Any covenant or agreement on the part of two or more persons shall be deemed to bind them jointly and severally.

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- 1.6 The schedules and Annexures to this agreement form part of this agreement.
- 1.7 Any notes included in the agreement do not form part of the agreement.

## **2. Status of this agreement**

The parties agree that this agreement is a biobanking agreement within the meaning of section 127D of the Act.

## **3. Use of the biobank site**

The landowner covenants with the Minister as follows:

### **General responsibilities**

- 3.1 Except as otherwise permitted by this agreement, the landowner must not carry out any act or omit to carry out any act, or cause or permit any act to be carried out or any act not to be carried out which act or omission may harm biodiversity values on the biobank site, including but not limited to any native animals, native plants, threatened species, populations and ecological communities, and their habitats.

Note: The clearing of native vegetation that is otherwise permissible in accordance with the NV Act (whether it is permissible under a Property Vegetation Plan, routine agricultural management activity (as defined under the NV Act), or is otherwise permitted under Part 3 of that Act) can only be carried out on the biobank site to which this agreement applies if it is also permissible under this agreement. Item 5.1 of the management actions contained in Section 1 of Annexure C of this agreement sets out the limited circumstances in which native vegetation can be cleared on the biobank site. Annexure C of this agreement also contains limited exceptions in relation to when a landowner is not required to comply with the management actions contained in Annexure C.

### **Cultural heritage**

- 3.2 To avoid any doubt, nothing in this agreement is to be construed as authorising (including, but not limited to, by way of a consent, permit, approval or authorisation of any kind for the purposes of Part 6 of the NPW Act) any person to damage or to cause or permit damage to an Aboriginal object or Aboriginal place in, on or under the biobank site.

### **Obtaining of consents, permits and authorisations**

- 3.3 The landowner is responsible for obtaining all necessary licences, consents, authorisations, permits or approvals in order to lawfully comply with and carry out its obligations under this agreement or to undertake or enable any other identified matter under clause 3.5 and/or clause 3.6.

### **Development**

- 3.4 The landowner must not carry out, or cause or permit to be carried out, any development (as defined under clause 1 above) on the biobank site, unless the development:

- 3.4.1 is permitted or required under Annexure C, or

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- 3.4.2 is identified in the table entitled 'Permissible development on the biobank site' contained in clause 3.5 or identified in the table entitled 'Permissible human activities on the biobank site' contained in clause 3.6.

**Permissible development**

- 3.5 The landowner shall be permitted to carry out, or cause or permit to be carried out, the development specified in the following table in the management zone specified in the table.

Permissible development on the biobank site	
Description of development	Management zone/s
Any development permitted or required as part of a management action under Annexure C, including but not limited to maintaining existing access tracks on the biobank site, building shed/s to store weed control chemicals or other pesticides on the biobank site, building fences to manage stock on the biobank site and building structures to restore natural water flow regimes.	All zones
Any development within the meaning of section 127(1) of the Act reasonably considered necessary to remove or reduce an imminent risk of serious personal injury or damage to property.	All zones

**Permissible human activities**

- 3.6 Notwithstanding clause 3.1, the landowner may carry out or cause or permit to be carried out any human activities specified in the following table, in the management zone specified in the table.

Permissible human activities on the biobank site	
Description of human activities	Management zone/s
Any activity or any development permitted or required as part of a management action under Annexure C, including but not limited to mustering stock or feral herbivores including with mechanised vehicles, spraying or mechanically removing weeds, planting tubestock or sowing seeds of native vegetation, using drip torches, thinning native vegetation, disturbing soil temporarily to control erosion, encouraging regeneration, controlling nutrients or restoring natural flow regimes, laying baits, trapping or otherwise controlling vertebrate pests and feral herbivores and overabundant native herbivores.	All zones
Any human activity reasonably considered necessary to remove or reduce an imminent risk of serious personal injury or damage to property.	All zones
Traditional Aboriginal cultural activities, except commercial activities.	All zones



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Permissible human activities on the biobank site	
Description of human activities	Management zone/s
Any activity required to undertake permissible development.	All zones
Other - Bushwalking and passive environmental activities such as bird watching	All zones

**4. Management actions and management plans**

4.1 The landowner must carry out or procure the carrying out of the management actions in accordance with the timing, manner and requirements of Annexure C.

4.2 The landowner must:

i. implement or procure the implementation of; and

ii. comply or procure the compliance with

the management plans in accordance with the timing, manner and requirements of Annexure C.

Note: The management actions listed in Annexure C include requirements to take certain action and requirements to refrain from taking certain action.

4.3 Unless otherwise indicated by Annexure C, the landowner must ensure that

i. the management actions to be carried out in accordance with clause 4.1; and

ii. the management plans to be implemented and complied with in accordance with clause 4.2

are carried out in perpetuity, commencing from the date indicated in Annexure C.

4.4 The landowner's obligations under this clause are subject to clause 12.4 of this agreement.

**5. Total Fund Deposit**

For the purpose of clause 26 of the BioBanking Regulation, the Total Fund Deposit for this biobank site is \$263,995 excluding GST, determined in accordance with Part 6 of the BioBanking Regulation.

Note: Part 6 of the BioBanking Regulation prescribes the amount that must be deposited in the BioBanking Trust Fund before the first transfer (or retirement without transfer) of each biodiversity credit can be registered. The prescribed amount is the Total Fund Deposit, or proportion thereof if a partial sale of credits is made. The Total Fund Deposit is the present value of the total of all management payments listed under this agreement, as determined by the Chief Executive.

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**6. Biodiversity credits**

- 6.1 The Chief Executive is permitted under section 127W(4) of the Act, to create (without application by the landowner under section 127W(4) of the Act) the biodiversity credits listed in Annexure B on the commencement date.
- 6.2 The biodiversity credits listed in Annexure B will be created for the biobank site.
- 6.3 At the commencement date, the landowner is entitled to receive \$0 excluding GST, to be satisfied in full by the creation of the biodiversity credits listed in Annexure B.

Note: \$0 is a best estimate of the market value of the biodiversity credits at the time of creation. The market value has been estimated by reference to the notional Part B amount as determined by the landowner in the credit pricing spreadsheet or reference to the notional Part B amount for the last traded biodiversity credit of the same or similar type.

The Part B amount is that part of the sale price received by the landowner (or another landowner if reference is made to a previous sale of that biodiversity credit type) after the entire Total Fund Deposit is satisfied and deposited into the BioBanking Trust Fund.

The sale price of each biodiversity credit will be negotiated between the landowner and the buyer and will be affected by supply and demand for each biodiversity credit. The final price at the time of transfer of the biodiversity credit (or retirement or the biodiversity credit without transfer) may not reflect this estimated amount.

The Minister does not warrant that the landowner will be able to sell biodiversity credits for the estimated market value.

**7. Monitoring, record keeping and reporting**

- 7.1 The landowner must comply with the monitoring and record keeping requirements as set out in Annexure D.
- 7.2 The landowner must submit an annual report complying with the requirements set out in Annexure D to the Chief Executive within the timeframe specified in Annexure D.
- 7.3 The landowner must notify the Chief Executive in writing as soon as practicable after becoming aware of any failure to comply with this agreement or any other incident at the biobank site (or surrounds) which results or may result in a sudden or significant decline of biodiversity values at the biobank site. In particular, the landowner must notify the Chief Executive of:
- 7.3.1 the nature, location and time of the incident
  - 7.3.2 the impact of the incident on biodiversity values
  - 7.3.3 the measures that have been taken or will be taken in response to the incident
  - 7.3.4 any provision of this agreement which may have been breached
  - 7.3.5 the extent of any damage caused or permitted by the incident
  - 7.3.6 the measures which have been taken or will be taken to prevent a recurrence of the incident.

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**8. Use of the land by servants, agents, lessees or licensees**

The landowner must incorporate all relevant requirements of this agreement in any lease or licence issued for the biobank site, and must at all times ensure that any servant, contractor, consultant, agent, lessee or licensee occupying the biobank site area shall be aware of, and not undertake any act inconsistent with, the landowner's obligations under this agreement.

**9. Change of land ownership or subdivision of land**

9.1 The landowner must notify the Chief Executive in writing of any change of:

- 9.1.1 ownership of the biobank site, or any part thereof, within seven (7) days after the change of ownership of the biobank site; or
- 9.1.2 lessee of the biobank site, or any part thereof, within twenty-eight (28) days after the change of lessee or licensee of the biobank site.

The notice must include the name and address and other relevant contact details of the new landowner, lessee or licensee.

9.2 The landowner must provide a copy of this agreement, including a copy of each management plan and a copy of all records required to be kept under the record keeping requirements, to the transferee before completion of the assignment, transfer, disposal or sale of any interest in the biobank site.

9.3 The landowner must notify the Chief Executive in writing no less than 14 days before the biobank site is subdivided.

9.4 The landowner cannot assign, transfer, dispose of or sell its rights, title or interest in part of the land containing any area of the biobank site unless the landowner and the Minister have first agreed to vary the agreement to apportion the obligations and rights under the agreement in respect of that part of the biobank site that will be assigned, transferred, disposed of or sold.

**10. Right to enter biobank site for research and monitoring**

10.1 The landowner must permit access to the biobank site at any time to the Minister, the Chief Executive, an authorised officer or an officer of OEH for the purpose of carrying out research or monitoring in relation to the biodiversity values on the biobank site for which biodiversity credits have been created under this agreement, but only where the person has given reasonable notice to the landowner and the landowner's agent, lessee or licensee, of the intention to enter the biobank site for that purpose and the nature of the research or monitoring that will be conducted. In exercising its right of access under this clause, the Minister, the Chief Executive, an authorised officer or an officer of OEH must ensure that such access does not:

- 10.1.1 result in physical or radio interference which obstructs, interrupts or impedes the use or operation of any telecommunications network and telecommunications service of a lessee or licensee of a part of the land; or

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10.1.2 interfere with the electricity supply separate from the landowner's electricity supply to any part of the land occupied by a lessee or licensee.

10.2 The Minister, Chief Executive, an authorised officer or an officer of OEH may make a written request to the landowner to consent to any other person specified in the written request to enter the biobank site for the purpose of carrying out the research or monitoring referred to in clause 10.1, whether or not that person will accompany the Minister, Chief Executive, an authorised officer or an officer of OEH. The landowner will not unreasonably withhold consent.

10.3 Clauses 10.1 and 10.2 do not affect or limit the powers of authorised officers under the NPW Act to enter premises for the purpose of determining whether there has been compliance with, or contravention of, this agreement.

**11. Agreement preparation expenses**

Each party bears its own costs in connection with the preparation and execution of this agreement.

**12. Obligations of the Minister**

12.1 Subject to clauses 12.2 and 12.3 and starting from the first payment date, the Minister is required to direct the Fund Manager to make such management payments specified in the payment schedules from the relevant biobank site account to the landowner, at such intervals specified in the payment schedules.

12.2 The Minister may only make such a direction if:

12.2.1 the relevant biobank site account has sufficient funds to cover the management payment, and

12.2.2 the landowner has submitted the annual report for the preceding reporting period in accordance with clause 7.2 and Annexure D of this agreement, and

12.2.3 the Minister has reviewed the annual report for the preceding reporting period and is satisfied that the landowner has complied with their obligations set out in this agreement in the preceding period.

12.3 The landowner acknowledges that the Minister may, with the agreement of the landowner, direct that the management payments should not be made, or should be reduced, for a specified period of time or until further notice if the biobank site account has an operational deficit greater than the operational deficit threshold.

Note: Withholding or lowering payments when funds in the account are below the maximum operational deficit may help to preserve the long-term financial viability of the fund for the landowner.

12.4 If the Minister, with the agreement of the landowner, directs that management payments be reduced or not be made for a specified period of time or until further notice, then:

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- 12.4.1 the Minister may, by written agreement with the landowner, suspend or vary any of the landowner's obligations to carry out management actions under this agreement for the same period of time or some other period, and
- 12.4.2 despite clause 4 of this agreement, the landowner's obligations to carry out management actions under this agreement are suspended or varied in accordance with the agreement.

The Minister must not agree to any variation or suspension under this clause unless satisfied that the variation or suspension does not have a negative impact on the biodiversity values protected by the agreement.

- 12.5 The landowner acknowledges that the Minister may, in addition to the management payments, direct additional payments to be paid from the BioBanking Trust Fund to the landowner, but only in circumstances where the biobank site account has an operational surplus, the operational surplus amount exceeds the maximum operational surplus for the biobank site account, and the amount the Minister directs to be paid does not exceed the difference between the operational surplus amount and the maximum operational surplus.
- 12.6 All management payments shall be paid into the bank account nominated by the landowner in accordance with the payment schedules.

### **13. Ownership of the land and registration of this agreement**

- 13.1 The landowner represents and warrants to the Minister that as at the date of this agreement it is:
  - 13.1.1 the legal and beneficial owner of the land; or
  - 13.1.2 legally and beneficially entitled to become the owner of the land and will become the legal and beneficial owner of the land, prior to the date that this agreement is to be registered under clause 13.2 of this agreement.
- 13.2 As contemplated by section 127I(1) of the Act, the Minister agrees to notify the Registrar General when this agreement has been entered into, varied or terminated so the Registrar General can register the agreement, variation or termination by making an entry concerning the agreement, variation or termination in the relevant folio of the Register kept under the *Real Property Act 1900* (NSW) for the land.
- 13.3 The fee to register the agreement in accordance with section 127I(1) of the Act will be taken from the processing fee, except as provided by clause 13.4.
- 13.4 If the landowner elects to identify the exact boundaries of the biobank site on the Deposited Plan for the land, the landowner must bear any additional costs of registration.

### **14. Variation and termination**

- 14.1 Subject to clause 14.2, this agreement can only be varied or terminated in accordance with the Act.

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- 14.2 The landowner waives any right to request voluntary termination in accordance with subsections 127G(5) and (6) of the Act.
- 14.3 This clause does not affect the ability of the Minister and the landowner to terminate this agreement by consent under section 127G(2)(a) of the Act (including in the circumstances described in subsection 127G(6) of the Act).

Note: Clause 14.2 ensures that the landowner can obtain Commonwealth Government tax advantages that apply to conservation covenants. Those tax advantages would not be available if the right to request termination of the agreement under subsections 127G (5) and (6) of the Act was available.

Subsections 127(5) and (6) of the Act give landowners the right to request termination of the agreement where credits are not sold within 3 months or after 5 years of entering the agreement. The effect of clause 14.2 is that the landowner gives up that right. This is essential as the tax advantages are only available where the Commonwealth Government has conferred conservation covenant status on biobank sites – and a requirement of this status is that the sites will operate permanently.

## **15. Indemnity and release**

- 15.1 The landowner agrees to indemnify the protected persons against all expenses, losses, damages and costs that the protected person may sustain or incur as a result, whether directly or indirectly, of carrying out obligations under this agreement.
- 15.2 The indemnity given by the landowner does not cover any loss or damage that is caused by a negligent act or omission of the protected persons, or any loss or damage that is contributed to by a negligent act or omission of the protected persons to the extent of the protected persons' contribution to that loss or damage.
- 15.3 The landowner releases to the full extent permitted by law the protected persons from all claims and demands arising out of or in connection with, or as a consequence of, carrying out of obligations by the landowners under this agreement, or in connection with, or as a consequence of, a direction made by the Minister regarding the payment of management payments to the landowner under this agreement.
- 15.4 The release given by the landowner does not cover any claims and demands in respect of any loss or damage that is caused by a negligent act or omission of the protected persons, or any loss or damage that is contributed to by a negligent act or omission of the protected persons to the extent of the protected persons' contribution to that loss or damage.
- 15.5 It is immaterial to the obligations of the landowner under this clause that a claim or demand arises out of any act, event or thing that the landowner is authorised or obliged to do under this agreement or that any time waiver or other indulgence has been given to the landowner for any such obligation under this agreement.

In clauses 15.1–15.4:

- (i) 'protected person' means:
- (a) the Minister
  - (b) the Chief Executive
  - (c) the employees or officers of the Office of Environment and Heritage
  - (d) any other person acting under the direction or control of the Minister or Chief Executive for any purpose

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- (e) the Crown in right of the State of New South Wales;
- (ii) 'claims and demands' means all actions, suits, claims, demands, proceedings, losses, compensation, damages, sums of money, costs, legal costs, charges, and expenses to which the protected persons are or may become liable for in respect of loss or damage to the fixtures of the biobank site, financial or economic loss, loss of opportunity or other consequential loss of the landowner, and injury of any kind to or death of any person claiming through the landowner and however sustained on or outside the biobank site.

**16. Dispute resolution**

- 16.1 Where there is a dispute, difference or claim (dispute), the party raising the dispute must notify the other party in writing of the nature of the dispute, including the factual and legal basis of the dispute.
- 16.2 Within 14 days of the written notice, the Chief Executive and the landowner, or nominated senior representatives of the parties, must confer to attempt to resolve the dispute, and if the dispute cannot be resolved within twenty-one (21) days of the written notice, the Chief Executive and the landowner will refer the matter to mediation.
- 16.3 The parties will agree on the terms of appointment of the mediator and the terms of the mediation in writing within twenty-eight (28) days, failing which the mediation will be at an end and either party may commence court proceedings in respect of the dispute, difference or claim.
- 16.4 If the matter has not been resolved within 28 days of the appointment of the mediator, the mediation process will be at an end and either party may commence court proceedings in respect of the dispute, difference or claim.
- 16.5 Notwithstanding the above clauses, the Minister, the Chief Executive or a person duly authorised by the Chief Executive, may enforce this agreement under the Act, or institute proceedings without first entering into the dispute resolution procedure set out in clauses 16.1, 16.2, 16.3, and 16.4.
- 16.6 Clause 10.1 of this agreement is not affected by these arrangements for dispute resolution.

