Sunshine Coast
Biodiversity Report 2020

for the Sunshine Coast Local Government Area

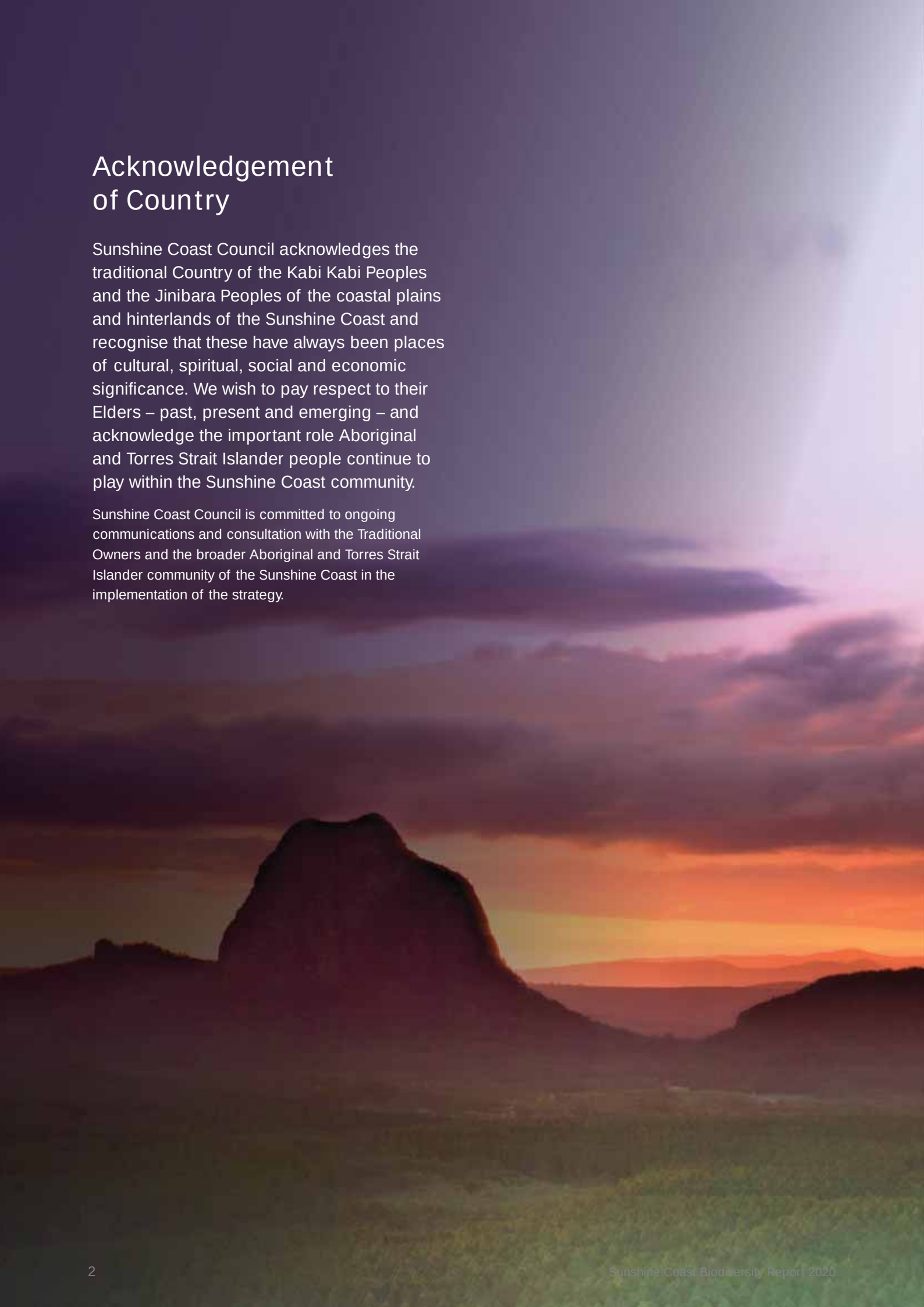
September 2020 edition

Sunshine Coast™ COUNCIL

Acknowledgement of Country

Sunshine Coast Council acknowledges the traditional Country of the Kabi Kabi Peoples and the Jinibara Peoples of the coastal plains and hinterlands of the Sunshine Coast and recognise that these have always been places of cultural, spiritual, social and economic significance. We wish to pay respect to their Elders – past, present and emerging – and acknowledge the important role Aboriginal and Torres Strait Islander people continue to play within the Sunshine Coast community.

Sunshine Coast Council is committed to ongoing communications and consultation with the Traditional Owners and the broader Aboriginal and Torres Strait Islander community of the Sunshine Coast in the implementation of the strategy.



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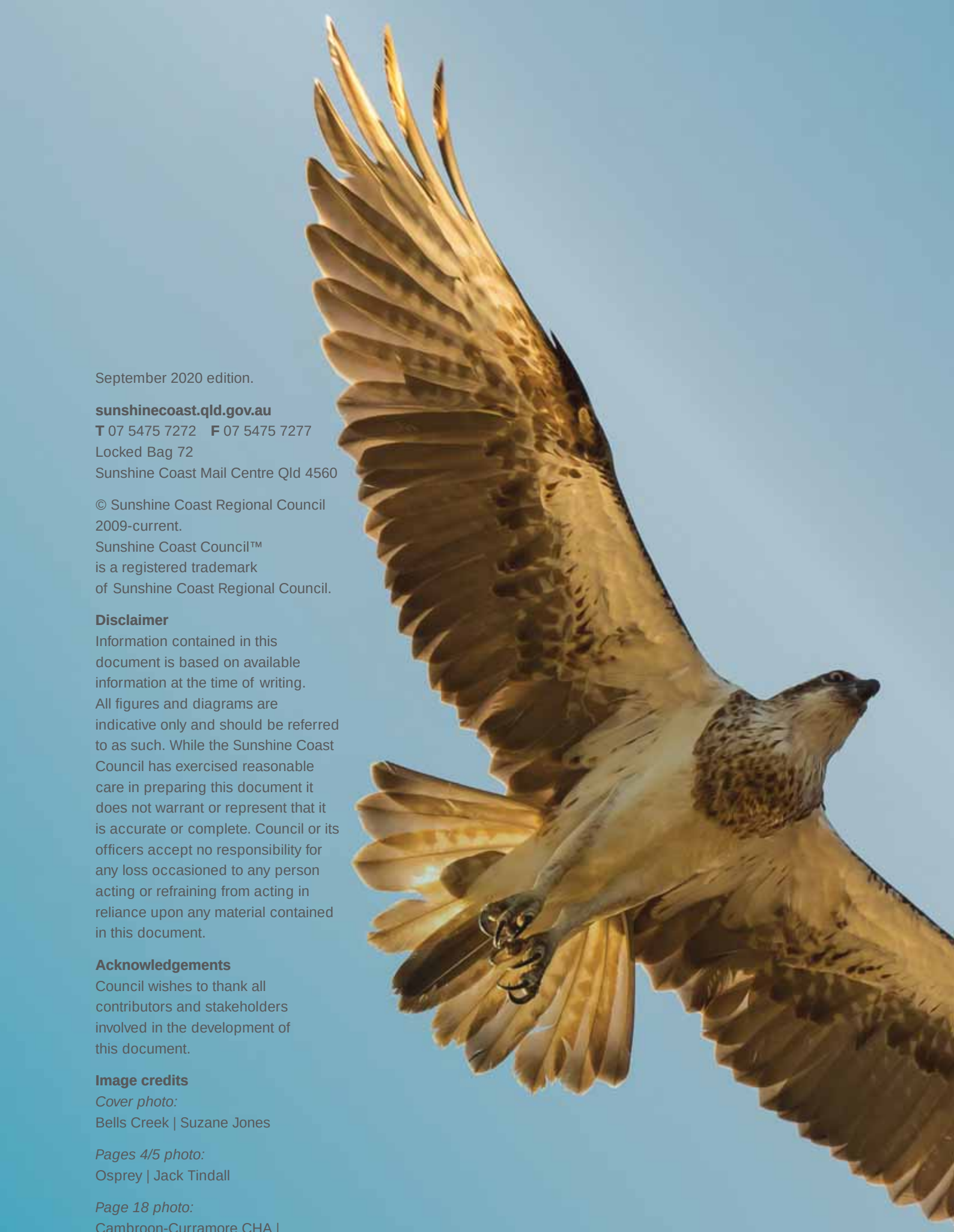
Our region.
Healthy.
Smart.
Creative.