**17. Governing law**

This agreement is governed by the laws of the State of New South Wales and the parties agree to submit to the jurisdiction of the courts of that State.

**18. Commencement**

This agreement shall have effect from the day it is executed by all parties.



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**19. Privacy statement**

The landowner acknowledges and consents to the information contained in this agreement being made publicly available on the biobanking agreements register and, where biodiversity credits have been registered, on the biobanking credits register maintained by the Chief Executive and made available on the web.

Note: In accordance with the *Privacy and Personal Information Protection Act 1998* and the Act, some of the information contained in this agreement cannot be made available to the public.

**20. Exercise of Minister's and Chief Executive's powers**

- 20.1 The landowner acknowledges that the Minister may authorise any officer of OEH to exercise any of the Minister's functions under this agreement on the Minister's behalf.
- 20.2 The landowner acknowledges that the Chief Executive, may authorise any officer of OEH to do any thing that the Chief Executive authorises for the purposes of this agreement.

**21. Notices**

- 21.1 Any notice, consent, information, application or request that must or may be given or made to a party is only given or made if it is in writing and delivered or posted to that party at its address set out below, or faxed to that party at its fax number set out below:

**The Minister**

Address	Office of Environment and Heritage PO Box A290 Sydney South NSW 1232
Fax	(02) 9995 6795
Attention	Manager, Agreements and Technical Services

**Landowner**

Address	Byron Shire Council PO Box 219 Mullumbimby NSW 2482
Phone	(02) 6626 7000
Attention	Phil Warner

- 21.2 The name or title of the nominated officer or the address for the Minister referred to in clause 21.1 above may be updated from time to time by a further written notice being sent to the landowner by an officer of OEH advising of the new officer (or title of an office) and address to which such documents, information or notification may be sent.

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21.3 For the avoidance of doubt, this clause does not fetter the Minister or Chief Executive's discretion to give or withhold from giving such notice, consent or permission.

**Agreement annexures**

Annexure A Maps of biobank site

Annexure B Biobanking Agreement Credit Report

Annexure C Management actions and management plans

Annexure D Monitoring, reporting and record keeping requirements

Annexure E Payment schedules

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**In witness where of** the parties hereto have executed this agreement the day and year first above written.

**Signed by**

Derek Rutherford, Director, Conservation Programs, Office of Environment and Heritage, as the Minister's delegate under Section 142A of the *Threatened Species Conservation Act 1995* in the presence of:

**Derek Rutherford**

Date

Witness signature

Date

Witness name

Witness address

**Signed by the landowner/s or director/s**

Mark Arnold signature

Date

Mark Arnold - Acting General Manager Byron Shire Council

In the presence of

Witness signature

Date

Witness name

Witness address

Seal (if signing under seal):

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**Annexure A: Maps of biobank site**

Figure 1 Biobank site boundary; Lilli Pilli biobank site (13/06/2017)

Figure 2 Vegetation zones; Lilli Pilli biobank site (10/05/2018)

Figure 3 Management zones; Lilli Pilli biobank site (10/05/2018)

Figure 4 Property action plan; Lilli Pilli biobank site (05/07/2017)

Figure 5 Photo points; Lilli Pilli biobank site (05/07/2017)

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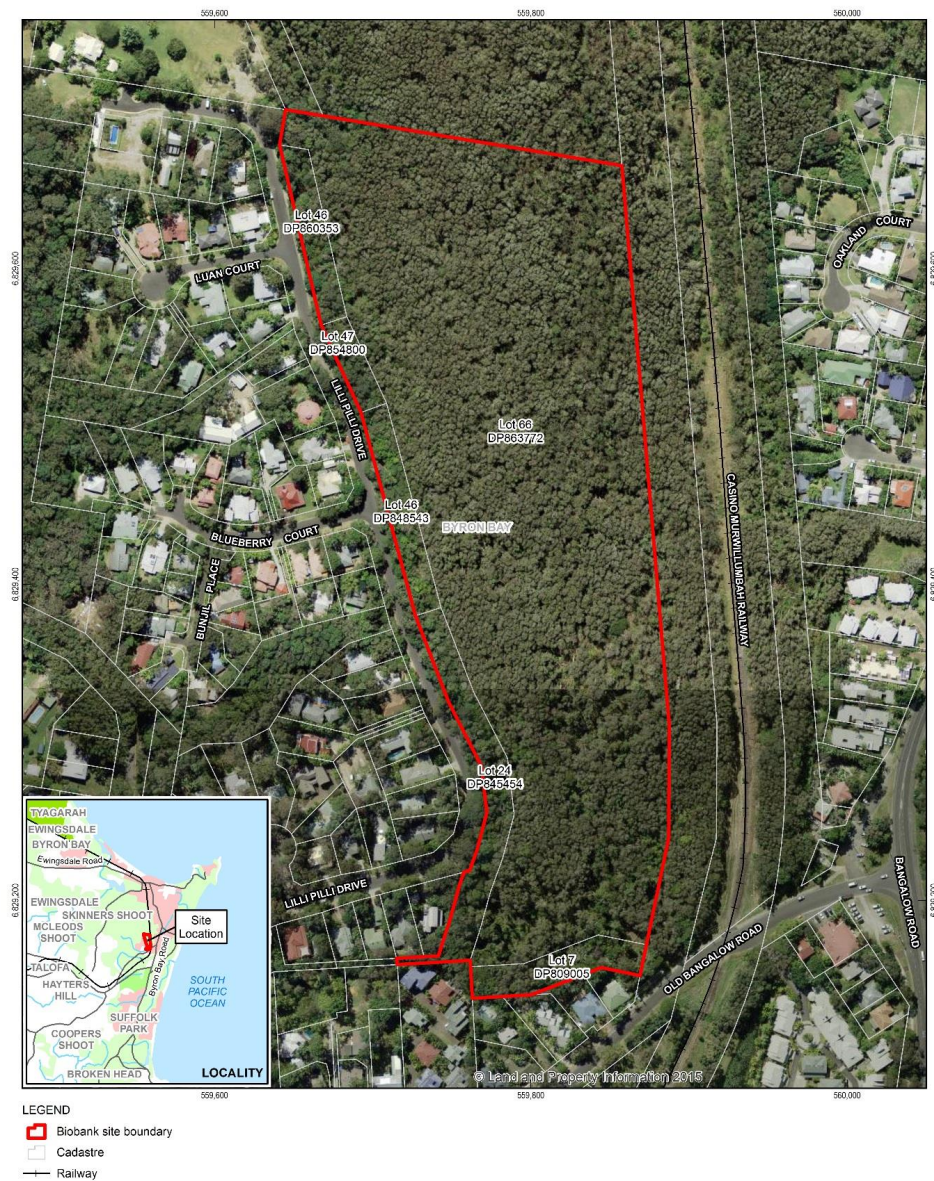


Figure 1 Biobank site boundary; Lilli Pilli biobank site (13/06/2017)



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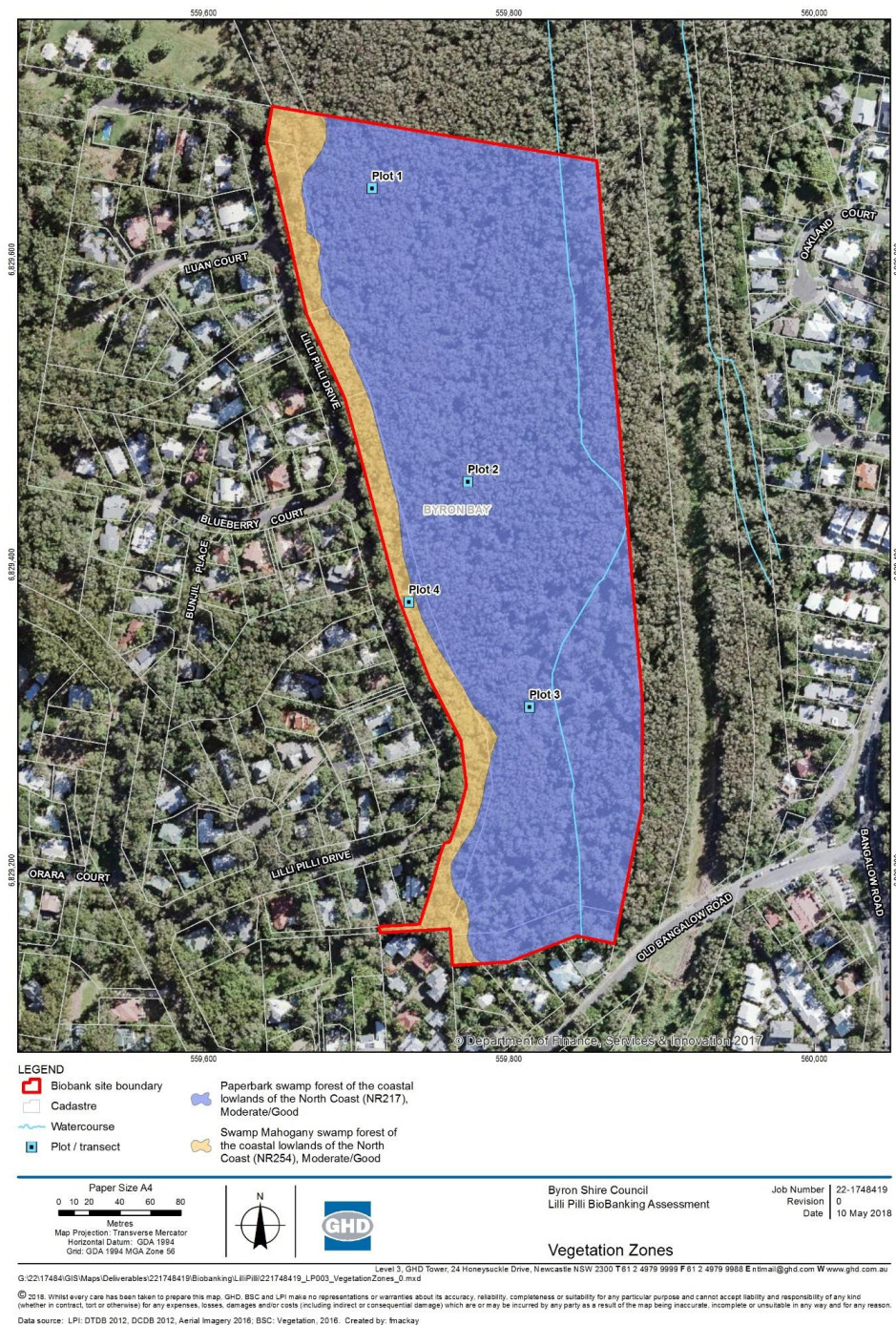


Figure 2 Vegetation zones; Lilli Pilli biobank site (10/05/2018)



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Figure 3 Management zones; Lilli Pilli biobank site (10/05/2018)



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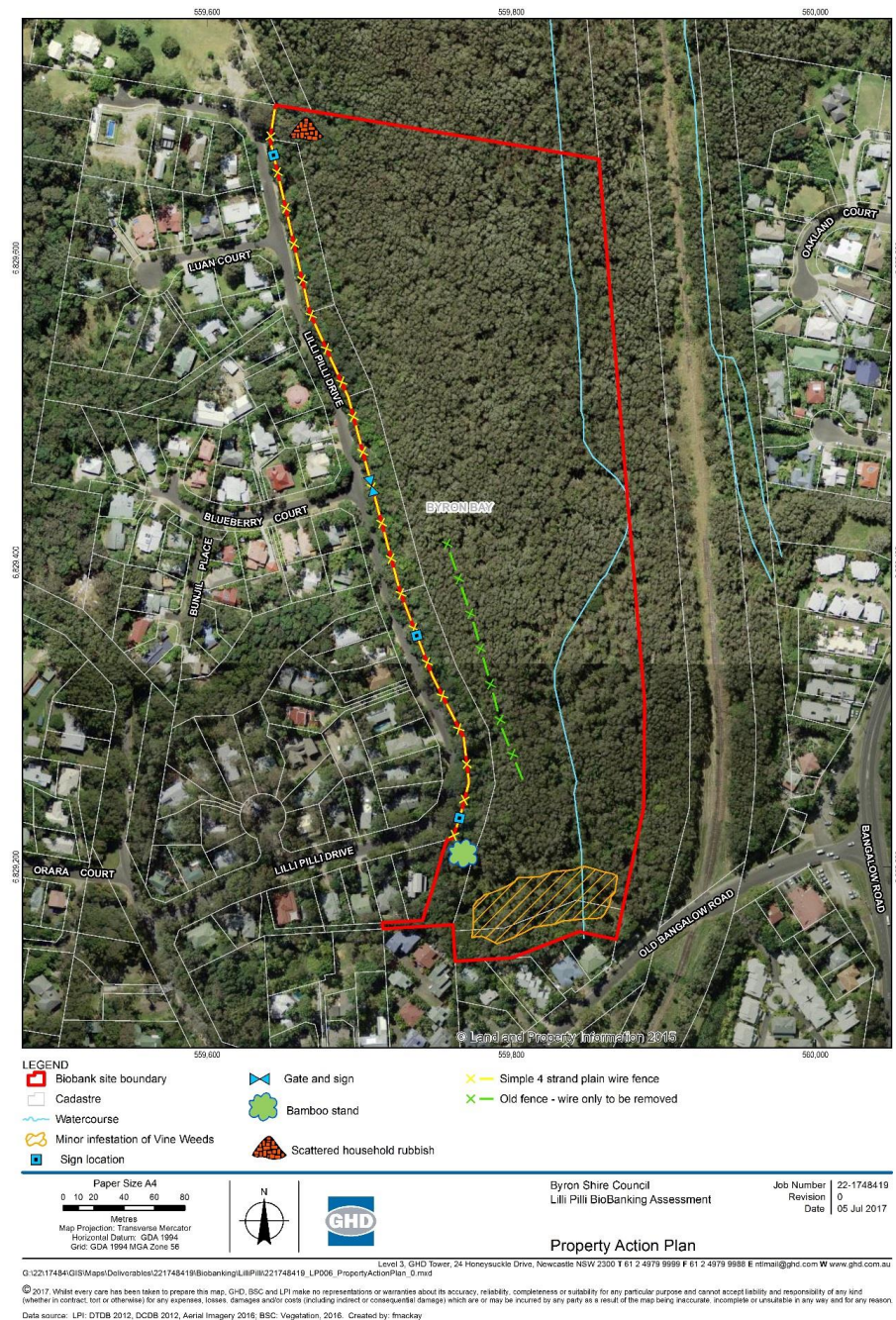


Figure 4 Property action plan; Lilli Pilli biobank site (05/07/2017)



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Figure 5 Photo points; Lilli Pilli biobank site (05/07/2017)

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**Annexure B: Biobanking Agreement Credit Report**

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**BioBanking credit report**

This report identifies the number and type of credits required at a BIOBANK SITE

Date of report: 22/05/2018

Time: 2:36:48PM

Calculator version: v4.0

**Biobank details**

**Proposal ID:** 082/2017/4390B  
**Proposal name:** Lilli Pilli Biobank site  
**Proposal address:** Lilli Pilli Drive Byron Bay NSW 2481  
  
**Proponent name:** Byron Shire Council  
**Proponent address:** PO Box 219 Mullumbimby NSW 2482  
**Proponent phone:** 02 6684 3018  
  
**Assessor name:** Daniel Williams  
**Assessor address:** Level 1, 62 Clarence Street Port Macquarie NSW 2444  
**Assessor phone:** 6586 8714  
**Assessor accreditation:** 082

**Additional information required for approval:**

- ☐ Use of local benchmark
- ☐ Expert report...  
■ Mitchell's Rainforest Snail *Thersites mitchellae*
- ☐ Request for additional gain in site value

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**Ecosystem credits summary**

Plant Community Type	Area (ha)	Credits created	Credits created after application of additionality of 20%
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	7.69	80.00	64.00
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	0.96	8.00	6.00
<b>Total</b>	8.65	88	70

**Credit profiles**

**1. Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion, (NR217)**

Number of ecosystem credits created 80

IBRA sub-region Murwillumbah (Qld - Southeast Hills and Ranges)

**2. Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion, (NR254)**

Number of ecosystem credits created 8

IBRA sub-region Murwillumbah (Qld - Southeast Hills and Ranges)

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**Species credits summary**

Common name	Scientific name	Extent of impact Ha or individuals	Number of species credits created	Credits created after application of additionality of 20%
Mitchell's Rainforest Snail	Thersites mitchellae	8.65	61	49

**Additional management actions**

Additional management actions are required for:

Vegetation type or threatened species	Management action details
Mitchell's Rainforest Snail	Exclude miscellaneous feral species
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Control of feral pigs
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Exclude commercial apiaries
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Exclude miscellaneous feral species
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Feral and/or over-abundant native herbivore control
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Fox control
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Maintain or re-introduce natural flow regimes
Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion	Slashing
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Control of feral pigs
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Exclude commercial apiaries
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Exclude miscellaneous feral species
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Feral and/or over-abundant native herbivore control
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Fox control
Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion	Slashing

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**Annexure C: Management actions and management plans**

This Annexure C, together with Annexure D, is approved as a property management plan prepared by the landowner under the section 113B of the *Threatened Species Conservation Act 1995*.

**A Management actions**

A1 The landowner must undertake, or cause to be undertaken, the Management Actions contained in the following tables in this Annexure C:

- (i) Section 1: Standard management actions ('Section 1'); and
- (ii) Section 2: Additional management actions ('Section 2')

in accordance with the conditions specified in Section 1 and Section 2 and within the timeframes (if any) specified in Section 1 and Section 2.

A2 In carrying out the management actions, the landowner must implement and, at all relevant times comply with, the management plans as contained in the following tables in this Annexure C:

- (i) Section 3: Standard management plans ('Section 3'); and
- (ii) Section 4: Additional management plans ('Section 4')

in accordance with the conditions specified in those tables and management plans and within the timeframes (if any) specified in Section 3 and Section 4.

A3 Where a management action requires that something must not be done, the landowner must not do that thing and must not cause, authorise or permit any other person to do that thing.

A4 Notwithstanding A1 and A2 above, the landowner is not required to undertake the management actions so described if the action is inconsistent with anything (act or omission) required or authorised to be done by the landowner by or under any of the following:

- I. removal of noxious weeds under the *Noxious Weeds Act 1993*
- II. the control of noxious animals under the *Rural Lands Protection Act 1998*
- III. an obligation arising under an eradication order or pest control order under Part 11 of the *Rural Lands Protection Act 1998*
- IV. a direction under section 37A of the *State Emergency and Rescue Management Act 1989* in relation to a state of emergency or a direction under section 22A of the *State Emergency Service Act 1989*
- V. in respect of the *Rural Fires Act 1997*:
  - (a) an emergency fire fighting act within the meaning of that Act
  - (b) emergency bushfire hazard reduction work within the meaning of that Act
  - (c) any notified steps issued to the landowner under section 63 of that Act



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- (d) any notice by a local authority under section 66 of that Act to undertake specified bushfire hazard reduction work
  - (e) otherwise as part of any managed bushfire hazard reduction work within the meaning of the *Rural Fires Act 1997* that is carried out in accordance with:
    - i. a current bushfire hazard reduction certificate that applies to the work
    - ii. the provisions of any bushfire code applying to the land specified in the certificate.
- A5 The landowner may make minor alterations to any management actions as part of adaptive management, where the outcomes of monitoring, including documented observations of the landowner or his/her servant, lessee, agent or licensee/s, indicate that the minor alterations to the management actions are required to improve biodiversity values in accordance with the biobanking agreement. The landowner must document the minor alterations made to the management actions and the reasons for the alterations, and retain a record of the documentation and include it in the annual report.

**B Timing for carrying out management actions**

- B1 An obligation to carry out a management action (or implement and comply with a management plan):
- (i) will commence on the commencement date or first payment date (as indicated); and
  - (ii) must be carried out in perpetuity unless otherwise indicated in Sections 1 to 4 of this Annexure C.
- B2 The landowner must ensure that if a timeframe is specified in Sections 1 to 4, that the management action is carried out within that timeframe.
- B3 For the avoidance of doubt, an obligation to carry out a management action within a specified timeframe continues until the management action has been carried out even if the time for compliance has passed.

## Section 1: Standard management actions

Item 1	Management of grazing for conservation	Timing
1.1	Stock must not be permitted to graze in any area of the biobank site.	Ongoing from commencement date.
1.2	This item is not applicable.	N/A
1.3	Stock must not be permitted to be present on the biobank site in areas where replanting has been undertaken in accordance with item 6 of this Section, except as specified in items 6.2 and 6.3.	Ongoing from first payment date.
1.4	If, at any time, the landowner observes stock in any area of the biobank site, other than an area on the biobank site where grazing is permitted, the landowner must take necessary measures to remove the stock from the area immediately.	Ongoing from first payment date.
Item 2	Weed control	Timing
2.1	<p>The landowner must implement and, at all relevant times, comply with, the integrated weed management plan included in Section 3 ('the weed management plan') (or such updated integrated weed management plan as has been approved by the Chief Executive under item 2.2 below).</p> <p>To allow for adaptive management, minor alterations can be made to the implementation of the weed management plan. Any alterations must be recorded in writing in accordance with Section 3 of this Annexure.</p>	Ongoing from first payment date.
2.2	<p>The weed management plan must be reviewed at intervals of no less than 4 years and no more than 6 years by an appropriately qualified person. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the current plan that are outlined in the dot points below. Notification of the date of the review commencement must be provided to the Chief Executive in writing within 14 days of the commencement of the review. The findings of the review must be submitted to the Chief Executive within 3 months of commencing the review.</p> <p>Where the Chief Executive determines from the review that an update of the plan is required, the Chief Executive will notify the landowner in writing that an update of the plan is required. The landowner must update the plan and submit it to the Chief Executive for approval within 3 months of receiving written notification from the Chief Executive that an update of the plan is required. The revised plan must be prepared by an appropriately qualified person and must cover the matters outlined below and any additional matters specified by the Chief Executive in writing:</p> <ul style="list-style-type: none"> <li>• a description of the target weed/s at the biobank site and their location/s, linked to each management zone where weeds are present</li> <li>• the method/s of weed control in each zone</li> <li>• the frequency of weed control activities at the site, taking into account management practices where weeds are providing habitat for native species</li> </ul>	Ongoing from first payment date.

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	<ul style="list-style-type: none"> <li>the timing of any planting of native plant species required in each management zone to provide alternative habitat for native species affected by weed control activities</li> <li>methods for monitoring the success of weed control activities</li> <li>a timetable/measures for inspections to identify new weed species or exotic plant species (including noxious weeds under the <i>Noxious Weeds Act 1993</i>)</li> <li>additional weed control activities to destroy or remove any new weed species that are found on the site</li> <li>measures for assessing and reporting monitoring results</li> <li>a diary for recording actions taken in accordance with the weed management plan and minor alterations to this plan permitted for adaptive management. The details (management zone/s, date, alternative action) and reasons for the minor alterations must be recorded in the diary.</li> </ul>	
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Item 3	Management of fire for conservation	Timing
3.1	The landowner must implement, and at all relevant times, comply with the fire management plan included in Section 3 (or such updated fire management plan as has been approved by the Chief Executive under item 3.2 below) ( <b>'the fire management plan'</b> ). To allow for adaptive management and weather conditions, minor alterations can be made to the implementation of the fire management plan, and must be recorded in writing in accordance with Section 3 of this Annexure.	Ongoing from first payment date.
3.2	<p>The fire management plan must be reviewed at intervals of no less than 4 years and no more than 6 years by an appropriately qualified person. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the current plan that are outlined in the dot points below. Notification of the date of the review commencement must be provided to the Chief Executive in writing within 14 days of the commencement of the review. The findings of the review must be submitted to the Chief Executive within 3 months of commencing the review.</p> <p>Where the Chief Executive determines from the review that an update of the fire management plan is required, the Chief Executive will notify the landowner in writing that an update of the plan is required. The landowner must update the plan and submit it to the Chief Executive for approval within 3 months of receiving written notification from the Chief Executive that an update of the plan is required. The revised plan must be prepared by an appropriately qualified person and cover the matters outlined below and any additional matters specified by the Chief Executive in writing:</p> <ul style="list-style-type: none"> <li>the year the last fire went through, the type of fire and the extent of the fire and location, where known</li> <li>frequency of natural fires in the area of the biobank site, where known</li> <li>a description of locations and management zones where ecological burns will be conducted and areas that will not be burnt</li> </ul>	Ongoing from first payment date.

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	<ul style="list-style-type: none"> <li>the methods that will be used for ecological burns</li> <li>the fire frequency intervals recommended for the vegetation types and threatened species present, including any required adjustment to the schedule in the event of a wildfire or activities undertaken under the <i>Rural Fires Act 1997</i> to ensure minimum frequency between ecological burns</li> <li>the fire intensity for the recommended vegetation types</li> <li>the time of year suitable for ecological burns</li> <li>the diary for recording actions taken in accordance with the fire management plan and minor alterations to fire management plan permitted for adaptive management. The details (management zone/s, date, alternative action) and reasons for the minor alterations must be recorded in the diary.</li> </ul>	
3.3	Fires must not be lit on the biobank site other than for the purpose of ecological burning in accordance with the fire management plan or as permitted as a permissible human activity on the biobank site under item 4 of this Annexure or clause 3.6 of this agreement.	Ongoing from commencement date.
<b>Item 4</b>	<b>Management of human disturbance</b>	<b>Timing</b>
4.1	Except as permitted under clause 3 of this agreement or item 4.2 (below), human activities that adversely affect biodiversity values on the biobank site, including repeated disturbance of native animals, must not be carried out, or caused or permitted to be carried out, on the biobank site.	Ongoing from commencement date.
4.2	Human activities that may have a negative impact on biodiversity values on the biobank site are permitted if they are listed as permissible activities under clause 3.6 of this agreement or if they are undertaken as part of the management actions or management plans.	Ongoing from commencement date.
4.3	All waste shown on <i>Figure 5 Property action plan; Lilli Pilli biobank site</i> , dated 05/07/2017 must be removed from the biobank site in an appropriate manner. Waste was limited to scattered household waste items only.  A line item has been included in the TFD to remove waste and manage human disturbance in perpetuity as well.	Commencing from first payment date.
4.4	The landowner must not store, dispose of, or cause or permit to be disposed of, any waste on the biobank site.  Note: The storage or disposal of waste on the biobank site may require an approval under the <i>Protection of the Environment Operations Act 1997</i> .	Ongoing from commencement date.
4.5	The landowner must take all reasonable steps to remove waste deposited by others on the biobank site, or which is otherwise present on the biobank site.	Ongoing from first payment date.
4.6	Fencing and/or signage must be installed and maintained to deter human disturbance including waste dumping. Signage must be the BioBanking signs available from the OEH. Specific requirements:  <b>Proposed Fencing</b> Approximately 550 m of new 'simple' rural fencing is proposed to be installed. Fencing will consist of 4-strand plain wire and star	Ongoing from first payment date.

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	<p>pickets with timber posts at corners or as necessary. This fencing will be installed on the western boundary of the biobank only as shown on the <i>Figure 5 Property action plan; Lilli Pilli biobank site</i>, dated 05/07/2017 to delineate the biobank site from nearby residential properties and to assist in controlling impacts from human access.</p> <p>There is also a small section of old fence in the southern portion of the site as shown on the <i>Figure 5 Property action plan; Lilli Pilli biobank site</i>, dated 05/07/2017 which will have the wire removed.</p> <p><b>Signage</b></p> <p>Standard OEH BioBanking signage is to be installed at the four primary biobank site entrances, as shown on <i>Figure 5 Property action plan; Lilli Pilli biobank site</i>, dated 05/07/2017.</p>	
<b>Item 5</b>	<p><b>Retention of regrowth and remnant native vegetation</b></p> <p>Note: An approval under the <i>Native Vegetation Act 2003</i> may be required to carry out thinning or any other removal or damage to native vegetation under this item.</p>	<b>Timing</b>
5.1	<p>Native vegetation (whether remnant native vegetation or regrowth) on the biobank site must not be cut down, felled, thinned, logged, killed, destroyed, poisoned, ringbarked, uprooted, burnt or otherwise removed, except in accordance with item 5.2 below, or if it is required as part of the management actions or it is essential for the carrying out of permissible development under clause 3.5 of this agreement.</p> <p>Note: Native vegetation on the biobank site may be managed to improve biodiversity values by thinning to benchmark stem densities over no more than 80% of each management zone. Benchmark stem densities has the same meaning as defined in the Vegetation Benchmark Database as published by OEH and updated from time to time. An approval under the <i>Native Vegetation Act 2003</i> may be required to carry out thinning or any other removal or damage to native vegetation under this item.</p>	Ongoing from commencement date.
5.2	Native vegetation on the biobank site must not be burnt except in accordance with the fire management plan prepared pursuant to item 3 above.	Ongoing from commencement date.
<b>Item 6</b>	<p><b>Replanting or supplementary planting where natural regeneration will not be sufficient</b></p>	<b>Timing</b>
6.1	This item is not applicable.	N/A
6.2	This item is not applicable.	N/A
6.3	This item is not applicable.	N/A
6.4	This item is not applicable.	N/A
6.5	This item is not applicable.	N/A

**6.6 Planting schedule at the biobank site**

Species' common name	Species' scientific name	Management zone/s of planting	Number of plants per area	Planting method	Timing
N/A					

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<b>Item 7</b>	<b>Retention of dead timber</b>	<b>Timing</b>
7.1	<p>Dead timber (whether standing or fallen and including branches and leaf litter) must not be removed from or moved within the biobank site except for the personal (non-commercial) use by the landowner for firewood for one dwelling only or for repair of fencing (not for construction of fencing).</p> <p>Dead timber used for fencing repair must be documented by the landowner in writing and records must be kept in accordance with the record keeping requirements. The landowner must record the approximate amount of dead timber collected from the biobank site for use in fencing, the location that that dead timber was collected from and the date it was collected (month, year).</p> <p>Specific requirements: N/A</p>	Ongoing from commencement date.
7.2	<p>Timber from outside the biobank site may be introduced to and placed on the biobank site to improve biodiversity values. Once the timber has been brought onto the site, it is subject to the requirements of item 7.1 above.</p> <p>Timber brought from outside the biobank site must be documented by the landowner in writing and records must be kept in accordance with the record keeping requirements. The landowner must record the approximate amount of timber brought from outside the biobank site, the location where the timber was placed on the biobank site and the date on which it was placed (month, year).</p> <p>Specific requirements: N/A</p>	When required but not required before the first payment date.
<b>Item 8</b>	<b>Erosion control</b>	<b>Timing</b>
8.1	<p>All reasonable steps must be undertaken to prevent, control and remedy erosion on the biobank site.</p> <p>Soil management for preventing and controlling erosion is to be undertaken using best practice management, such as that developed by the Soil Conservation Service, applied as relevant for the biobank site.</p>	Commencing from first payment date.
<b>Item 9</b>	<b>Retention of rocks</b>	<b>Timing</b>
9.1	The landowner must not remove, or cause or permit to be removed, rocks from the biobank site or move, or cause or permit to be moved, rocks within the biobank site.	Ongoing from commencement date.
9.2	Rocks from outside the site may be placed on the biobank site to improve habitat for threatened species. Rocks, once placed on the biobank site, are subject to item 9.1 above. The landowner must make and retain records of the location of the rocks placed on the site and the date the rocks were brought onto the site in accordance with the record keeping requirements.	When required but not required before the first payment date.

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## Section 2: Additional management actions

Additional management actions		
Item 10	Control of feral and overabundant native herbivores	Timing
10.1	<p>The landowner must implement, and at all relevant times, comply with the management plan to control feral and overabundant native herbivores included in Section 4 (or such updated management plan as has been approved by the Chief Executive under item 10.2 below) (<b>the feral and overabundant native herbivores management plan</b>). To allow for adaptive management, minor alterations can be made to the implementation of the feral and overabundant native herbivores management plan, which must be recorded in writing in accordance with Section 3 of this Annexure.</p> <p>Note: A licence under Section 121 of the <i>National Parks and Wildlife Act 1974</i> may be required to control overabundant native herbivores.</p>	Ongoing from first payment date.
10.2	<p>The feral and overabundant native herbivores management plan must be reviewed at intervals of no less than 4 years and no more than 6 years. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the plan that are outlined in the dot points below. Notification of the date of the review commencement must be provided to the Chief Executive in writing within 14 days of the commencement of the review. The findings of the review must be submitted to the Chief Executive within 3 months of commencing the review.</p> <p>Where the Chief Executive determines from the review that an update of the feral and overabundant native herbivores management plan is required, the Chief Executive will notify the landowner in writing that an update of the plan is required and the landowner must update the plan and submit the amended plan to the Chief Executive for approval within 3 months of receiving written notification from the Chief Executive that an update of the plan is required. The revised plan must cover the matters outlined below and any additional matters specified by the Chief Executive in writing:</p> <ul style="list-style-type: none"> <li>• a description of the feral or overabundant native herbivore/s</li> <li>• consideration of relevant current OEH and other pest management programs and methods</li> <li>• the method/s for feral and overabundant native herbivore control in each management zone, determined in accordance with best practice management</li> <li>• the frequency and timing of the control actions in each management zone</li> <li>• methods for monitoring the success of the pest control actions</li> <li>• a timetable and measures for inspections to identify new feral or overabundant native herbivores that may adversely affect biodiversity values on the biobank site</li> </ul>	Ongoing from first payment date.



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	<ul style="list-style-type: none"> <li>• additional control actions to destroy or remove any new feral and overabundant native herbivore pest species that occur on site</li> <li>• measures for assessing and reporting monitoring results</li> <li>• a diary for recording actions taken in accordance with the feral and overabundant native herbivores management plan and minor alterations to this plan permitted for adaptive management. The details (management zone/s, date, alternative action) and reasons for the minor alterations must be recorded in the diary.</li> </ul>	
<b>Item 11</b>	<b>Vertebrate pest management – feral cats and foxes</b>	<b>Timing</b>
11.1	The landowner must implement, and at all relevant times, comply with the vertebrate pest management plan included in Section 4 (or such updated vertebrate pest management plan as has been approved by the Chief Executive under item 11.2 below) (' <b>the vertebrate pest management plan</b> '). To allow for adaptive management, minor alterations can be made to the implementation of the vertebrate pest management plan, but these must be recorded in writing in accordance with Section 3 of this Annexure.	Ongoing from first payment date.
11.2	<p>The vertebrate pest management plan must be reviewed at intervals of no less than 4 years and no more than 6 years by an appropriately qualified person. The review is to consider the efficacy of the management actions in the plan and consider the effectiveness of the matters contained in the current plan that are outlined in the dot points below. Notification of the review commencement must be provided to the Chief Executive in writing within 14 days of the commencement. The findings of the review must be submitted to the Chief Executive within 3 months of commencing the review.</p> <p>Where the Chief Executive determines from the review that an update of the plan is required, the Chief Executive will notify the landowner in writing that an update of the plan is required. The landowner must update the plan and submit it to the Chief Executive for approval within 3 months of receiving written notification from the Chief Executive that an update of the plan is required. The revised plan must cover the matters outlined below and any additional matters specified by the Chief Executive in writing:</p> <ul style="list-style-type: none"> <li>• a description of the target fauna species e.g. pigs, foxes or other species such as feral dogs or goats</li> <li>• consideration of relevant current OEH and other pest management programs</li> <li>• the method/s of vertebrate pest control in each management zone determined in accordance with best management practice</li> <li>• the frequency and timing of vertebrate pest control actions in each management zone</li> <li>• methods for monitoring the success of vertebrate pest control actions</li> <li>• a timetable and measures for inspections to identify new vertebrate pest species that may negatively impact on threatened species on the biobank site</li> </ul>	Ongoing from first payment date.