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Disclaimer
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Contents

A strategic pathway to a healthy environment and liveable Sunshine Coast

The Sunshine Coast is known for its outstanding landscapes, natural assets and enviable lifestyle. Maintaining a healthy natural environment is critical to supporting our economy and community.

Council's Environment and Liveability Strategy (ELS) provides a framework to deliver a healthy environment and liveable Sunshine Coast by 2041. Our biodiversity is an integral part of the Sunshine Coast's natural environment, that's why it's so important to protect our native plants and animals and distinct landscapes.

The ELS target for biodiversity is to maintain the 2016 extent of native vegetation (no net loss) by 2041.

The baseline target extent of 124,283 hectares of native vegetation was informed by the 2016 Biodiversity Report.

The Sunshine Coast Biodiversity Report (2020 edition) supports the strategic direction set by the ELS and assists Council to report on its biodiversity assets and progress towards meeting its target of no net loss of native vegetation.

The Natural Environment

Biodiversity

Biodiversity is the variety of all life – plants, animals and microorganisms, their genes and the ecosystems they inhabit.

Outcome 2041

Our native plants, animals and habitats are healthy, resilient and valued by the community.

Target 2041

Maintain the 2016 extent of native vegetation (not net loss) by 2041.

Waterways and Wetlands

Waterways and wetlands are the living arteries of our natural environment that convey or hold water in the landscape. They support a wide range of habitats that are home to specialised and diverse wildlife including fish, crustaceans and shellfish, water birds, frogs, turtles and aquatic mammals.

Outcome 2041

Waterways and wetlands are healthy, resilient to change and valued by the community.

Coastal

The coast is the tidal foreshore and adjacent areas that include the built and natural environments. The defining natural features incorporate the coastal plains, dunes, open beaches, rocky foreshore, estuaries, near-shore marine waters, reefs and coastal lagoons.

Outcome 2041

Our coastal areas are healthy, resilient to climate change impacts and support sustainable use.

What is the Biodiversity Report?

The Biodiversity Report provides valuable data on the Sunshine Coast Council area's biodiversity assets, to inform biodiversity network planning and delivery of conservation outcomes.

To manage terrestrial biodiversity at a landscape scale within the local government area, the focus is on our core **habitat** areas. The Sunshine Coast Council area has a range of different **vegetation** communities that contribute to these habitat areas that also support threatened **plants and animals** species. Parts of our habitat areas are managed in the **conservation estate,** where properties are either protected by National Parks, Nature Refuges, Council reserves and statutory covenants or through voluntary programs such as Land for Wildlife.

These four key considerations make up the reporting categories of the Biodiversity Report, represented in Figure 1.

The Biodiversity Report 2020 (the Report) provides a 'snap-shot' of the local government area's biodiversity assets through these established reporting categories. The results are presented at a local government area and major river catchment scale.

The Report is complemented by a Technical Background Report which provides detailed descriptions of the datasets and methods used for each reporting category and the comprehensive results for the local government area and major river catchments. This includes the results for the small portion of the Noosa River catchment within the local government area.