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	<ul style="list-style-type: none"> <li>• additional vertebrate pest control actions to destroy or remove any new vertebrate pest species that occur on-site</li> <li>• measures for assessing and reporting monitoring results</li> <li>• a diary for recording actions taken in accordance with the vertebrate pest management plan and minor alterations to this plan permitted for adaptive management. The details (management zone/s, date, alternative actions) and reasons for the minor alterations must be recorded in the diary.</li> </ul>	
<b>Item 12</b>	<b>Nutrient control</b>	<b>Timing</b>
12.1	Fertilisers, pesticides and herbicides must not be applied on the biobank site, except where required to undertake the management actions. Use of fertilisers for establishing native vegetation through planting or seeding, use of herbicides for controlling weeds or use of pesticides for controlling vertebrate pests or feral herbivores can be undertaken in accordance with best practice management when required to undertake the management actions.	Ongoing from commencement date.
<b>Item 13</b>	<b>Control of exotic fish species</b>	<b>Timing</b>
13.1	This item is not applicable.	N/A
<b>Item 14</b>	<b>Maintenance or reintroduction of natural flow regimes</b>	<b>Timing</b>
14.1	This item is not applicable.	N/A
14.2	This item is not applicable.	N/A
14.3	Artificial structures such as dams or levee banks that impede the natural flow regimes on the biobank site must not be constructed unless approved by the Chief Executive in writing for the purpose of restoring natural flows.	Ongoing from commencement date.

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## Section 3: Standard management plans

## Weed management plan

The weed types, description and location (management zone/s) of weed infestations existing at the commencement date are listed in the weed management plan. The methods of weed control (management actions), monitoring and inspections are also listed.

The landowner must perform the methods of weed control and other weed management activities and monitoring in the weed management plan by the methods described (and in accordance with item 2 of this Annexure) for all weeds. The methods of control will apply to the weeds listed in the table below as well as any other weeds that may be present on the site from time to time.

The template for reporting of monitoring activities and the diary template for weed control management must be filled in to record observations during the implementation of the weed management plan, including any minor variations.

## Weed types

Weed	Common name of target weed	Scientific name of target weed	Description of infestation (eg intensity (% cover) & location within zone)	Management zone/s
A	Bamboo	<i>Bambusa spp</i>	One small clump in MZ2 (see located shown on Property Action Plan dated 05/07/2017)	MZ2
B	Broadleaf Paspalum	<i>Paspalum mandiocanum</i>	Minor infestations in small patches.	All Zones
C	Other introduced grasses (e.g. Whisky Grass, Vasey Grass)	<i>Andropogon virginicus</i> , <i>Paspalum urvillei</i>	Minor infestations in small patches.	All Zones
D	Sagittaria	<i>Sagittaria platyphylla</i>	Minor infestations in small patches.	MZ1
E	<i>Archontophoenix</i> sp.		Scattered individuals only.	All Zones
F	Small woody and Herbaceous weeds (Coral Berry & Winter Senna)	<i>Ardisia crenata</i> , <i>Senna pendula</i> var. <i>glabrata</i>	Scattered individuals only.	All Zones
G	White passionflower	<i>Passiflora subpeltata</i>	Minor infestation	MZ1

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<b>Methods of weed control</b>			
<b>Management zone/s</b>	<b>Weed/s</b>	<b>Method of weed control</b>	<b>Frequency</b>
MZ2	A	<p>All weed control activities to be completed by suitably qualified and experienced contractors and staff.</p> <p><b>Control methods for Bamboo will include:</b></p> <ul style="list-style-type: none"> <li>• Cut and paint stems with undiluted glyphosate.</li> <li>• Foliage spray on smaller individuals and during follow-up control</li> <li>• Hand removal.</li> </ul> <p><b>Performance measures:</b></p> <p>Weed control work will aim to achieve the following outcomes:</p> <ol style="list-style-type: none"> <li>1. Small stand of Bamboo treated by the end of year 2.</li> <li>2. Biobank site managed so that no mature individuals establish in perpetuity.</li> </ol>	4 sessions per year in year 1 and year 2.
All Zones	B	<p><b>Control methods will include:</b></p> <ul style="list-style-type: none"> <li>• spot spraying</li> <li>• Use of 'wick wiper'</li> <li>• pulling/crowning of weeds</li> </ul> <p><b>Performance Measures</b></p> <p>Weed control work will aim to achieve the following outcomes:</p> <ol style="list-style-type: none"> <li>1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3</li> <li>2. Maintain Paspalum at less than 10% of original distribution in perpetuity.</li> </ol>	3 sessions per year from year 1 to year 3.
All Zones	C	<p><b>Control methods will include:</b></p> <ul style="list-style-type: none"> <li>• Ute mounted spray unit (or equivalent)</li> <li>• Spot spraying using 'back packs' throughout all zones.</li> <li>• Wick wiper application.</li> <li>• Back-pack spraying associated with edge of roadside or small patches within existing intact vegetation.</li> </ul> <p><b>Performance Measures</b></p> <p>Weed control work will aim to achieve the following outcomes:</p>	4 sessions from year 1 to year 3

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		<p>1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3.</p> <p>2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.</p>	
MZ1	D	<p><b>Controls methods will include:</b></p> <ul style="list-style-type: none"> <li>Cut and paint crown/lignotuber with undiluted glyphosate for isolated plants or smaller areas of infestation.</li> <li>Hand pulling/crowning of weeds.</li> </ul> <p><b>Performance measures:</b></p> <p>Weed control work will aim to achieve the following outcomes:</p> <p>1. Individuals of mature <i>Sagittaria</i> removed by the end of year 3.</p> <p>2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Included in Weed C allocation
All Zones	E	<p><b>Control methods will include:</b></p> <ul style="list-style-type: none"> <li>Cut and paint crown/lignotuber with undiluted glyphosate for isolated plants or smaller areas of infestation.</li> <li>Hand pulling/crowning of weeds.</li> </ul> <p><b>Performance measures:</b></p> <p>Weed control work will aim to achieve the following outcomes:</p> <p>1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3.</p> <p>2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Included in Weed C allocation
All Zones	F	<p><b>Control methods will include:</b></p> <ul style="list-style-type: none"> <li>Cut and paint crown/lignotuber with undiluted glyphosate for isolated plants or smaller areas of infestation.</li> <li>Hand pulling/crowning of weeds.</li> </ul> <p><b>Performance measures:</b></p> <p>Weed control work will aim to achieve the following outcomes:</p> <p>1. Individuals of Coral Berry &amp; Winter Senna removed by the end of year 3.</p> <p>2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Included in Weed C allocation

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MZ1	G	<p><b>Control methods will include:</b></p> <ul style="list-style-type: none"><li>• Cut/scrap and paint crown/lignotuber with undiluted glyphosate for isolated plants or smaller areas of infestation.</li><li>• Spot spraying</li><li>• Hand removal (follow-up).</li></ul> <p><b>Performance measures:</b></p> <p>Weed control work will aim to achieve the following outcomes:</p> <ol style="list-style-type: none"><li>1. Individual White passionflower removed by the end of year 3.</li><li>2. Biobank site managed so that no mature vines establish in perpetuity.</li></ol>	Included in Weed C allocation
All Zones	All	<p>Weed control in perpetuity activities program to be carried out by qualified person/s. Methods will include:</p> <ul style="list-style-type: none"><li>• Spot spraying</li><li>• Use of 'wick wiper'</li><li>• Pulling/crowning of weeds</li></ul>	3 sessions per year in perpetuity
Native planting required to provide habitat for native species affected by weed control activities			
Management zone	Description of planting required (reference planting schedule at item 6.6)		Timing
	N/A		
Monitoring and inspections of existing and new weeds			
Management zone/s	Weed/s	Method of monitoring	Date/s required
All Zones	All weeds	<p>A monitoring and evaluation program to address weed regrowth and control measures will be undertaken annually by the landholder through the set-up of fixed photo-points across all restoration zones. Photos should be taken by digital camera and recorded in the project file by date and discrete photo-point number. Photo-point locations should be clearly marked on site and/or recorded using a GPS.</p> <p>The photo-point monitoring will be augmented by a completion of a weed management log (included below) describing actions and observations.</p>	Annually

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		<p>The photographic records and observations log will be completed by the landholder and provided to OEH.</p> <p>For each management zone, the following information will be reported:</p> <ul style="list-style-type: none"> <li>• A summary of weed control activities works undertaken for the previous 12 months in the zone and a review of their success or otherwise.</li> <li>• A description of the current condition of the zone. This may include presence/absence of canopy, shrub and/or ground-layer regeneration and any evidence of dieback etc.</li> <li>• Brief descriptions of the type and locations of any significant new or remaining weed infestations. Successful suppression of weeds should also be documented. Refer back to the performance targets in methods of weed control.</li> <li>• Recommendations, if required, of any adaptations to the weed control techniques previously applied</li> </ul>	
All Zones	All weeds	Condition mapping (floristic and habitat field survey assessment) to determine vegetation quality and ecological condition. This will be provided to OEH.	Every six years
<b>Other weed management activities (where required)</b>			
<p>Notes:</p> <p><b>The following specifications are to be applied to all native vegetation management and restoration works. They apply to all weed species and all management zones.</b></p> <p><u>Herbicide usage</u></p> <ul style="list-style-type: none"> <li>• Herbicide spraying is not to be utilised within bushland areas of diverse / resilient remnant native groundcover.</li> <li>• Off-label usage of any herbicide is only to be undertaken in accordance with a permit issued by the Australian Pesticide and Veterinary Medicine Authority (APVMA).</li> <li>• Herbicide usage to only be undertaken where there is no risk to any waterway or the immediate environment. Accumulation of translocated residual herbicides into waterways during wet periods is to be considered in this context.</li> <li>• All herbicide usage, including storage and transport, to be in accordance with WorkCover NSW (2006) and all relevant legislation, including NSW <i>Pesticides Act 1999</i>.</li> <li>• Any bush regenerator undertaking herbicide spray applications must hold a current chemicals application training certification to AQF Level 3.</li> <li>• Any bush regenerator undertaking herbicide spray applications must be highly competent in native and exotic plant identification.</li> <li>• All herbicide applications to weed species are to avoid off-target damage to emerging or mature native plants.</li> </ul> <p>Should a herbicide spill occur, incident and spill management procedures shall be immediately implemented. All incidents shall be immediately reported to the Farm Manager.</p> <p>All ecological management and restoration works are to be implemented by an appropriately qualified and experienced bush regeneration contractor. The bush regeneration contractor must:</p>			



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- Comply with provisions of the National Gardening & Landscape Services Award 2010.
- Provide established Workplace Health & Safety and Environmental Management Systems. Preferably the company has third-party accredited systems in place.
- Demonstrate implementation of safe workplace and appropriate environmental management practices and procedures (e.g. appropriate transport and management of herbicides).
- Provide site supervisor(s) with minimum qualifications and experience of Certificate III Conservation & Land Management and one year full-time equivalent experience as a trained bush regenerator.
- All herbicide usage, including storage and transport, to be in accordance with the *NSW Pesticides Act 1999*, *WorkCover NSW (2006)* and all other relevant legislation.

Other contractors required may include fencing contractors etc.

One session of weed control refers to a team of 2 or 3 staff per day depending on weed control activity being completed.

Each session of weed control in perpetuity consists of a team of 2 staff for one day.

Weed control refers to the follow-up treatment of weeds listed in this MAP whereas weed control in perpetuity refers to the ongoing treatment, through time, of any weed that may inhabit the site now and in the future.

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Template for reporting of monitoring activities		
Management zone/s	Date	Observations and assessment of monitoring This table must include the information for each zone (or groups of zones) which is described in the table titled 'monitoring and inspections of existing and new weeds'.

Diary template for weed control management			
Date	Management zone/s	Description and type of activity undertaken (e.g. weed control, observation)	Minor variations (details and reasons)

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**Fire for conservation management plan**

The plan includes information on all known previous fire events in the 'Fire history' table to demonstrate local fire conditions including intensity and frequency.

The ecological fire requirements for each vegetation type or threatened species on the biobank site are listed in the 'Fire requirements for vegetation types and threatened species' table. These are the fire frequency intervals recommended for the vegetation types and threatened species present on the biobank site. They include any requirement adjustments to the schedule in the event of a wildfire or activities undertaken under the *Rural Fires Act (RFA) 1997* to ensure the minimum frequencies between ecological burns.

The landowner must carry out ecological burns for each management zone according to the method and frequency described (as informed by the history and requirements sections and in accordance with Section 3 of this annexure). These actions are set out in the 'Ecological burning actions table'. Monitoring and inspections (set out in the 'Fire management monitoring' table) as described must also be implemented. The landowner must also carry out the actions listed in the 'Other fire management activities' table.

The table titled 'Template of monitoring activities' must be completed to record observations during the implementation of the plan and assessment of monitoring activities. The landowner must also complete the table titled 'Diary template for fire management activities' to record the management actions undertaken or observations made, including any minor variations.

**Fire history for previous 20 years** (or longer if known)

Year of fire	Hazard reduction, wildfire or ecological burn and extent of fire	Management zone/s
	Fire history unknown	

**Fire requirements for vegetation types and threatened species**

Vegetation type and/or threatened species	Fire frequency required	Time of year for burning	Fire intensity required	Adjustment required due to wildfires or RFA activities
<b>NR217</b> Paperbark swamp forest of the coastal lowlands of the North Coast	Contains vegetation which is not recommended to be subjected to active burns.	N/A	Fire should be avoided where possible	N/A
<b>NR254</b> Swamp Mahogany swamp forest of the coastal	Contains vegetation which is not recommended to be subjected to active burns.	N/A	Fire should be avoided where possible	N/A

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

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lowlands of the North Coast				
<b>Ecological burning actions</b>				
<b>Management zone/s</b>	<b>Actions</b>	<b>Supervision &amp; extinguishing techniques</b>	<b>Time of year for burning</b>	<b>Frequency</b>
All Zones	<p>All Zones contain vegetation which does not traditionally have the same burning regimes (i.e. it is a moist vegetation types). These areas should not be subjected to targeted ecological burn regime.</p> <p>The site also includes the threatened species Mitchell's Rainforest Snail. This species is not adapted to habitats which are conducive to active burning.</p> <p>Burns in the biobank site would be restricted to potential access of wild fire only should conditions be conducive to such an event. Even then, it is anticipated efforts would be undertaken to restrict fire accessing the site by response authorities including RFS and NPWS.</p>	N/A	No active lighting	N/A
<b>Methods for monitoring the outcomes of ecological burns</b>				
<b>Management zone/s</b>	<b>Method of monitoring</b>			<b>Date/s required</b>
<b>Other fire management activities (where required)</b>				

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Template for reporting of monitoring activities		
Management zone/s	Date	Observations and assessment of monitoring

Diary template for fire management activities			
Date	Management zone/s	Description of activity undertaken or observation made	Minor variations (details and reasons)

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**Vertebrate pest management plan**

The management plan for vertebrate pests includes information on the vertebrate pests and their extent existing at the time of the agreement as listed in the 'Vertebrate pests' table. The possible methods of control for each species, used by OEH and other pest management programs are listed and the suitability of each method to the biobank site is described in the 'Methods considered' table.

The landowner must carry out the methods for vertebrate pest control for each management zone according to the method and frequency described in the 'Methods of control' table. The methods of control will apply to the vertebrate pests listed in the 'Vertebrate pests' table as well as any other vertebrate pests that may be present on the site from time to time.

Monitoring and inspections of existing and new vertebrate pests on the biobank site, as described in the 'Monitoring and inspections' table, must be implemented.

The table titled 'Template for reporting of monitoring activities' must be completed to record observations during the implementation of the plan and assessment of monitoring activities. The landowner must also complete the 'Diary template for vertebrate pest management' to record the management actions undertaken, including any minor variations, and observations made.

**Vertebrate pests**

Pest	Name of vertebrate pest (e.g. pig, fox, goat, dog)	Description of extent	Management zone/s
A	Fox	Not observed during field assessments, however, may occur on occasion on a transient basis only. Results of desktop analysis (NPWS Wildlife Atlas) indicate the species is likely to be present in the locality.	Possibility throughout the site on occasion, although specific locations unknown.
B	Feral Cat	Not observed during field assessments, however, is possible to occur on occasion. Results of desktop analysis (NPWS Wildlife Atlas) indicate the species is likely to be present in the locality.	Possibility throughout the site on occasion, although specific locations unknown.

**Methods considered**

Pest type	Name and description of program or method	Describe suitability
A	Monitored and controlled in accordance with strategies outlined in best-practice guidelines for fox control contained within the <i>Predation by the red fox - threat abatement plan</i> (OEH, 2010). The methods considered include: <ul style="list-style-type: none"> <li>• baiting</li> <li>• shooting</li> </ul>	Baiting considered most suitable if Foxes are observed.  Active shooting not

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			deemed appropriate due to proximity to nearby residencies, roads and other amenities.
B	Monitored and controlled in accordance with strategies outlined in best-practice guidelines for feral cat control contained within the <i>Predation by the feral cats - threat abatement plan</i> (DWHA, 2008). The methods considered include: <ul style="list-style-type: none"> <li>• baiting</li> <li>• trapping</li> <li>• shooting</li> </ul>		Baiting and active trapping considered most suitable if Feral Cats are observed.  Active shooting not deemed appropriate due to proximity to nearby residencies, roads and other amenities.
<b>Methods of control</b>			
<b>Management zone/s</b>	<b>Pest type</b>	<b>Method of control</b>	<b>Frequency and timing</b>
All	A	Baiting will be used as the preferred method of fox control. The correct type and method of baiting will need to consider the presence of native fauna and their feeding habits.	As required.
All	B	Baiting and/or active trapping will be used as the preferred method of feral cat control should they be identified to be using the site. The correct type and method of baiting will need to consider the presence of native fauna and their feeding habits.	As required.
<b>Monitoring and inspections of existing and new vertebrate pests</b>			
<b>Management zone/s</b>	<b>Pest type/s</b>	<b>Method of monitoring</b>	<b>Date/s required</b>
All	All	All observations or evidence of feral animals observed by the landholder are to be recorded in the monitoring log, including the date, location and number of animals sighted and any damage noted. Monitoring of damage is essential and can include information on the size of the affected area and feral animal induced impacts.	Annually



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		Monitoring is to comprise a nocturnal walk over of the site annually and a visual estimate of the level of grazing, browsing and/or burrowing impacts. The level of impact is to be recorded as negligible, minimal, moderate or high. The monitoring is to also include recording the date, number and location of any tracks, traces scats or sightings. This information is to be used in the feral herbivores pest management plan to inform the methods of control listed in that plan.	
<b>Other management activities (where required)</b>			
Records will be kept of opportunistic pest animal observations by the landholder in the "Diary template for vertebrate pest management" included below. These records will be submitted to OEH annually for review and discussion of suitable control methods to be employed.			

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Template for reporting of monitoring activities			
Management zone/s	Date	Current level of impact on vegetation or threatened fauna species <small>This column must record impact as Negligible, Minimal, Moderate or High</small>	Observations and assessment of monitoring

Diary template for vertebrate pest management			
Date of activity	Management zone/s	Description and type of activity undertaken <small>This column must include details of the vertebrate pests targeted, control techniques applied and numbers controlled.</small>	Minor variations <small>(details and reasons)</small>

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**Annexure D: Monitoring, reporting and record keeping requirements**

This Annexure D, together with Annexure C, is approved as a property management plan prepared by the landowner under the section 113B of the *Threatened Species Conservation Act 1995*.

**1 Monitoring requirements**

- 1.1 The landowner must ensure that photographs are taken at photo-points at each of the locations and in the direction identified in the table below titled 'Locations of photo points' within 12 months of the commencement date and then at least every 12 months thereafter.
- 1.2 The photo points are identified on the map entitled Figure 5 Photo points; Lilli Pilli biobank site dated 05/07/2017 in Annexure A of this agreement. The purpose of the photographs is to show changes over time. Photographs should be taken at approximately the same direction, location, height and time of day (during daylight hours) in each reporting period (as defined in item 2.2 of this Annexure D) and retained for the life of this agreement. All photographs must be dated, stating the direction in which they were taken and identified with their locations.

Locations of photo points			
Projected coordinate system: GDA94			
Photo point reference	Easting	Northing	Direction of photo (magnetic degrees)
A	559711	6829647	90
B	559814	6829307	90
C	559735	6829376	180

- 1.3 An inspection of the biobank site must be undertaken by, or on behalf of, the landowner in accordance with the table 'Site inspection and monitoring schedule' below, for the purposes specified in column A and at the relevant interval specified in column B. The inspections are to occur at the intervals indicated starting from the commencement date. The inspections are additional to any inspections and monitoring required by Annexure C.

Site inspection and monitoring schedule	
A. Purpose	B. Interval
The percentage of ground cover present on the biobank site for the purposes of item 1.1 of Section 1 of Annexure C.	Every 12 months
Number of stock and date/s when stock have entered the management zones on the biobank site.	Every 3 months
Physical condition of fencing and gates to determine whether they are maintained to a standard that can: <ul style="list-style-type: none"> <li>control the movement of stock if required under item 1 in Section 1 of Annexure C</li> </ul>	Every 12 months

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<ul style="list-style-type: none"> <li>control human disturbance if required under item 4 in Section 1 of Annexure C</li> <li>control the movement of feral and overabundant native herbivores if required under item 10 of Section 2</li> <li>control vertebrate pests if required under item 11 of Section 2</li> </ul>	
Records of any human disturbance on the biobank site. Note: items 4.1 and 4.2 in Section 1 of Annexure C and clause 2 of this agreement place restrictions on human activities on the biobank site.	Every 6 months
Evidence of erosion. Note: item 8 in Section 1 of Annexure C contains requirements for erosion control.	Every 6 months
Evidence of waste. Note: item 4.4 in Section 1 of Annexure C contains requirements for storing and disposing of waste on the biobank site.	Every 6 months

**2 Reporting requirements – annual report**

- 2.1 The landowner must complete and submit to the Chief Executive for approval an annual report using the annual reporting template provided in this Annexure or, if the Chief Executive has approved an amended version of the annual reporting template after the date of this agreement, such an amended version of the annual reporting template as has been approved by the Chief Executive from time to time and supplied to the landowner.
- 2.2 An annual report must be prepared for each reporting period. A reporting period means:
- 2.2.1 prior to the first payment date, the period of 12 months after the commencement date, and each subsequent period of 12 months
- 2.2.2 after the first payment date, the period of 12 months after that date, and each subsequent period of 12 months.
- The annual report submitted after the first anniversary of the first payment date must also include the period between the last anniversary of commencement date and the first payment date.
- 2.3 The annual report for the report period must be supplied to the Chief Executive by registered post not later than 30 days after the end of each reporting period.
- 2.4 If there is a change in land ownership during a reporting period, each landowner must submit the annual report required under items 1.2, 1.3 and 1.4 of this Annexure D for the period for which they were the landowner.
- 2.5 The annual report must:
- 2.5.1 contain the results of any monitoring, inspections or surveys required in Annexure C
- 2.5.2 contain the results of the inspections required to be conducted by item 1.2 of this annexure D, including details of the date, time, location and nature of the inspection, the name of the person conducting the inspection and observations from the inspection

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2.5.3 include the photographs taken at the photo points listed in Annexure D

2.5.4 include any other information required in the annual reporting template.

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### Annual reporting template

Biobank site annual report					
Location details					
Biobanking agreement ID:			Name of landowner/s:		
Reporting date:			Property address:		
Records of management actions undertaken					
Management action	Required completion time and frequency	Action completed (Yes/No)	Actual completion date/s	Description of actions undertaken (including where undertaken (including reference to management zones), any variations and the reasons for variation)	Visual observations and other comments (including reasons for non-completion)
1 Management of grazing conservation					
2 Weed control					
3 Management of fire for conservation					
4 Management of human disturbance					
5 Retention of native vegetation					
6 Planting or seeding					
7 Retention of dead timber					

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8	Erosion control					
9	Retention of rocks					
10	Control of feral and overabundant native herbivores					
11	Vertebrate pest management					
12	Nutrient control					
13	Control of exotic fish species					
14	Maintenance or reintroduction of natural flow regimes					
<b>Incident or event that has adverse effect on biodiversity values on biobank site</b>						
<b>Incident or event including adverse impacts</b> (e.g. natural events)					<b>Action taken and proposed recommended actions</b>	
<b>Records submitted with this report</b>						
<input type="checkbox"/> Photographs taken at the photo points set in the biobanking agreement.						
<input type="checkbox"/> Results of the inspections required to be conducted in item 1.3 of Annexure D to the biobanking agreement.						
<input type="checkbox"/> Results of any monitoring, inspections or surveys required in Annexures C and D to the biobanking agreement.						

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Signature and certification	
I hereby declare that the information supplied in this report is accurate and complies with the reporting requirements under item 2 of the Annexure D to the biobanking agreement. Note: If the land that forms the biobank site is owned by multiple persons, each landowner must sign this annual report.	
Signed	Signed
Date	Date



**Biodiversity Banking and Offsets Scheme****Biobanking agreement****ID number BA352****3 Record keeping requirements**

3.1 The following written records and photographs must be created and retained by the landowner:

- 3.1.1 for a management action required by this agreement (other than a management action requiring the landowner to refrain from an activity), the date and location/s the management action was carried out and a description of the actions that were undertaken
- 3.1.2 for a management action which is permitted to be carried out only in accordance with the Chief Executive's consent or approval, a copy of that consent or approval
- 3.1.3 a copy of any management plan (or updated management plan) required by Annexure C of this agreement that has been approved by the Chief Executive, a copy of the Chief Executive's approval of the management plan (or updated management plan) and a copy of any review of a management plan required by Annexure C
- 3.1.4 the diaries for recording actions undertaken in accordance with the management plans required by this agreement including the details (management zone/s, date, alternative action) of any minor alterations made to the implementation of those management plans and the reasons for the minor alterations
- 3.1.5 all photographs required by item 1 of this Annexure D and the information that item requires to be recorded on the photographs
- 3.1.6 for an inspection required by this agreement, the date, time, location and nature of the inspection, the name of the person conducting the inspection and observations from the inspection
- 3.1.7 the results of monitoring, inspections or surveys required to be conducted by this agreement or any management plan that is required to be implemented under this agreement
- 3.1.8 a brief description of any climatic, weather, ecological/environmental or unplanned events that have a significant adverse affect on the biodiversity values of the biobank site.

3.2 The landowner must retain a copy of each annual report.

3.3 All records required to be kept by this agreement must be:

- 3.3.1 in a legible form, or in a form that can readily be reduced to a legible form (this includes photographs taken as part of this agreement);
- 3.3.2 kept for at least 10 years after the event to which they relate took place, unless specified otherwise; and

Note: item 1.1 of this Annexure D requires the photographs required to be taken under that item to be retained for the life of this agreement.

- 3.3.3 produced to any authorised officer on request by an authorised officer.

## Biodiversity Banking and Offsets Scheme

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**Annexure E: Payment schedule****Note:**

If, by participating in the BioBanking Scheme, you are carrying on an 'enterprise', and your annual income for management actions meets or exceeds \$75,000 (or \$150,000 for a non-profit organisation) you are required to register for GST.

'Enterprise' has a broad definition, and includes activities that are in the form of a business, or in the form of a concern in the nature of trade. Item 1 below assumes you are carrying on an enterprise.

If you are not carrying on an enterprise by participating in the BioBanking Scheme, GST will not apply to you – but Capital Gains Tax and income tax may still apply. In this case, do not indicate an ABN in item 1.1 below.

If you do not meet the monetary threshold, but you are carrying on an enterprise by participating in the BioBanking Scheme, you are still entitled to register for GST if you wish and you may indicate a registered ABN in item 1.1 below.

**1 Agreement to issue recipient created tax invoices**

- 1.1 The parties acknowledge that, if the landowner is registered for GST, recipient created tax invoices will be issued from the BioBanking Trust Fund (Australian Business Number 83 639 386 285) to the landowner (Australian Business Number 14 472 131 473).
- 1.2 The recipient created tax invoices will be for the supply by the landowner of the landowner's obligation to carry out the management actions as defined in this agreement ('the supplies'). These management actions are specified between the landowner and the Minister administering the Act, pursuant to Part 7A Division 2 of the Act.
- 1.3 The recipient created tax invoices will be issued on payment of the management payments as specified in item 2 of this Annexure E.
- 1.4 Under this recipient created tax invoice agreement, the landowner guarantees that the landowner will not issue any tax invoice for the supplies.
- 1.5 The landowner will notify the BioBanking Trust Fund immediately should the landowner cease to be registered for GST.
- 1.6 The BioBanking Trust Fund is registered for GST and the Minister will notify the landowner immediately should the fund cease to be registered.

**2 Payment timing and amount**

- 2.1 Subject to clause 12 of the agreement, the Minister is to direct the Fund Manager to make the management payments to the landowner in accordance with the payment schedules and the requirements of items 2, 3 and 4 of this Annexure E.
- 2.2 The first year of the payment timing, as set out in the payment schedules, commences from the first payment date.

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- 2.3 The amount of the scheduled management payment for each year is as set out in the payment schedules.
- 2.4 Each amount is listed in the present value and is inclusive of GST for GST registered landowners and will be increased in accordance with the formula below:

In respect of indexation by CPI the following applies:

Each amount of the management payment is to be adjusted by movements in the CPI in accordance with the formula below (provided that, at all times, each instalment of the management payment is never less than its nominal dollar value as set out in the payment schedules and as at the date of this agreement).

$$\frac{A \times B}{C}$$

Where:

**CPI** means the published Consumer Price Index (Sydney - All Groups), or if that index is no longer published, then any other index which, in the reasonable opinion of the Minister, is a similar index

**A** is the dollar value (\$) of the management payment amounts as set out in the Payment Schedules prior to indexation by CPI

**B** is the most recent June Quarter CPI prior to the date that payment is due to be made

**C** is the CPI for the June Quarter 2018

- 2.5 Payment schedules

Payment schedule (including GST)	
Payment timing	Amount
At the beginning of the first year	\$ 26,400
At the beginning of the second year	\$ 17,875
At the beginning of the third year	\$ 12,925
At the beginning of the fourth year	\$ 7,645
At the beginning of the fifth year	\$ 7,975
At the beginning of the sixth year	\$ 11,055
At the beginning of the seventh year	\$ 6,765
At the beginning of the eighth year	\$ 6,435
At the beginning of the ninth year	\$ 6,765
At the beginning of the tenth year	\$ 6,600
At the beginning of the eleventh year	\$ 6,435
At the beginning of the twelfth year	\$ 11,055
At the beginning of the thirteenth year	\$ 6,435

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At the beginning of the fourteenth year	\$ 6,435
At the beginning of the fifteenth year	\$ 6,435
At the beginning of the sixteenth year	\$ 6,435
At the beginning of the seventeenth year	\$ 6,435
At the beginning of the eighteenth year	\$ 6,435
At the beginning of the nineteenth year	\$ 7,755
At the beginning of the twentieth year	\$ 6,600
At the beginning of each following year	Amount equal to the sum of the in-perpetuity management cost that apply for each following year as determined by the table of in perpetuity costs below.

### In perpetuity management costs (on and from the twenty-first year) (excluding GST and subject to rate of return)

Description of ongoing management action	Frequency	Amount (\$)
Fence/gate maintenance	The twenty second year and every year thereafter	450
Weed control	The twenty fourth year and every year thereafter	2,700
Removal of rubbish and human disturbance	The twenty first year and every two years thereafter	900
Weed management plan review	The twenty first year and every six years thereafter	1,200
Vertebrate pest control	The twenty first year and every two years thereafter	900
Project management/landowner reporting and monitoring	The twenty sixth year and every year thereafter	1,800
Biobank sign replacement	The thirtieth year and every ten years thereafter	150
Annual reporting fee	The twenty first year and every year thereafter	1,500
<b>Total present value of payments after 20 years (incl. GST)</b>		<b>\$98,943</b>
<b>Total present value of payments after 20 years (excl. GST)</b>		<b>\$89,948</b>

Biodiversity Banking and Offsets Scheme

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**3 Nominated bank account**

- 3.1 The management payments will be paid into a bank account as nominated by the landowner in accordance with the requirements of this item 3 (**'the Nominated Bank Account'**).
- 3.2 The landowner must provide the Fund Manager with details in writing of the nominated bank account within 14 days of the commencement date.
- 3.3 Where there is more than one owner of the biobank site, the notice to be provided in accordance with item 3.2 above must be signed by all owners of the biobank site.
- 3.4 The landowner must notify the Fund Manager in writing within 14 days of any change to the nominated bank account. This notice must include new bank account information and the written consent of all owners of the biobank site.

**4 Annual contribution**

- 4.1 The landowner authorises the Minister to retain the annual contribution from each management payment made to the landowner.
- 4.2 The Minister will, following each management payment, issue the landowner with an invoice confirming that the annual contribution has been deducted from the relevant management payment.
- 4.3 As contemplated by clause 18 of the BioBanking Regulation, the Minister may waive the annual contribution where:
  - 4.3.1 the owner of the biobank site has not sold any of the biodiversity credits created for the site, or
  - 4.3.2 there are insufficient funds in the biobank site account relating to the biobank site to meet the next scheduled management payment when it becomes payable.



Biodiversity  
Conservation  
Trust

Phil Warner  
PO Box 219  
MULLUMBIMBY NSW 2482  
pwarner@byron.nsw.gov.au

Our ref: DOC21/814688

20 September 2021

Attention: Sandra Pimm

Dear Mr Warner

Thank you for submitting the 2021 (Active) Annual Report for year 2 of your Biodiversity Stewardship (Biobank) Agreement for **BSA 352** Lilli Pilli.