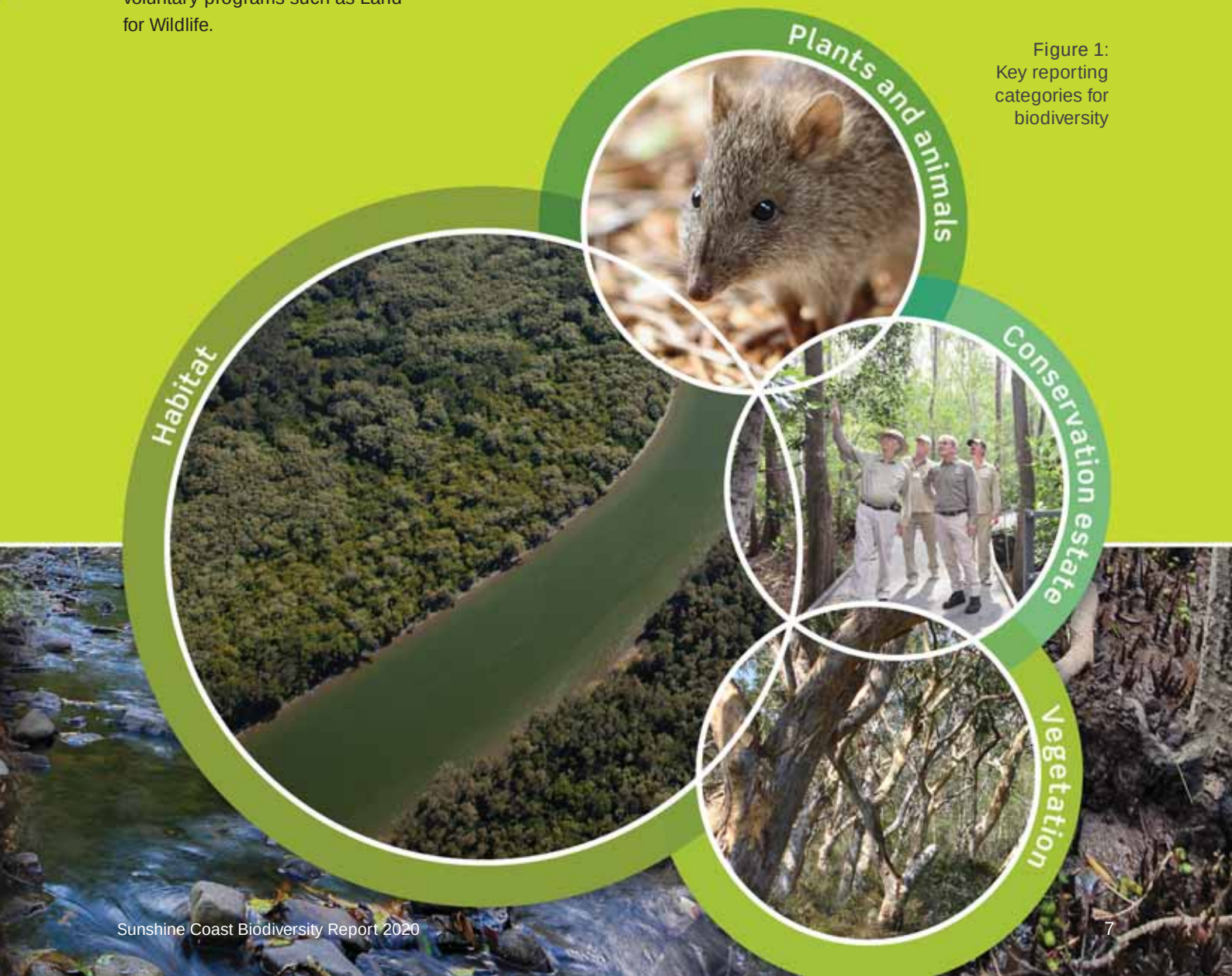


Figure 1: Key reporting categories for biodiversity

Sunshine Coast Biodiversity Snapshot

A summary of the 2020 biodiversity results are presented below.

Our vegetation

124,872 hectares
Native vegetation

>>>

92,566 hectares Remnant vegetation	**32,306 hectares** Non-remnant vegetation

55% of Local Government Area is vegetated

75 Regional Ecosystems

6 broad vegetation communities

Mangrove and Saltmarsh	>2%	Foredune	>1%
Heath and Wallum	3%	Melaleuca and Casuarina	10%
Eucalypt	66%	Rainforest	19%

Our conservation estate

57,404 hectares
Conservation estate

>>>

63,181 hectares of land conserving
57,404 hectares of vegetation

46% of Local Government Area's native vegetation in conservation

28% of Local Government Area in conservation

70 of 75 Regional Ecosystems are represented

24 Regional Ecosystems Poorly conserved

Our native plants and animals

Local Government Area has more than **2600 plants** and **850 animals**

117
Threatened native species

>>>

53 threatened native plants

21 Endangered	**32** Vulnerable

64 threatened native animals

6 Critically endangered	**20** Endangered	**38** Vulnerable

Our habitat areas

165
Core habitat areas

>>>

66,929 hectares Core habitat areas

22,486 hectares Core connecting habitat areas

35,457 hectares Connecting habitat areas

Tracking our progress

The below information provides a comparative snapshot between the 2016 and 2020 Biodiversity Reports.

Our vegetation

2016	>>>	2020
124,283 hectares **Native vegetation**	**-300 hectares** Remnant vegetation **+889 hectares** Non-remnant vegetation* Total increase = **+589 hectares** Native vegetation	124,872 hectares **Native vegetation**

2016	>>>	2020
92,866 hectares **Remnant vegetation**	**-300 hectares** remnant vegetation loss Heath and Wallum **-17 hectares** Melaleuca and Casuarina **-40 hectares** Eucalypt **-210 hectares** Rainforest **-10 hectares**	92,566 hectares **Remnant vegetation**

Our conservation estate

2016	>>>	2020
54,393 hectares **Vegetation conserved**	**+691 hectares** State National Parks and Conservation Parks **+872 hectares** Council environment reserves (inc. Nature Refuges) **+243 hectares** Nature Refuge	57,404 hectares **Vegetation conserved**
26 Regional Ecosystems **Poorly conserved**	**+204 hectares** Covenants **+1001 hectares** Land for Wildlife Total increase = **+3011 hectares** Native vegetation	24 Regional ecosystems **Poorly conserved**

Our native plants and animals

2016	>>>	2020
Local Government Area has more than **2600 plants** and **850 animals**		
53 **Threatened plants**	**+2** Critically endangered animals	53 **Threatened plants**
51 **Threatened animals**	**+3** Endangered animals **+8** Vulnerable animals	64 **Threatened animals**

Our habitat areas

2016	>>>	2020
67,101 hectares	**Core habitat areas** -172 hectares	66,929 hectares
22,313 hectares	**Core connecting habitat areas** +173 hectares	22,486 hectares
34,869 hectares	**Connecting habitat areas** +588 hectares	35,457 hectares

* The increase in non-remnant vegetation includes both naturally regrowing and expanding existing vegetation as well as active revegetation being undertaken by the state, council and community through a range of different rehabilitation and restoration programs and initiatives.

Sunshine Coast biodiversity results

Our vegetation

The Sunshine Coast is recognised for its rich biodiversity which is supported in natural bushland areas in both rural and urban landscapes, across the local government area's 228,475 hectare extent.

The Biodiversity Report uses a combination of vegetation datasets including the Queensland Government's Regional Ecosystem mapping (referred to as *remnant vegetation*) and Council's local fine-scale vegetation (referred to as *non-remnant vegetation*). Combined, these two datasets make up the Sunshine Coast Council area's native vegetation extent.

Approximately 55% of our council area has native vegetation cover.

The native vegetation comprises: 74% remnant and 26% non-remnant vegetation.