The BCT has completed an audit of the active management actions and advise that the required actions have been satisfactorily completed. The BCT would like to commend Byron Shire Council for installing well considered educational signage at the Lilli Pilli stewardship site. The BCT is very supportive of such pro-active measures designed to inform local residents about the biodiversity values present and the need for their ongoing protection.

However, for subsequent reporting periods, could you please ensure the sampling of photo-points takes place as close to the end of the annual reporting period as possible to maximise the value of this monitoring component.

Please find enclosed the audit report with detailed comments prepared by the BCT regional reviewer. Also attached are next year's annual report, diary and monitoring templates.

The BCT will be releasing your annual management payment which will be deposited into your nominated bank account within 20 working days. Please note that payment has been adjusted for the Consumer Price Index as per your agreement.

The next annual report for your site (2022, year 3) is due by **27 July 2022**.

Thank you for your ongoing commitment to managing the biodiversity on your property. You are contributing to over 26 300 hectares of land under in-perpetuity conservation agreements across NSW.

Please contact Don Owner on 02 6659 8239 or via [don.owner@bct.nsw.gov.au](mailto:don.owner@bct.nsw.gov.au) with any questions relating to your annual report.

Yours sincerely

A handwritten signature in cursive script that reads 'Jennie Powell'.

Jennie Powell  
**Principal Project Officer**  
**Biodiversity Stewardship Agreement Co-ordination Team**

**Attached: Annual report template**

**NSW Biodiversity Conservation Trust**

4 Parramatta Square | 12 Darcy Street Parramatta 2150 | Locked Bag 5022 Parramatta NSW 2124 | ABN 37 151 321 702 | [bct.nsw.gov.au](http://bct.nsw.gov.au)

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**Diary templates**  
**Monitoring templates**  
**Site inspection and photo monitoring templates**

Please contact the BCT as early as possible if:

- Your bank details change
- You believe you will not be able to meet the management requirements for the year
- There is a new significant management issue that has arisen on your stewardship site
- You are considering selling your property or changing its ownership structure.

**NSW Biodiversity Conservation Trust**

4 Parramatta Square 12 Darcy Street Parramatta 2150 | Locked Bag 5022 Parramatta NSW 2124 | ABN 37 151 321 702 | [bct.nsw.gov.au](http://bct.nsw.gov.au)

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Enclosed: year 2 (2020-21) annual report BCT audit

BioBanking (Biodiversity Stewardship) Site landholder annual report & BCT audit				
Audit details				
Biobanking agreement reporting year: Year 2 Reporting period: 27 June 2020 to 27 June 2021 Site visit date: Postponed due to COVID 19 restrictions Auditor: Don Owner		BioBanking agreement ID: BA 352 Lilli Pilli Biobank site Landowner/site contact details: Phil Warner – <a href="mailto:phil.warner@byron.nsw.gov.au">phil.warner@byron.nsw.gov.au</a> – 6626 7000 Property address: Lilli Pilli Road, Byron Bay NSW		
BBAM management actions		Annual report (landholder to complete)	Audit of annual report by BCT	
Management actions as per Agreement	Management item description	Completion dates, actions undertaken and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
1. Management of grazing for conservation	1.1 Exclusion of grazing by Stock	3 monthly inspections conducted during monitoring and bush regeneration visits – no stock grazing occurring on site or within local area. 19/8/20, 31/10/20, 21/1/21, 23/4/21.	Yes	N/A
	1.4 Removal of Stock when observed	N/A	Yes	N/A
2. Weed control	2.1 Implementation of the weed management plan	Refer to implementation of management plans below.	Yes	Refer to BCT comments in response to landholder contractor comments below.
	2.2 Review of the weed management plan	Not required before year 4 of active management.	Yes	N/A
3. Management of fire for conservation	3.1 Implementation of the fire for conservation management plan	Refer to implementation of management plans below.	Yes	N/A
	3.2 Review of the fire for conservation management plan	Not required before year 4 of active management.	Yes	N/A

NSW Biodiversity Conservation Trust

4 Parramatta Square 12 Darcy Street Parramatta 2150 | Locked Bag 5022 Parramatta NSW 2124 | ABN 37 151 321 702 | [bct.nsw.gov.au](http://bct.nsw.gov.au)



# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 9

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<b>4. Management of human disturbance</b>	4.1 & 4.2 Exclusion of adverse human activities	BMX track removed	Yes	N/A
	4.3 Removal of existing waste	Rubbish and old fence removal undertaken 24/7/20 and 11/8/20.	Yes	N/A
	4.4 Excluding storage or disposal of rubbish	Neighbour informed re garden waste dumping. Dumped material removed. Old rubbish found within reserve and new rubbish on edges removed 3 monthly.	Yes	N/A
	4.5 Ongoing removal of waste	Annual check and removal undertaken 24/7/20 and 21/6/21. Bush regen team collect any rubbish seen during on-ground works. Interpretative Signage developed for installation.	Yes	N/A
	4.6 Installation and maintenance of fencing, gates and signage to exclude human disturbance	Biodiversity Stewardship SA, site boundaries and wildlife signage erected. Interpretative Signage developed for installation.	Yes	The BCT supports and commends the landholder's inclusion of additional educational signage at key locations around the site.
<b>5. Retention of native vegetation</b>	5.1 Retention of native vegetation	No native vegetation has been removed from the BSS.	Yes	N/A
<b>7. Retention of dead timber</b>	7.1 Retention of dead timber	Dead timber retained on ground	Yes	N/A
	7.2 Addition of dead timber	No dead timber was added during the management period	Yes	N/A
<b>8. Erosion control</b>	8.1 Prevention of erosion	Weed control to prevent Sagittaria re-colonising.	Yes	Erosion on this low-lying, flat, fully vegetated site is highly unlikely.
<b>9. Retention of rocks</b>	9.1 Retention of rocks	No rocks removed during the management period.	Yes	N/A
	9.2 Addition of rocks	No rocks brought in during the management period.	Yes	N/A
<b>11. Vertebrate pest management</b>	11.1 Implementation of the vertebrate pest management plan	Refer to implementation of management plans below.	Yes	N/A
	11.2 Review of the vertebrate pest management plan	Not required before year 4 of active management.	Yes	N/A
<b>12. Nutrient control</b>	12.1 Restricted use of fertilisers, pesticides and herbicides	No fertilisers or pesticides were used within the reserve.	Yes	Herbicides have been used on the site, but only in amounts required to undertake required management actions.
<b>14. Maintenance or reintroduction of</b>	14.3 Excluding construction of artificial drainage or water storage structures	No artificial drainage alterations or water storage structures undertaken.	Yes	N/A

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natural flow regimes				
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Implementation of management plans						
Weed management plan				Landholder to complete	BCT auditor	
Location (e.g. management zone)	Weed species	Required actions and performance indicators	Required timing and frequency	Completion dates, actions undertaken and performance outcomes (e.g. sessions completed)	Action completed Yes/No/N/A	Auditor comments and recommendations
MZ1	Broadleaf paspalum	<b>Control methods:</b> Spot spraying, use of 'wick wiper' and hand pulling.  <b>Performance Measures:</b> 1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3 2. Maintain paspalum at less than 10% of original distribution in perpetuity.	Three sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached. Broad-leaved Paspalum has mainly been controlled by hand weeding and brushcutting, since it occurs in wetter areas and adjacent drainage lines which form Mitchells Rainforest Snail habitat. Overall numbers are largely the same because of this and greater effort has gone to other more problematic weeds for the first two years.	Yes	Refer to the landholder's supplementary report for the weed control log/record sheets. The split in weed control effort between MZs can be roughly determined by the location descriptions provided on the log sheets.
	Other exotic grasses	<b>Control methods:</b> Spot spray and wick-wiper application of herbicide.  <b>Performance Measures:</b> 1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3. 2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached. Reduced from original by half.		
	Sagittaria	<b>Controls methods:</b> Cut and paint and hand pulling.  <b>Performance measures:</b>	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily		

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		1. Individuals of mature <i>Sagittaria</i> removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.		Record combined sheets attached. See Photo Monitoring Report attached. Reduced from original numbers but same as previous year.		
	<i>Archontophoenix</i> sp.	<b>Controls methods:</b> Cut and paint and hand pulling. <b>Performance measures:</b> 1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Three sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached. Seedlings recruit continually; significant reduction in adults, present total one third of highest numbers.		
	Coral berry and winter senna	<b>Controls methods:</b> Cut and paint and hand pulling. <b>Performance measures:</b> 1. Individuals of coral berry and winter senna removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached. Coral Berry reduced to one-tenth original numbers. Senna recruits continually, presently one-fifth of highest numbers.		
	White passionflower	<b>Controls methods:</b> Cut/scrape and paint, spot spraying and hand pulling. <b>Performance measures:</b> 1. Individuals of white passionflower removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached. Not present. Results in Weed Reduction Table for Corky and Edible Passionfruit.		
MZ2	Bamboo	<b>Control methods:</b> Hand removal and cut and paint stems with undiluted glyphosate. <b>Performance measures:</b> 1. Small stand of Bamboo treated by the end of year 2.	Four sessions per year in year 1 and year 2.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached. Not present in reserve.	Yes	Refer to the landholder's supplementary report for the weed control log/record sheets. The split in weed control effort between MZs can

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		2. Biobank site managed so that no mature individuals establish in perpetuity.				be roughly determined by the location descriptions provided on the log sheets.
Broadleaf paspalum		<b>Control methods:</b> Spot spraying, use of 'wick wiper' and hand pulling.  <b>Performance Measures:</b> 1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3 2. Maintain paspalum at less than 10% of original distribution in perpetuity.	Three sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached. See above – as per Zone 1.		
Other exotic grasses		<b>Control methods:</b> Spot spray and wick-wiper application of herbicide.  <b>Performance Measures:</b> 1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3. 2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached. See above – as per Zone 1.		
<i>Archontophoenix</i> sp.		<b>Controls methods:</b> Cut and paint and hand pulling.  <b>Performance measures:</b> Weed control work will aim to achieve the following outcomes: 1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets attached. See above – as per Zone 1.		
Coral berry and winter senna		<b>Controls methods:</b> Cut and paint and hand pulling.  <b>Performance measures:</b> Weed control work will aim to achieve the following outcomes:	Four sessions per year from year 1 to year 3.	Twelve qualified bush regenerator sessions undertaken, a total of 250 hours. See dates as per Daily Record combined sheets		

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		1. Individuals of coral berry and winter senna removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.		attached. See above – as per Zone 1.		
<b>Fire for conservation management plan</b>				<b>Landholder to complete</b>	<b>BCT auditor</b>	
<b>Location (e.g. management zone)</b>		<b>Required actions and performance indicators</b>	<b>Required timing and frequency</b>	<b>Completion dates, actions undertaken and performance outcomes</b>	<b>Action completed Yes/No/N/A</b>	<b>Auditor comments and recommendations</b>
All zones		Exclude fire	Ongoing	No fire during management period.	Yes	N/A
<b>Vertebrate pest management plan</b>				<b>Landholder to complete</b>	<b>BCT auditor</b>	
<b>Location (e.g. management zone)</b>	<b>Pest species</b>	<b>Required actions and performance indicators</b>	<b>Required timing and frequency</b>	<b>Completion dates, actions undertaken and performance outcomes</b>	<b>Action completed Yes/No/N/A</b>	<b>Auditor comments and recommendations</b>
All zones	Pig, fox, dog, cat	Nocturnal walk over the site	Once annually	Nocturnal walk around site perimeter and into tracks and access areas for visual surveillance, April 2021. No pest activity observed. Swamp Wallaby congregation area in use in the reserve at night Observations taken during photo and other monitoring. Diggings attributable to native Bandicoot and Echnida present. Wallaby and Koala scats present.	Yes	N/A
	Pig, fox, dog, cat	Record visual evidence of pest activity	Once annually	No pest activity observed. Not required.	Yes	N/A
	Pig, fox, dog, cat	Ground baiting program	As required in response to monitoring outcomes.	Not required	Yes	N/A
<b>Additional site inspection or monitoring requirements</b>						
<b>Management actions</b>			<b>Landholder to complete</b>		<b>BCT auditor</b>	

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Description of additional site inspection or monitoring requirement	Required timing and frequency	Completion dates, observations, actions undertaken and outcomes	Action completed Yes/No/N/A	Auditor comments and recommendations
Sampling of photo-points in accordance with Section 1.2 of Annexure D of the agreement.	Every 12 months	Six photo-point locations sampled November 2020.	No	The photos provided in the supplementary report were taken in late October 2020, which is almost eight months before the end of the reporting period, before most of the management actions have been undertaken.  One of the main purposes of photo-point sampling is to provide a visual record of site condition following site management actions each year. Therefore, it is recommended the phot-point sampling be completed as close to the end of the reporting period as possible (i.e. within 30 days).
Inspections to record grazing by Stock in accordance with Section 1.3 of Annexure D of the agreement.	Every 3 months	With bush regegrators visits. No stock grazing during the management period.	Yes	N/A
Inspections to document human disturbance, erosion or waste in accordance with Section 1.3 of Annexure D of the agreement.	Every 6 months	Rubbish removed when encountered during bush regen visits and collected by BSC.	Yes	N/A
Inspection to document the condition of fences and gates in accordance with Section 1.3 of Annexure D of the agreement.	Every 12 months	Gates and fences not applicable to this reserve. Interpretative signage developed.	Yes	N/A
Submission of diary and monitoring report templates	Every 12 months	Attached.	Yes	The landholder submitted a supplementary containing a summary of management actions and outcomes, weed control log and photo-point samples.

Details of incidents or events that have had an adverse effect on biodiversity values on biobank site (landholder to complete)	
Description of incident or event (e.g. natural events)	Action taken and/or recommended actions

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<b>Any other comments or observations regarding the biobank site</b>	
<p><b>Please include any additional photos from site visits, along with any comments / observations</b></p> <p>Landholder representative's comment - We find the way these two tables below are set out of little relevance to the way works are undertaken on site by the qualified and experienced Council bush regeneration team. Generally, all weeds encountered are treated, moving together in a horizontal line some 5-10m between team members (usually 3-4 persons) across the site. This means the two zones as listed below are treated as per each other and at the same time, although two restoration zones are listed in the table. We would prefer to address one zone only and more weeds, with less specific techniques for control, since herbicide use is limited in the reserve by the presence of MRS.</p> <p>For the first two years, works are concentrating on the more invasive weeds (many of which are not listed in the BSA table below. Please see attached Weed Reduction Table for full list of weed species known from the BSA. BL Paspalum is only hand weeded, while other grasses occur in patches unless specifically targeted. Salvinia and Sagittaria are within very wet areas that are inaccessible in wet times, forming part of the creek, including Jan- April 2021. Species which have been or could be problematic within the reserve and should be more focused upon with the BSA weed management plan are not included, yet many such as Ochna, Mulberry, Umbrella Tree and Cocos Palm have been reduced to almost zero.</p> <p><b>BCT Regional officer response:</b> The management zones (i.e. MZ1, MZ2) should be of relevance to the landholder given they were devised by the landholder's assessor when preparing the agreement. Furthermore, the weed species targeted in each management zone and the methods of proposed weed treatment were also determined by the landholder's assessor as part of the agreement. Nevertheless, the BCT support the on-ground approach being applied by the bush regeneration team and understands the composition of weed species on the site is likely to change over time. The BCT has already agreed with the landholder, as part of the year 1 BCT annual report audit, with a greater use of manual weed control techniques and reduced use of herbicides where possible. Furthermore, the BCT generally places greater focus on management outcomes than the specific methods being applied or specific allocation of control effort.</p> <p>However, for annual reporting purposes, the BCT and the landholder have a legal requirement to maintain a clear and repeatable record of where and how management actions have been applied on the site. Hence, the rather formulaic reporting template, which attempts to standardise the reporting approach across all BSAs in NSW.</p> <p>Moving forward, the BCT supports the current approach being applied by the landholder in terms of on-ground works. However, the landholder will still need to breakdown and report the broad implementation of weed control actions in terms of effort applied (i.e. approximate split between MZs) and performance outcomes achieved each year by reference to the management zones.</p> <p>We encourage and support the landholder to adapt weed control management actions where appropriate. However, a brief justification for any changes needs to be provided in the annual report. For example, if a weed species listed in the agreement for a management zone no longer requires targeted control, provide a brief justification for reducing effort for the species in the annual report table. Alternatively, if the landholder identifies and re-allocates weed control effort to a species not addressed in the agreement, simply add an extra row for the new species to the annual report table and provide the relevant details of control actions applied, along with a brief justification/explanation for making the change.</p> <p>Please discuss any larger-scale changes to weed control actions with the relevant BCT contact person prior to making the changes.</p> <p>Please also note the agreement weed management plan will be reviewed by the BCT during year 5 of active site management. The review will provide an opportunity to formalise any preceding minor changes to management actions and introduce any further changes agreed to by the landholder and the BCT.</p>	
<b>Landholder Annual Report signature and declaration</b>	
<p>I hereby declare that the information supplied in this report is accurate and complies with the reporting requirements under item 2 of Annexure D to the BioBanking Agreement.</p> <p>All landowners must sign this annual report. If the land that forms the Biodiversity Stewardship Site is owned by multiple persons landowners may confirm in writing to the BCT that another person can complete and submit the annual report on their behalf.</p>	
<p><b>Please submit a signed PDF version and a word version of your Annual Report submission to the BCT</b></p> <p><b>NSW Biodiversity Conservation Trust</b>  4 Parramatta Square 12 Darcy Street Parramatta 2150   Locked Bag 5022 Parramatta NSW 2124   ABN 37 151 321 702   <a href="http://bct.nsw.gov.au">bct.nsw.gov.au</a></p>	

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## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

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Signed		Signed	
Date		Date	
BCT approval of recommendation			
Signature of auditor:		Authorisation signature:	
Name of auditor:	Don Owner	Name of authorising officer:	Jennie Powell
Position of auditor:	Senior Conservation Assessment Officer	Position of authorising officer:	Principal Project Officer
Date:	16 September 2021	Date:	20 September 2021

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## BSA 352 Annual Management Report 2020-21

Prepared by: Sandy Pimm, Earthscapes Consulting Pty Ltd

Date: 27 July 2021

### Introduction

Biodiversity Stewardship Agreement (BSA) 352 – Lilli Pilli Biobank site located at Lilli Pilli Road, Byron Bay. The Biodiversity Stewardship Site (BSS) encompasses Lot 7 DP 809005, Lot 24 DP 845454, Lot 46 DP 848543, Lot 46 DP 860353, Lot 47 DP 854800 and Lot 66 DP 863772.

The BSA commenced on 31 July 2018. The first Annual Management Payment (AMP) was made on 27 June 2019.

The purpose of this report is to address the monitoring, reporting and record keeping requirements specified in Annexure D of the BSA. The reporting period covered by this report extends from 27 June 2020 to 27 June 2021, which represents Year 2 of active site management.

The structure of this report is loosely based on the 14 management actions specified in section 1 (standard management actions) and section 2 (additional management actions) of the BSA. Where possible, some management actions have been addressed as a group (e.g. site inspection tasks).

### Photo points

The photo points were sampled on 31 October 2020 in accordance with Annexure D, sections 1.1 and 1.2 of the BSA. The photos are provided in Plates 1 to 3.

- Please see attached monitoring report for 2020 monitoring photos with reference to baseline condition.
- Note that three additional monitoring photo points were added in 2019, named as D, E and F, to capture additional areas not encompassed in the three original points.



**Plate 1: Photo point A sampled on 31/10/20. Photo direction 90 degrees.**



**Plate 2: Photo point B sampled on 31/10/20. Photo direction 90 degrees.**



**Plate 3: Photo point C sampled on 31/10/21. Photo direction 180 degrees.**



**Plate 4: Photo point D sampled on 31/10/21. Photo direction 0/ 360 degrees.**



**Plate 5: Photo point E sampled on 31/10/21. Photo direction 180 degrees.**



**Plate 6: Photo point F sampled on 31/10/21. Photo direction 180 degrees.**

A separate Photo Monitoring Report is attached to the Annual Report.

## Site inspections

Annexure D, section 1.3 of the BSA provides a site inspection and monitoring schedule to be followed during each annual reporting period. The frequency and timing of site inspections are summarised in Table 1 below.

**Table 1: Frequency and timing of site inspections undertaken during the reporting period.**

Management Action	Inspection No.	Inspection date	Observer Name
Exclusion of stock (3 monthly)	1	19/8/20	BSC Bush regen Team Leader Dave Filipczyk
	2	31/10/20	Greg Shanahan Earthscapes
	3	21/1/21	Dave Filipczyk
	4	23/4/21	Sandy Pimm, Earthscapes
Physical condition of fencing and gates (12 monthly)	1	Fence not erected; signage erected & in place as agreed with BCT last visit.	Dave Filipczyk
Excluding adverse human disturbance (6 monthly)	1	31/10/20	Greg Shanahan
	2	23/4/21	Sandy Pimm
Evidence of erosion (6 monthly)	1	31/10/20	Greg Shanahan

	2	23/4/21	Sandy Pimm
Evidence of waste (6 monthly)	1	31/10/20	Greg Shanahan
	2	23/4/21	Sandy Pimm

### Standard management actions

#### 1. Management of grazing for conservation

##### *Management item 1.1 – exclusion of stock*

The BSS was inspected for evidence of stock activity every three months (i.e. quarterly) during the reporting period. The inspection dates are provided in Table 1.

No stock or evidence of stock activity were recorded on the BSS during the reporting period.

##### *Management item 1.4 – take necessary measures to remove stock if present*

No stock or evidence of stock activity were recorded on the BSS during the reporting period.

#### 2. Weed control

##### *Management item 2.1 – implement and comply with the weed management plan*

A summary of the weed management and monitoring actions completed in each management zone during the reporting period is provided in Table 2.

**Table 2: Summary of weed management and monitoring actions undertaken in each management zone during the reporting period.**

Management zone	Target weed species	Required Actions	Required Timing & Frequency	Description of actions completed For each management zone list the control actions used for each weed species, along with the date/s of application and approximate size of each treated area (e.g. 04/02/21 – MZ1 - lantana – herbicide Roundup Biactive applied to 100m <sup>2</sup> ).	Observations and assessment of monitoring For each management zone provide the following information: <ul style="list-style-type: none"> <li>• success of weed control actions</li> <li>• a description of the current condition of the zone (i.e. presence of native regeneration or dieback in canopy, shrub and groundcover layer);</li> <li>• type and locations of any new weed infestations; and</li> <li>• any recommended changes to weed controls being applied.</li> </ul>
<p><b>Comment</b> - We find the way these two tables below are set out of little relevance to the way works are undertaken on site by the qualified and experienced Council bush regeneration team. Generally, all weeds encountered are treated, moving together in a horizontal line some 5-10m between team members (usually 3-4 persons) across the site. For the first two years, works are concentrating on the more invasive weeds (many of which are not listed below – see attached Weed Reduction Table). BL Paspalum is only hand weeded, while other grasses occur in patches unless specifically targeted. Salvinia and Sagittaria are within very wet areas that are inaccessible in wet times, forming part of the creek, including Jan- April 2021.</p>					
MZ1	Broadleaf paspalum	<p><b>Control methods:</b> Spot spraying, use of 'wick wiper' and hand pulling.</p> <p><b>Performance Measures:</b> 1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3 2. Maintain paspalum at less than 10% of original distribution in perpetuity.</p>	Three sessions per year from year 1 to year 3.	This section completed in Annual Report	
	Other exotic grasses	<p><b>Control methods:</b> Spot spray and wick-wiper application of herbicide.</p> <p><b>Performance Measures:</b></p>	Four sessions per year from year 1 to year 3.	Small patches - harder	

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		<p>1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3.</p> <p>2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.</p>			
	Sagittaria	<p><b>Controls methods:</b> Cut and paint and hand pulling.</p> <p><b>Performance measures:</b> 1. Individuals of mature Sagittaria removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Four sessions per year from year 1 to year 3.	Will release weevil	
	<i>Archontophoenix</i> sp.	<p><b>Controls methods:</b> Cut and paint and hand pulling.</p> <p><b>Performance measures:</b> 1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Three sessions per year from year 1 to year 3.		
	Coral berry and winter senna	<p><b>Controls methods:</b> Cut and paint and hand pulling.</p> <p><b>Performance measures:</b> 1. Individuals of coral berry and winter senna removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Four sessions per year from year 1 to year 3.		
	White passionflower	<p><b>Controls methods:</b> Cut/scrape and paint, spot spraying and hand pulling.</p> <p><b>Performance measures:</b> 1. Individuals of white passionflower removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.</p>	Four sessions per year from year 1 to year 3.		
MZ2	Bamboo	<p><b>Control methods:</b> Hand removal and cut and paint stems with undiluted glyphosate.</p>	Four sessions per year in year 1 and year 2.		

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		<b>Performance measures:</b> 1. Small stand of Bamboo treated by the end of year 2. 2. Biobank site managed so that no mature individuals establish in perpetuity.			
	Broadleaf paspalum	<b>Control methods:</b> Spot spraying, use of 'wick wiper' and hand pulling.  <b>Performance Measures:</b> 1. Reduce Paspalum to less than 10% of its original distribution by the end of year 3 2. Maintain paspalum at less than 10% of original distribution in perpetuity.	Three sessions per year from year 1 to year 3.		
	Other exotic grasses	<b>Control methods:</b> Spot spray and wick-wiper application of herbicide.  <b>Performance Measures:</b> 1. Reduce other introduced grasses to less than 10% of its original distribution by the end of year 3. 2. Maintain other introduced grasses at less than 10% of original distribution in perpetuity.	Four sessions per year from year 1 to year 3.		
	<i>Archontophoenix</i> sp.	<b>Controls methods:</b> Cut and paint and hand pulling.  <b>Performance measures:</b> Weed control work will aim to achieve the following outcomes: 1. Individuals of <i>Archontophoenix</i> sp. removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.	Four sessions per year from year 1 to year 3.		
	Coral berry and winter senna	<b>Controls methods:</b> Cut and paint and hand pulling.  <b>Performance measures:</b>	Four sessions per year from year 1 to year 3.		

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		Weed control work will aim to achieve the following outcomes: 1. Individuals of coral berry and winter senna removed by the end of year 3. 2. Biobank site managed so that no mature individuals establish in perpetuity.			
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*Management item 2.2 – review the weed management plan*

The weed management plan does not require review prior to year 4 of active management. The 2020-21 annual reporting period spanned year 2 of active management. Therefore, a review of the weed management plan was not required.

3. Management of fire for conservation

*Management item 3.1 – implement the fire for conservation management plan*

Fire is to be excluded from the Biobank site.

*Management item 3.2 – review the fire for conservation management plan*

The fire for conservation management plan does not require review prior to year 4 of active management. The 2020-21 annual reporting period spanned year 2 of active management. Therefore, a review of the fire for conservation management plan was not required.

*Management item 3.3 – fires must not be lit on the BSS*

No evidence of deliberate or unintentional fire was recorded on the BSS during the reporting period.

4. Management of human disturbance

*Management items 4.1 to 4.5 – excluding adverse human activities and waste dumping*

The BSS was inspected at six monthly intervals to detect evidence of adverse human activity and/or waste dumping during the reporting period. The inspection dates are provided in Table 1.

I saw what looked like a kids BMX track or skate bowl at one point – did you notice or do anything about? Near bamboo, drainage area on Lilli Pilli. - Covered with palm leaves, not re-visited since.

If evidence of adverse human activity or waste dumping **was** recorded on the BSS, describe the evidence observed (e.g. tracks, waste dumping, damage to vegetation, individuals etc.) and describe the actions you implemented to remediate the damage (e.g. rubbish removal) and/or prevent further human disturbance on the BSS (e.g. installed additional signage). You could also provide photos of the evidence of human disturbance here (optional).



Biodiversity Stewardship signs installed January 2021.

Rubbish collected from within the reserve and piled for Council collection.

*Management item 4.6 – installation and maintenance of fencing and signage*

Provide details of all fencing and/or signage installation undertaken during the reporting period. Check to make sure any completed works are consistent with what is illustrated on the Management Actions map (i.e. refer to page 24 of the agreement).

- BSA Signs installed as above.
- Wildlife Protected area (with reserve shape) signs installed.
- Proposed Interpretative Sign sent to BCT for review.

**5. Retention of native vegetation**

*Management item 5.1 – retention of native vegetation on the BSS*

No native vegetation has been removed from the BSS other than where required as part of the BSA management actions.

*Management item 5.2 – native vegetation on the BBS must not be burnt*

Refer to the landowner response for management item 3.3 above.

#### **6. Supplementary planting**

This management item is not applicable to the BSA.

#### **7. Retention of dead timber**

*Management item 7.1 – Retention of dead timber on the BSS*

No dead timber was removed from the BSS during the reporting period.

*Management item 7.2 – documenting introduction of dead timber onto the BSS*

No dead timber was brought onto the BSS during the reporting period.

#### **8. Erosion control**

*Management item 8.1 – prevent, control and remedy erosion on the BSS*

Small BMX track constructed by kids near drainage line was covered over by palm fronds and no further use has been observed. Interpretative Signage to be placed.

#### **9. Retention of rocks**

*Management item 9.1 – retention of rocks on the BSS*

No rocks were removed from the BSS during the reporting period.

*Management item 9.2 – documenting introduction of rocks onto the BSS*

No rocks were brought onto the BSS during the reporting period.

### **Additional management actions**

#### **10. Control of feral and overabundant native herbivores**

*Management item 10.1 – implement the herbivore management plan*

The Biobanking Agreement does not contain a management plan to control feral and overabundant native herbivores. Therefore, this management action is not applicable to the BSA.

*Management item 10.2 – review of the herbivore management plan*

The Biobanking Agreement does not contain a management plan to control feral and overabundant native herbivores. Therefore, this management action is not applicable to the BSA.

#### **11. Vertebrate pest management**

*Management item 11.1 – implement and comply with the vertebrate pest management plan*

A summary of the vertebrate pest management and monitoring actions completed in each management zone during the reporting period is provided in Table 3.

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 10

**Table 3: Summary of vertebrate pest management and monitoring actions undertaken during the reporting period.**

Management zone	Species name	Required action/s	Required frequency and timing	Description of actions completed	Observations and assessment of monitoring
All zones	Fox, cat	Nocturnal walk over the site	Once annually	Nocturnal walk around site perimeter and into tracks and access areas for visual surveillance, April 2021.	No pest activity observed Swamp Wallaby congregation area in use in the reserve at night
	Fox, cat	Record visual evidence of pest activity	Once annually	Observations taken during photo and other monitoring. Diggings attributable to native Bandicoot and Echnida present. Wallaby and Koala scats present.	No pest activity observed
	Fox, cat	Ground baiting program	As required in response to monitoring outcomes.	Not required.	N/A.

*Management item 11.2 – review of the vertebrate pest management plan*

The vertebrate pest management plan does not require review prior to year 4 of active management. The 2020-21 annual reporting period spanned year 2 of active management. Therefore, a review of the plan was not required.

**12. Nutrient control***Management item 12.1 – limited use of fertilisers, pesticides and herbicides on the BSS*

No fertilisers or pesticides have been used in the BSS. Herbicides has been limited to amounts necessary for undertaking BSA management actions. All chemicals have been applied in accordance with manufacturers specifications.

**13. Control of exotic fish species**

This management item is not applicable to the BSA.

**14. Maintenance or reintroduction of natural flow regimes***Management item 14.3 – construction of artificial structures*

No artificial structures such as dams or levee banks have been constructed on the BSS during the reporting period.



## Lilli Pilli Photo Monitoring

Year one

31-10-2020

*11 Tristran Parade, Mullumbimby Creek NSW 2482*

*Jane: 0404 050 361 Jo: 0458 127 107 Alison 0422 994 338 Greg: 0411 844 415*

*[www.earthscapes.com.au](http://www.earthscapes.com.au)*

*ABN: 58631637600*



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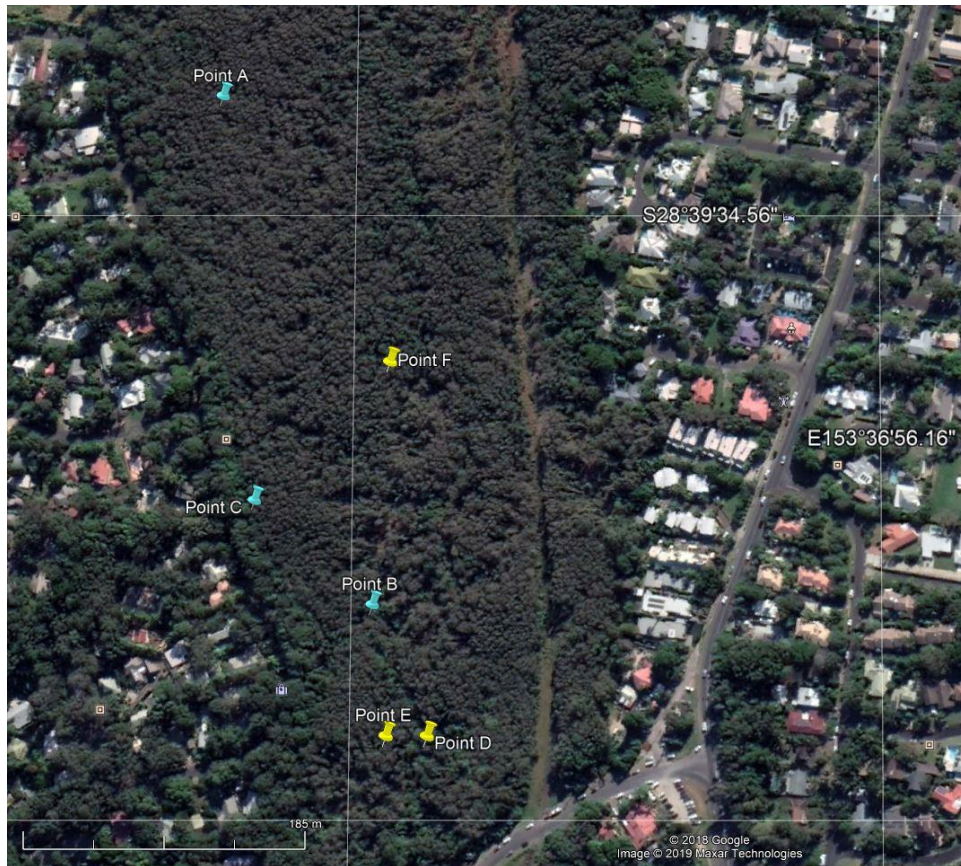


Figure 1: The site, with the six monitoring points identified.