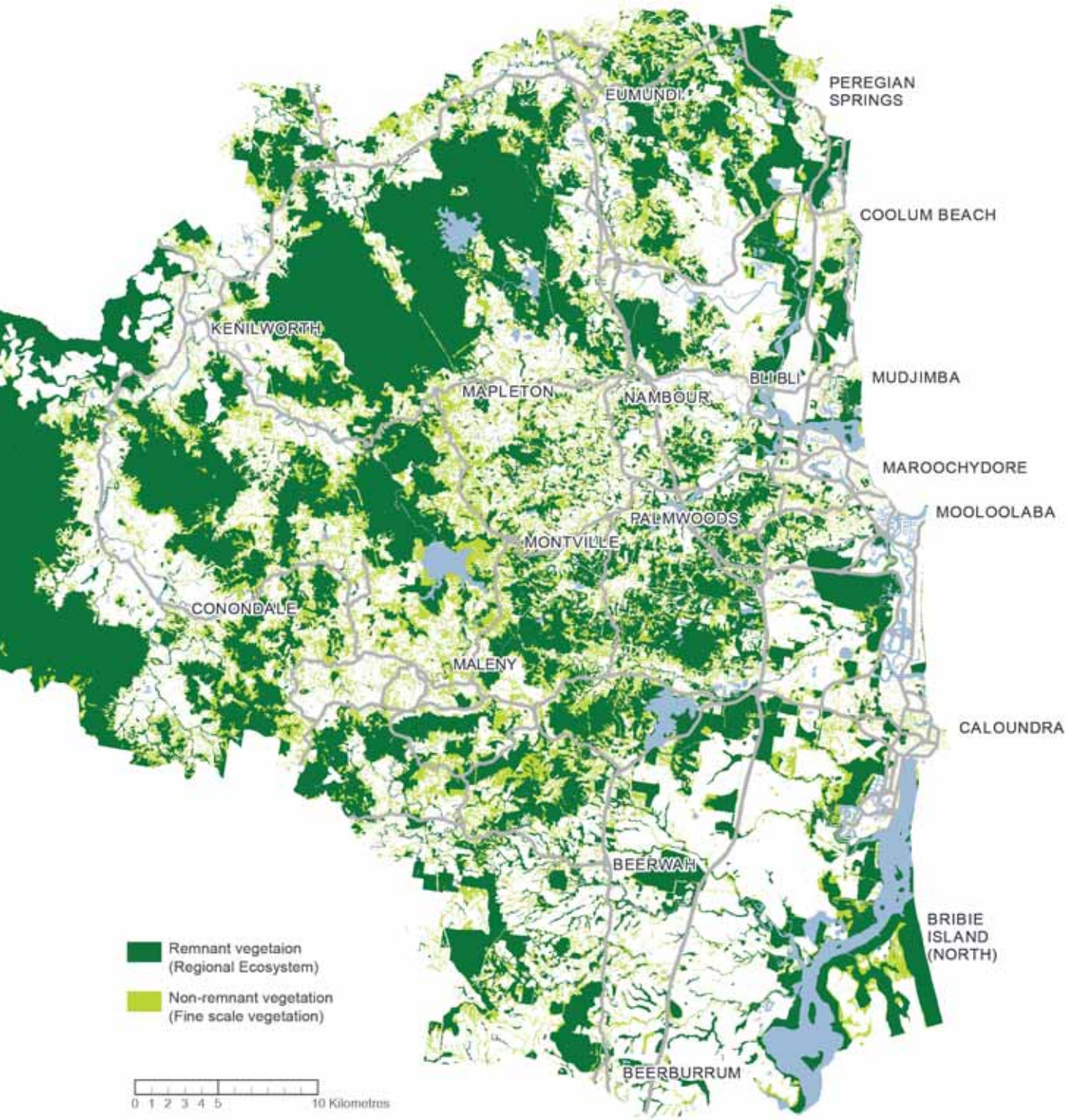
12% of our native vegetation occurs in urban areas.

Table 1: Sunshine Coast Council area remnant and non-remnant vegetation

	Vegetation extent (ha)		
	Urban* area	Rural area	Total area
Sunshine Coast Council area	40,082	188,393	228,475
Remnant vegetation	7992	84,574	92,566
Non-remnant vegetation	7101	25,205	32,306
Combined remnant and non-remnant vegetation	15,093	109,779	124,872
No vegetation	24,989	78,614	103,603

*Urban includes Urban Footprint and Rural Living Areas as defined by the *ShapingSEQ - South East Queensland Regional Plan 2017*.

The landscape and character of the Sunshine Coast is the essence of the region and helps define our identity and culture. Our native vegetation along with agriculture, horticulture and recreational lands provides the 'green frame' that seperates our neighbourhoods and town centres, contributing to our community of communities.



Map 1: Sunshine Coast Council area remnant and non-remnant vegetation

Our vegetation communities

Regional ecosystem mapping is a Queensland Government developed method of identifying, classifying and describing the state's diverse range of vegetation communities.

A Regional Ecosystem (RE) refers to a distinct vegetation community distinguished by dominant canopy tree species that occur in association with a particular combination of geology, soil and landform in a specific bioregion in Queensland. The RE dataset also includes a pre-European vegetation layer known as pre-clearing regional ecosystems. The remnant and pre-clearing datasets were used to help classify Council's native vegetation data into broad vegetation communities.

Before European settlement the Sunshine Coast Council area had 225,471 hectares of remnant vegetation. Today we have 92,566 hectares or 41% of what previously occurred here.

Our remnant and non-remnant vegetation is made up of 75 regional ecosystems which are grouped into the following six broad vegetation communities:

Foredune – The area directly behind the beach running parallel to the coastline supports a unique mix of plants including spinifex, casuarina and pandanus. These habitats are critical for many coastal raptor species and other marine and terrestrial animals.

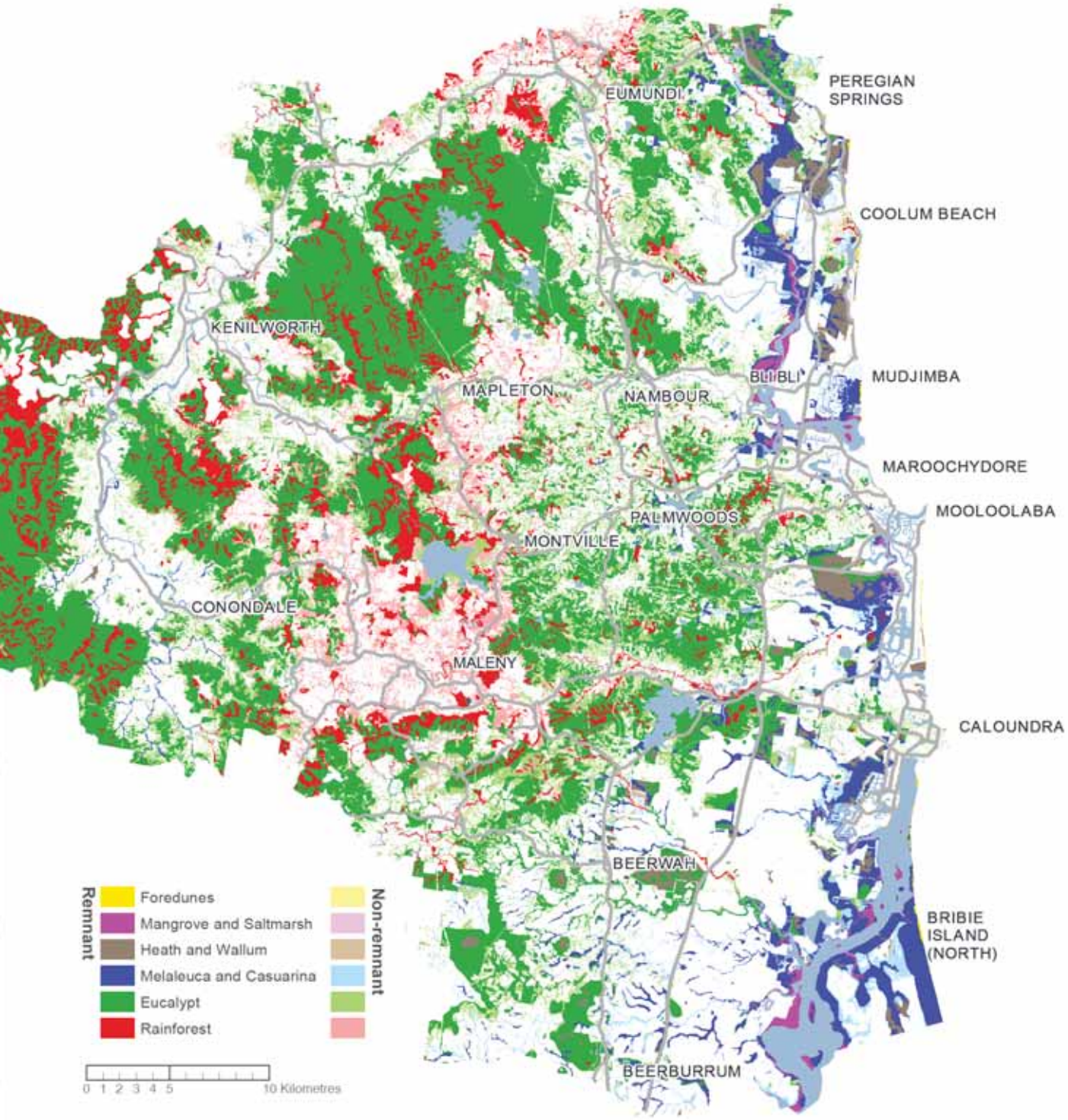
Mangrove and Saltmarsh – Intertidal communities of plants that grow on the foreshore of coastal lakes and estuaries. These plants are adapted to salty conditions and are ecologically important areas that link the land to the sea, providing productive habitat for a range of species including migratory shorebirds.

Heath and Wallum – Coastal communities of specialised plant species occurring on nutrient poor sandy soils inland from the foredune ecosystems. Some of these ecosystems are unique to south-east Queensland and support iconic species such as banksias, hakeas, and the ground parrot.

Melaleuca and Casuarina – Commonly known as paper-barks and she-oaks these communities thrive in the seasonally inundated wetland, coastal floodplain and riparian areas along waterways. These communities can be some of the most diverse ecosystems supporting a range of associated plant and animal species.

Eucalypt – Australia's most widely distributed group of plants and considered iconic to our identity. The Sunshine Coast is home to more than 50 eucalypt species (including species with genera other than eucalypt but identified as 'gum trees') occurring across such a diverse range of environments from coastal floodplains, foredune and riparian ecosystems to elevated mountainous areas on volcanic and sandstone soils.

Rainforest – Typically considered to be the most diverse and complex of all the vegetation communities, subject to high levels of rainfall and occurring in the wetter gullies, along waterways and wetland areas. The rainforest areas in south-east Queensland and the Sunshine Coast are unique supporting a myriad of significant plant and animal species, most notable among these are the diverse range of bird and frog species.



Map 2: Sunshine Coast Council area vegetation communities

Table 2: Sunshine Coast Council area vegetation communities

		Remnant vegetation				Non-remnant*
		Number of REs	Pre-clearing extent (ha)	Current extent (ha)	Loss (%)	Current extent (ha)
	Sunshine Coast Council area	75	225,471	92,566	59	32,306
Vegetation community	Mangrove and Saltmarsh	2	2328	2106	10	55
	Foredune	2	628	334	47	54
	Heath and Wallum	15	8270	2900	65	517
	Melaleuca and Casuarina	10	28,999	8956	71	3614
	Eucalypt	36	146,009	61,511	58	20,640
	Rainforest	10	39,237	16,759	57	7343

*Non-remnant vegetation has been grouped under the broad vegetation communities using pre-clearing regional ecosystems.

What is the conservation significance of our remnant vegetation?

The Commonwealth and State governments have slightly different ways of identifying and determining a vegetation community's conservation status. This is largely due to the scale and geographic area being managed. At both levels, there is interest in understanding the health or extent of decline of vegetation communities in order to drive management strategies to deliver biodiversity conservation outcomes.

National conservation significance

The Commonwealth Government identify, describe and list threatened ecological communities under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC). EPBC listed threatened ecological communities occurring in Queensland use diagnostic regional ecosystems to describe that community. The Sunshine Coast has three EPBC listed threatened ecological communities which includes 13 regional ecosystems.

1
Critically Endangered
Lowland Rainforest of Sub-tropical Australia
9
Regional Ecosystems

1
Endangered
Coastal Swamp Oak (Casuarina glauca) Forest of NSW and SEQ
2
Regional Ecosystems

1
Vulnerable
Subtropical and Temperate Coastal Saltmarsh
2
Regional Ecosystems

State conservation significance

The Queensland Government uses the *Vegetation Management Act 1999* regional ecosystem framework to identify and describe the conservation status of a regional ecosystem. The regional ecosystem pre-clearing (or prior to European settlement) extent data is used to calculate how much of a regional ecosystem extent remains. According to the Queensland Government's conservation status classification, almost 50% of the Sunshine Coast Council area's regional ecosystems are threatened or in significant decline.

7
Endangered
Regional Ecosystems
Less than 10% of its pre-clearing extent remaining

29
Of Concern
Regional Ecosystems
Less than 30% of its pre-clearing extent remaining

39
Least Concern
Regional Ecosystems
Less than 30% of its pre-clearing extent remaining

10 of the 15 Heath and Wallum regional ecosystems are Of Concern.

Four of the seven Endangered regional ecosystems are Eucalypt communities.

Our conservation estate

Some of our habitat areas are managed within the conservation estate, which represents a network of lands where biodiversity is conserved through 'protected' and 'voluntary' mechanisms.