Projected coordinate system: GDA94					
Photo point reference	Easting	Northing	Latitude	Longitude	Direction of photo (magnetic degrees)
A	559711	6829647	-28° 39' 32"	153° 36' 40"	East (90)
B	559814	6829307	-28° 39' 43"	153° 36' 44"	East (90)
C	559735	6829376	-28° 39' 41"	153° 36' 41"	South (180)
D	559851	6829221	-28° 39' 46"	153° 36' 45"	North (360)
E	559824	6829221	-28° 39' 46"	153° 36' 44"	South (180)
F	559825	6829468	-28° 39' 38"	153° 36' 44"	South (180)





### Point A

Time	Conditions	Ground cover (%)	Notes
9.53am	Light cloud	60 – 70%	<i>Melaleuca quinquenervia</i> dominant canopy, minimal weed infestations. Baseline observations occurred during the exceptionally dry spring in 2019, with the 6 month occurring after minor flooding. One year monitoring saw conditions after slightly higher than average rainfall through winter and spring, with an increasing La Nina influence.



Figure 2a: Point A 31-10-20



Figure 2b: Point A 26-09-19 (included for reference to baseline conditions).



**Point B**

Time	Conditions	Ground cover (%)	Notes
10.23am	Sunny	80%	Adjacent a watercourse, with vine growth and sunlight penetration. With significant rainfall since the initial monitoring, plant growth has responded strongly.

**Figure 3a:** Point B 31-10-20**Figure 3b:** Point B 26-09-19 (included for reference to baseline conditions).



### Point C

Time	Conditions	Ground cover (%)	Notes
10.07am	Sunny	30%	This monitoring point is nearest road verge. Rubbish and light weeds were no longer present.



**Figure 4a:** Point C 31-10-20



**Figure 4b:** Point C 26-09-19 (included for reference to baseline conditions).





### Point D

Time	Conditions	Ground cover (%)	Notes
10.52am	Sunny	60 - 70%	The weed species at baseline monitoring, including Cassia ( <i>Senna pendula</i> var. <i>glabrata</i> ) and Night Scented Jasmine ( <i>Cestrum nocturnum</i> ), together with the litter, have largely been removed. Surrounding areas also looked to be well maintained.



**Figure 5a:** Point D 31-10-20



**Figure 5b:** Point D 26-09-19 (included for reference to baseline conditions).





### Point E

Time	Conditions	Ground cover (%)	Notes
11.04am	Sunny	70 - 80%	The photo point E captures one of a number of open water sections toward the southern end of the site. The <i>Sagittaria</i> ( <i>Sagittaria platyphylla</i> ) had largely been removed, however significant regrowth has subsequently occurred. Additional photos available.

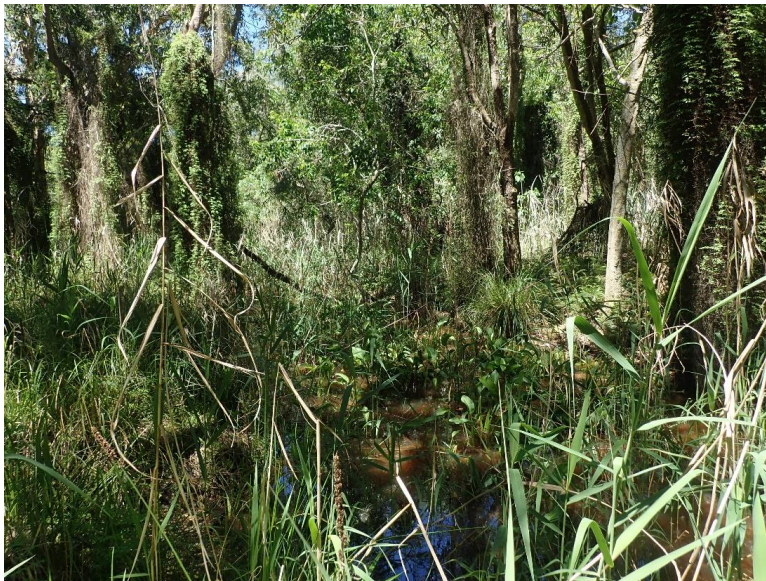


Figure 6a: Point E 31-10-20



Figure 6b: Point E 22-10-19 (included for reference to baseline conditions).





## Point F

Time	Conditions	Ground cover (%)	Notes
11.22am	Light cloud/ sunny	60 -70%	The photo point F represents many of the permanent water sections through the middle of the site. Baseline monitoring revealed <i>Salvinia</i> ( <i>Salvinia molesta</i> ) becoming established. Year one monitoring failed to find any remaining plants, with the search extended beyond the monitoring point.



**Figure 7a:** Point F 31-10-20



**Figure 7b:** Point F 22-10-19 (included for reference to baseline conditions).

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 10

Site record sheet - <i>Lilli Pilli Swamp</i>												
Date	Hours	Hours	Hours	Hours Total	Glyphosate Used Millilitres	Gly Total Millilitres	Metsulfuron Used Grams	Metsul Total Grams	Site/Zone Complete	Hrs To Complete	Gly To Complete	Metsul To Complete
23-07-20	Dave 7	Ben 7.5		29.5	Hand 80	80	Hand 0.2	0.2	NO	240	1780	7.2
	Curtis	Nelson			Spray		Spray					
	John 7.5	Alex 7.5			Drill		Drill					
24-07-20	Dave	Ben		7.5	Hand	/	Hand	/	rubbish removal			
	Curtis	Nelson			Spray		Spray					
	John	Alex 7.5			Drill		Drill					
10-08-20	Dave 8	Ben	<i>curtis 7.5</i>	23	Hand	/	Hand	/	rubbish removal			
	Curtis	Nelson			Spray		Spray					
	John	Alex 7.5			Drill		Drill					
14-08-20	Dave 2	Ben		2	Hand	/	Hand	/				
	Curtis	Nelson			Spray		Spray					
	John	Alex			Drill		Drill					
	Dave	Ben			Hand		Hand					
	Curtis	Nelson			Spray		Spray					
	John	Alex			Drill		Drill					
	Dave	Ben			Hand		Hand					
	Curtis	Nelson			Spray		Spray					
	John	Alex			Drill		Drill					
	Dave	Ben			Hand		Hand					
	Curtis	Nelson			Spray		Spray					
	John	Alex			Drill		Drill					
	Dave	Ben			Hand		Hand					
	Curtis	Nelson			Spray		Spray					
	John	Alex			Drill		Drill					
	Dave	Ben			Hand		Hand					
	Curtis	Nelson			Spray		Spray					
	John	Alex			Drill		Drill					

*year 1  
has completed*

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 10

Site record sheet - <i>Lilli Pilli Swamp</i>												
Date	Hours	Hours	Hours	Hours Total	Glyphosate Used Millilitres	Gly Total Millilitres	Metsulfuron Used Grams	Metsul Total Grams	Site/ Zone Complete	Hrs To Complete	Gly To Complete	Metsul To Complete
23-09-20	Dave 8	Ben	<i>lets 7.5</i>	23	Hand	<del>200</del>	Hand	<i>200</i>	NO			
	Curtis	Nelson			Spray		Spray 2					
	John 7.5	Alex			Drill		Drill	2				
06-10-20	Dave 4	Ben		4	Hand	/	Hand	/	NO			
	Curtis	Nelson			Spray		Spray					
	John	Alex			Drill		Drill					
02-11-20	Dave 8	Ben		8	Hand	/	Hand	/	NO			
	Curtis	Nelson			Spray		Spray					
	John	Alex			Drill		Drill					
25-11-20	Dave 3	Ben		3	Hand	/	Hand	/	NO			
	Curtis	Nelson			Spray		Spray					
	John	Alex			Drill		Drill					
07-01-21	Dave	Ben		15	Hand	/	Hand	/	NO			
	Curtis	Nelson			Spray		Spray					
	John 7.5	Alex 7.5			Drill		Drill					
21-01-21	Dave 8	Ben		8	Hand	/	Hand	/	NO			
	Curtis	Nelson			Spray		Spray					
	John	Alex			Drill		Drill					
16-06-21	Dave 8	Ben	<i>clay 7.5</i>	30.5	Hand	<i>250</i> 500	Hand	<i>2.5</i> 2.5	NO			
	Curtis 7.5	Nelson			Spray 500		Spray 2.5					
	John 7.5	Alex			Drill		Drill					
17-06-21	Dave 8	Ben	<i>clay 7.5</i>	30.5	Hand	<i>300</i> 600	Hand	<i>3</i> 3	NO			
	Curtis 7.5	Nelson			Spray 600		Spray 3					
	John 7.5	Alex			Drill		Drill					
18-06-21	Dave 4	Ben	<i>clay 7.5</i>	19	Hand 100	100	Hand 0.5	0.5	NO			
	Curtis	Nelson			Spray		Spray					
	John 7.5	Alex			Drill		Drill					
21-06-21	Dave 8	Ben	<i>clay 7.5</i>	30.5	Hand	<i>100</i> 200	Hand	<i>1</i> 1	NO			
	Curtis 7.5	Nelson			Spray 200		Spray 1					
	John 7.5	Alex			Drill		Drill					

**BYRON SHIRE COUNCIL**

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

#### 4.3 - ATTACHMENT 10

[illegible]



# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

#### 4.3 - ATTACHMENT 10

Date	Observations and Notes
23-09-20	Mets only spray for Singapore Daisy, Annuals, crofton, Milk flower, Billy goat - along train line & Bangshan rd edge (C.S.P. weedy weeds)
06-10-20	Paperwork, meetings & phone calls, Sandy
02-11-20	" " " " " "
25-11-20	Site inspection
07-01-21	Erected Bio banking signs x 4 Removed some star pickets
21-01-21	Handweeded
16-06-21	Hand weed around natives & spray along western edge of site
17-06-21	Spray behind house & railway line C.S.P. Honeysuckle
18-06-21	Handweeded Honeysuckle
21-06-21	Honeysuckle Spray honeysuckle area rubbish collecting

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

#### 4.3 - ATTACHMENT 10

Date	Observations and Notes
23-09-20	Mets only spray for Singapore Daisy, Annuals, crofton, Mick flower, Billy weed - along train line & Bangshan rd edge (i.e. P. weedy weeds)
06-11-20	Paperwork, meetings & phone calls, Sandy
02-11-20	" " " " " "
25-11-20	Site inspection
07-01-21	Erased bus banking signs x 4 Removed some str. pickets
21-01-21	Handweeded
16-06-21	Hand weed around natives & spray along western edge of site
17-06-21	Spray behind house & railway line C.S.P. Honey suckle
18-06-21	Handweeded Honey suckle
21-06-21	Honey suckle Spray honey suckle area rubbish collecting

# BYRON SHIRE COUNCIL

## STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

## 4.3 - ATTACHMENT 10

Weed Species List and Weed Reduction Table - Lilli Pilli Swamp																		
	Aug-19			Jul-20			Jul-21											
Weed Species	M	J	S	M	J	S	M	J	S	M	J	S	M	J	S	M	J	S
<b>Herbs and Groundcovers</b>																		
Ageratina adenophora (Crofton weed)	50	100	200	20	50	50	10	20	20									
Ageratina riparia (Mistflower)	100	100	200	20	50	100	10	30	50									
Ageratum houstonianum (Blue Billy Goat Weed)	300	200	300	20	100	100	20	100	100									
Ardisia crenata (Coral Berry)	500	500	500	100	100	100	50	50	50									
Bidens pilosa (Cobbler's Pegs)	300	400	1000	100	100	100	100	100	100									
Canna indica (Canna Lily)	50	20	20	10	5	5	5	5	5									
Commelina benghalensis (Hairy Commelina)	100	100	100	50	50	50	50	50	50									
Cuphea carthagenensis (Cuphea)	500	500	1000	400	400	800	300	300	500									
Sphagneticola trilobata (Singapore daisy)	500	500	500	400	400	400	100	100	100									
<b>Vines and Climbers</b>																		
Desmodium uncinatum (Silver-leaved Desmodium)	30	20	20	5	5	5	0	0	5									
Lonicera japonica (Japanese honeysuckle)	0	10	20	0	5	5	5	10	20									
Passiflora edulis (Common Passionfruit)	10	10	20	5	5	10	1	5	10									
Passiflora suberosa (Corky passionfruit)	5	10	30	0	5	10	0	5	10									
Syngonium podophyllum (Syngonium)	30	20	30	10	10	10	10	10	10									
<b>Trees and Shrubs</b>																		
Archontophoenix alexandrae (Alexandra palm)	30	300	300	10	150	150	10	100	100									
Cestrum nocturnum (Night flowering jasmine)	3	50	100	1	25	50	0	20	20									
Cinnamomum camphora (Camphor laurel)	5	20	100	1	5	25	1	5	25									
Corymbia torelliana (Cadaghi)	0	5	10	0	2	5	0	2	5									
Eugenia uniflora (Brazilian cherry)	0	5	10	0	1	5	0	0	5									
Jacaranda mimosifolia (Jacaranda)	1	0	0	1	0	0	1	0	0									
Lantana camara (Lantana)	5	10	10	0	5	5	0	5	5									
Ligustrum lucidum ( Broad-leaf privot)	0	5	10	0	0	5	0	0	5									
Mangifera indica (Mango)	4	0	0	4	0	0	4	0	0									
Morus nigra (Mulberry)	2	5	10	1	0	5	1	0	5									
Ochna serrulata (Ochna)	0	5	10	0	0	5	0	0	5									
Psidium cattleianum (Cherry Guava)	5	20	30	0	5	5	0	5	5									
Senna pendula (Senna)	20	1000	1000	5	200	500	5	100	200									
Schefflera actinophylla (Umbrella tree)	0	5	10	0	0	5	5	5	5									
Schinus terebinthifolius (Broad-leaved pepper tree)	0	5	10	0	0	5	0	0	5									
Solanum mauritianum (Wild tobacco)	20	20	20	5	5	5	5	5	5									
Strelitzia nicolai (Giant bird-of-paradise)	5	10	20	0	0	10	0	0	10									
Syagrus romanzoffianum (Cocos palm)	0	5	10	0	0	10	0	0	10									

**BYRON SHIRE COUNCIL**

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY 4.3 - ATTACHMENT 10

**BYRON SHIRE COUNCIL**

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY 4.3 - ATTACHMENT 10

**BYRON SHIRE COUNCIL**

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY 4.3 - ATTACHMENT 10

[illegible]



## Lilli Pilli Photo Monitoring

*11 Tristran Parade, Mullumbimby Creek NSW 2482*

*Jane: 0404 050 361 Jo: 0458 127 107 Alison 0422 994 338 Greg: 0411 844 415*

*[www.earthscapes.com.au](http://www.earthscapes.com.au)*

*ABN: 58631637600*



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Figure 1: The site, with the six monitoring points identified.

Locations of photo points					
Projected coordinate system: GDA94					
Photo point reference	Easting	Northing	Latitude	Longitude	Direction of photo (magnetic degrees)
A	559711	6829647	-28° 39' 32"	153° 36' 40"	East (90)
B	559814	6829307	-28° 39' 43"	153° 36' 44"	East (90)
C	559735	6829376	-28° 39' 41"	153° 36' 41"	South (180)
D	559851	6829221	-28° 39' 46"	153° 36' 45"	North (360)
E	559824	6829221	-28° 39' 46"	153° 36' 44"	South (180)
F	559825	6829468	-28° 39' 38"	153° 36' 44"	South (180)

Baseline monitoring

26-09-2019

**Point A**

Time	Conditions	Ground cover (%)	Notes
1.38pm	Light cloud	60 – 80%	<i>Melaleuca quinquenervia</i> dominant canopy, minimal weed infestations, sodden ground, even after prolonged dry period.

**Figure 2:** Point A 260919



**Point B**

Time	Conditions	Ground cover (%)	Notes
1.01pm	Light cloud	80%	Adjacent a watercourse, with vine growth and sunlight penetration. Water colour is very opaque orange, possibly due to acid sulphate. Recommend water testing. Two scats near point B, most likely from a cat. Additional photos can be provided.

**Figure 3:** Point B 260919





## Point C

Time	Conditions	Ground cover (%)	Notes
1.17pm	Light cloud	20%	This monitoring point is nearest road verge. There was rubbish present, with some weed infestations. Both rubbish and weeds should will be able to be removed by hand.



Figure 4: Point C 260919

**Point D**

Time	Conditions	Ground cover (%)	Notes
1.54pm	Light cloud	60 - 70%	Many weed species present, including Cassia ( <i>Senna pendula</i> var. <i>glabrata</i> ) and night scented jasmine ( <i>Cestrum nocturnum</i> ), with a more open canopy than the other monitoring points. Large amounts of litter present.

**Figure 5:** Point D 260919





## Point E

Time	Conditions	Ground cover (%)	Notes
9.41am	Light cloud	70 - 80%	The photo point E captures one of a number of open water sections toward the southern end of the site dominated by Sagittaria ( <i>Sagittaria platyphylla</i> ), an aquatic weed in NSW with aggressive growth and rapid spread - <a href="https://weeds.dpi.nsw.gov.au/Weeds/Sagittaria">https://weeds.dpi.nsw.gov.au/Weeds/Sagittaria</a> .



Figure 6: Point E 221019



## Point F

Time	Conditions	Ground cover (%)	Notes
9.12am	Light cloud	60 -70%	The photo point F represents many of the permanent water sections through the middle of the site, with <i>Salvinia</i> ( <i>Salvinia molesta</i> ) becoming established. <i>Salvinia</i> is classed as a weed of National Significance in Australia, and is regarded as a “serious threat to waterways...” <a href="https://weeds.dpi.nsw.gov.au/Weeds/Details/118">https://weeds.dpi.nsw.gov.au/Weeds/Details/118</a> .



**Figure 7:** Point F 221019