Protected and voluntary conservation areas include:

- State National Parks and Conservation Parks.
- Council Environment Reserves (some of which are gazetted under the *Nature Conservation Act 1992*).
- Private Nature Refuges gazetted under the *Nature Conservation Act 1992.*
- Statutory covenants (voluntary or non-voluntary private freehold land)
- Registered Land for Wildlife properties (no legally-binding protection mechanism applied to the land).

The conservation estate preserves 46% (57,404 hectares) of our native vegetation.

70 regional ecosystems and all six vegetation communities are represented in the 'protected areas'.

State protected native vegetation constitutes 70% (40,375 hectares) of the conservation estate's native vegetation including 60 regional ecosystems represented.

Council manages 733 reserves containing 6143 hectares of native vegetation including 57 regional ecosystems.

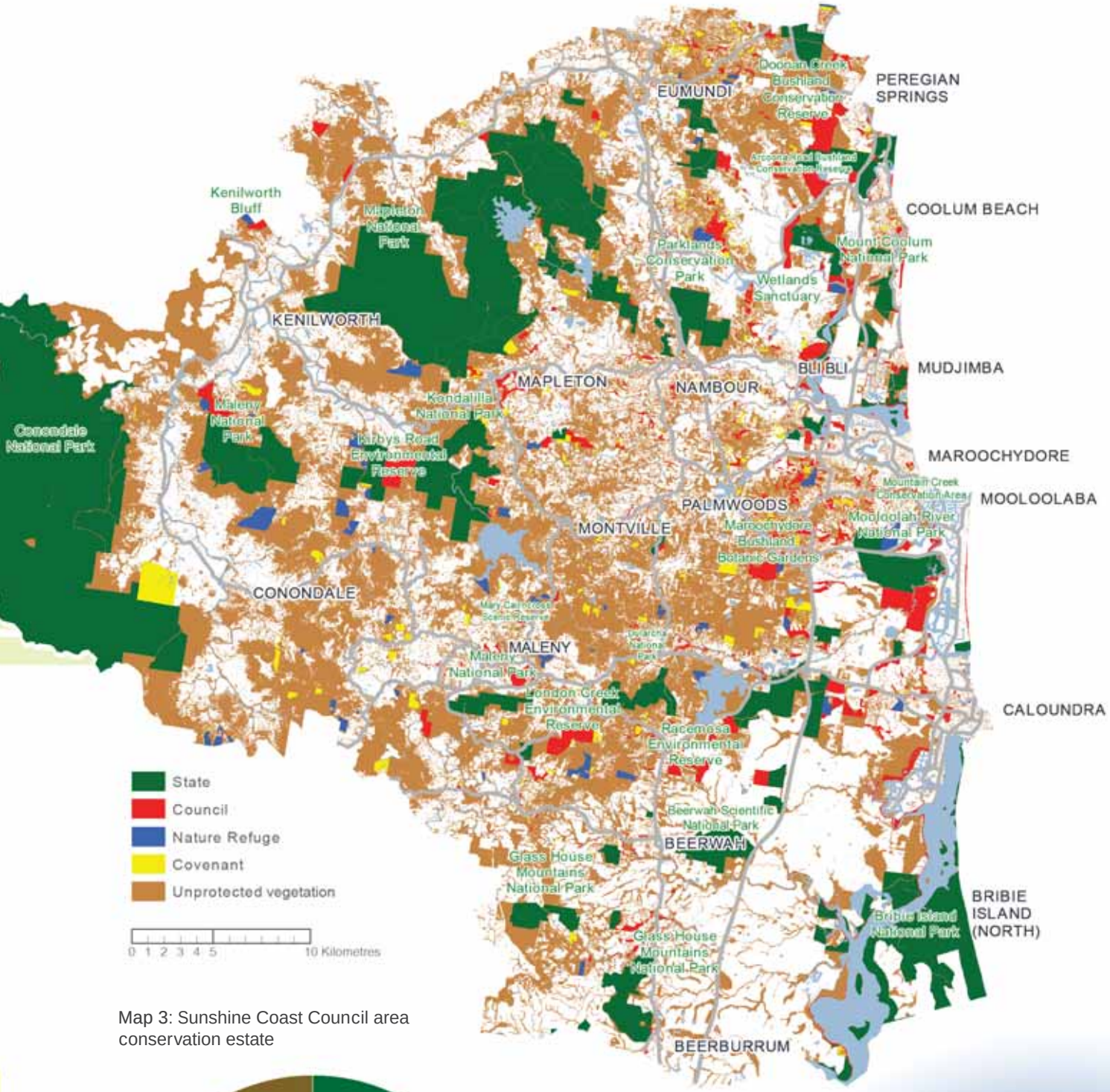
Table 3: Sunshine Coast conservation estate and native vegetation extents

Conservation areas	Number of Reserves or Lots	Total area (ha)	Remnant vegetation extent (ha)	Non-remnant vegetation extent (ha)	Native vegetation extent (ha)
State	30	40,804	39,373	1003	40,375
Council (incl NR)	733	6951	4907	1236	6143
Nature Refuge	36	937	747	162	909
Covenants	1479	2024	1305	376	1681
Land for Wildlife	969	12,465	5402	2894	8296
Total	3247	63,181	51,734	5670	57,404

How well are we protecting our regional ecosystems and vegetation communities?

Another important measure to understand is how much of a particular regional ecosystem's remaining extent is protected or conserved in relation to its pre-clearing extent. A national assessment process was developed, known as the 'Comprehensive and Adequately Represented' system, to understand how well represented or poorly conserved a particular regional ecosystem is protected. The Sunshine Coast Council area has 24 regional ecosystems considered poorly conserved. This means less than 10% of their Sunshine Coast Council area pre-clearing extent is protected. Five of the 24 poorly conserved regional ecosystems – a wet heath, casuarina, rainforest and two eucalypt regional ecosystems have none of their remaining extents represented in protected areas.

Poorly Conserved Regional Ecosystems			
Heath and Wallum	**Melaleuca and Casuarina**	**Eucalypt**	**Rainforest**
2 Regional Ecosystems	**3** Regional Ecosystems	**16** Regional Ecosystems	**3** Regional Ecosystems



Map 3: Sunshine Coast Council area conservation estate

Due to privacy issues associated with the Land for Wildlife program, these properties are not shown on any maps.

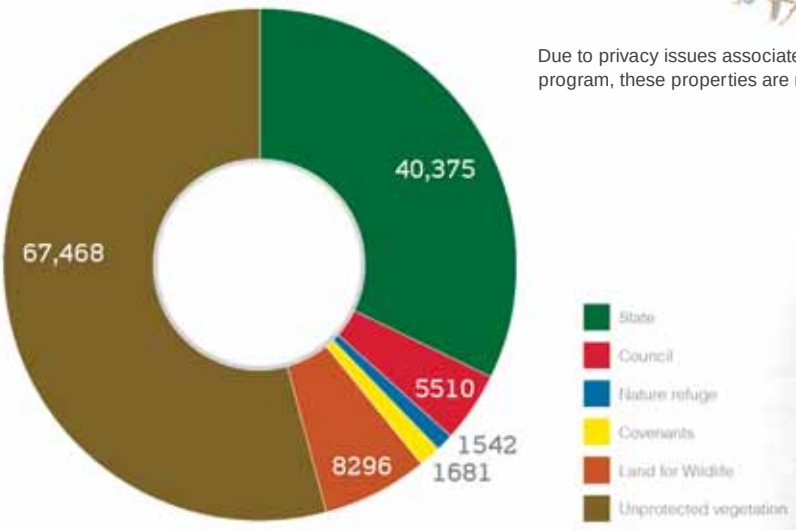


Figure 2: Sunshine Coast Council area conservation estate's native vegetation extent

Our native plants and animals

Our region supports a diverse range of more than **2600 plants** and **850 animals**, including tropical, temperate, marine, lowland and upland species. Some of our plants and animals are considered as threatened species. Threatened species are any plant or animal species that are at risk of extinction. To drive preservation outcomes, the Queensland and Commonwealth governments have specific legislation that identifies threatened species:

- the Commonwealth *Environment Protection and Biodiversity Conservation 1999* (EPBC).
- the Queensland *Nature Conservation Act 1992* (NCA).

The Sunshine Coast Council area has **117 threatened species**.

53 **threatened** native plant species

Endangered native plant species **21**

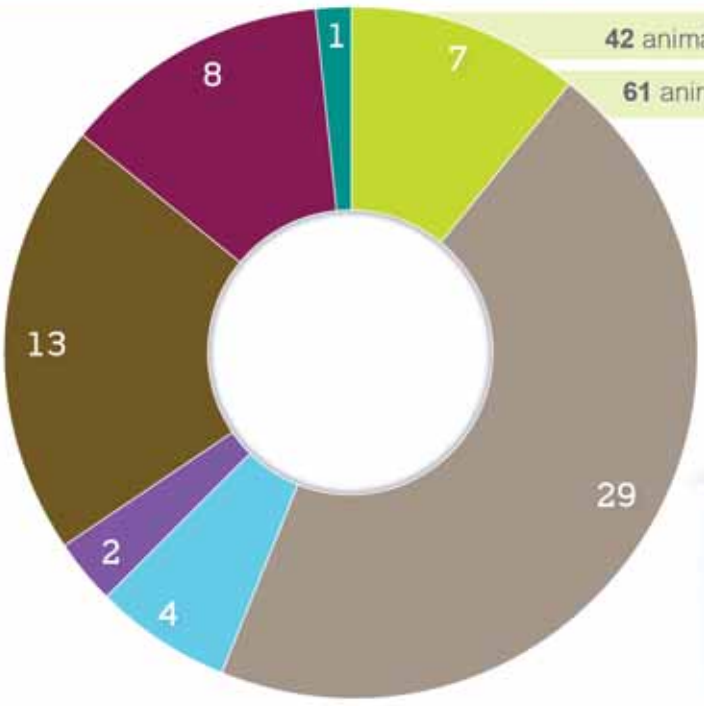
Vulnerable native plant species **32**

64 **threatened** native animal species

Critically Endangered native animal species **6**

Endangered native animal species **20**

Vulnerable native animal species **38**



42 animal and **28** plants are listed under the EPBC Act.

61 animals and **52** plants are listed under the NC Act.

Figure 3: Sunshine Coast Council area threatened animals

Our habitat areas

Council's strategic biodiversity conservation planning is guided by a landscape ecology approach which seeks to maintain and improve ecological functionality and connectivity at a whole of landscape scale by:

- identifying and protecting biodiversity priorities (such as core habitat areas and locally vulnerable regional ecosystems)
- consolidating and expanding key conservation areas
- restoring areas to connect habitats.

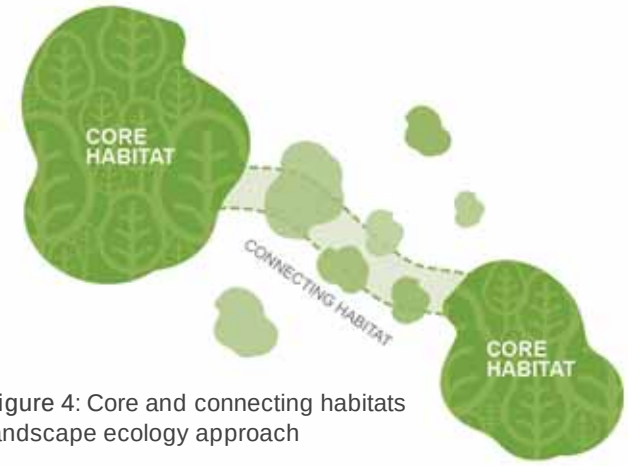


Figure 4: Core and connecting habitats landscape ecology approach

Core and connecting habitat areas

Habitat areas can be defined by the size of the vegetation patch and how connected the vegetation is, which has been influenced by the level of habitat fragmentation. Increased fragmentation is likely to result in greater interruption to habitat functionality impacting on fauna movement, dispersal, mating potential, roost sites, food resource availability and feeding regimes.

Understanding the spatial distribution and the relationship between different habitat areas and the role they play in landscape connectivity and habitat functionality is critical to biodiversity conservation network planning and the delivery of strategic biodiversity conservation outcomes.

Our habitat areas are made up of remnant and non-remnant vegetation and are classified into three broad types::

1	Core Habitat Areas (CHA) – patches of native vegetation >50ha in area
2	Core Connecting Habitat Areas (CCA) – vegetation contiguous with a CHA
3	Connecting Habitat Area (CNA) – patches of native vegetation <50ha in area.

The Sunshine Coast area has 165 CHAs with a total extent of 66,929 hectares.

The largest single CHA (19,252 hectares) largely made up by the Conondale National Park in the Mary River catchment while the smallest CHA is 50.1 hectares.

CCAs comprises 22,486 hectares or 18% of the Council area's native vegetation.

The Sunshine Coast area has more than 65,000 patches of CNA with a total extent of 35,457 hectares.

There are more than 64,000 CNA patches <10 hectares in area comprising 10,589 hectares of the council area's native vegetation.

Our core habitat areas

The Sunshine Coast has a number of significant habitat areas each contributing valuable, and in some cases unique faunal assemblages and ecological functionality such as, species niches and home-ranges, genetic mixing, specialised food and water resources, nesting and roosting resources.

Five significant core habitat areas, one from each major river catchment, are highlighted including some of their intrinsic and irreplaceable natural values and contribution to the Sunshine Coast's distinct landscape character.

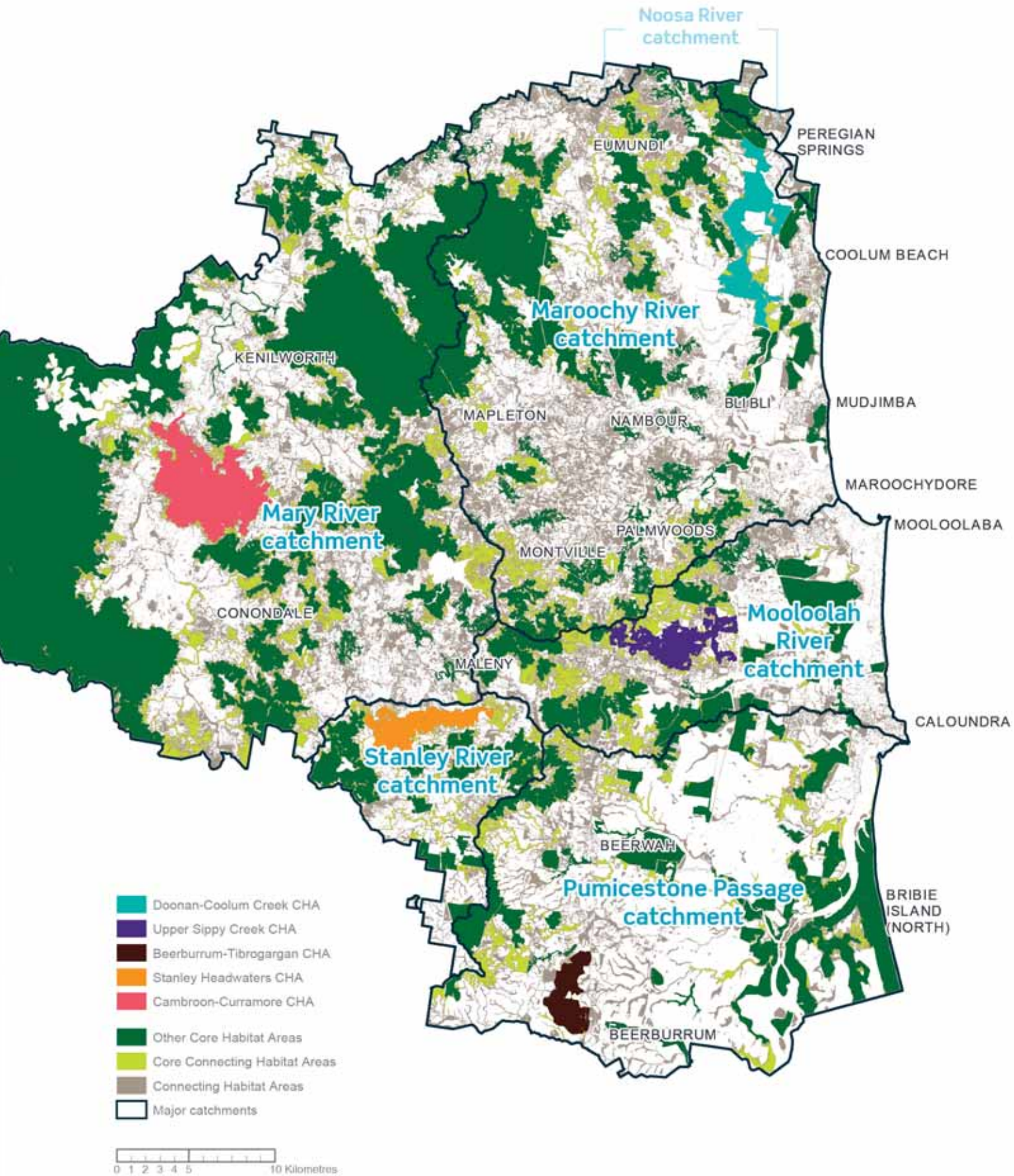
The Doonan-Coolum Creek CHA is the 5th largest CHA at 1474 hectares in area. Located in the Maroochy River catchment this CHA forms the backbone of the Maroochy-Noosa wallum corridor and the southern portion is a major greenspace area – the Blue Heart. This CHA supports a range of important mangrove, wallum, melaleuca and casuarina vegetation communities that is habitat for the endangered ground parrot and water mouse.

The Upper Sippy Creek CHA is 1144 hectares in area making it the 8th largest core in the Council area. It is made up entirely of eucalypt and rainforest vegetation communities. These forests support some of the richest biodiversity in the Mooloolah River catchment providing important habitat for koalas, sugar gliders, multiple species of micro-bat and other arboreal mammals, along with a myriad of threatened bird and frog species including, the glossy-black cockatoo and tusk frog.

The Beerburrum-Tibrogargan CHA is 758 hectares of which the Beerburrum section of the Glass House Mountains National Park makes up 700 hectares. Home to the international renowned, world heritage listed Glass House Mountains this CHA features Mount Beerburrum and Mount Tibrogargan. This CHA supports unique biodiversity values including montane heath, eucalypt and rainforest vegetation communities providing critical habitat for the vulnerable Mount Beerwah mallee, Mount Beerwah sheoak and the Glass House Mountain teatree.

The Stanley Headwaters CHA supports some of the richest biodiversity in the Sunshine Coast Council area. Forming part of a major green space, this core contains some of the most significant rainforest areas in the region. This 950 hectare CHA provides ecological connectivity from Mount Mellum and London Creek sub-catchments wrapping around the escarpment west forming the headwaters of the catchment to Booroobin. The CHA includes a high proportion of high biodiversity rainforest vegetation communities, plants and animals including Sunshine Coast myrtle, larged-leaf silkpod, giant barred frog, koala, glossy black-cockatoo, double-eyed fig-parrot and the Richmond birdwing butterfly.

The Cambroon-Curramore CHA is the 4th largest core in the Council area at more than 2700 hectares in area. Located in the eastern headwaters of the Mary River catchment this CHA forms part of a mosaic of core habitat areas that extend from the Blackall Range and Kondalilla National Park west to the Mary River. It is an area of outstanding natural beauty and one of the Council area's highest functional biodiversity corridors that includes five of the eight rainforest regional ecosystems listed by the Commonwealth Government as critically endangered lowland rainforest. More than 75% of the CHA is protected by National Park, Council Environment Reserve and Nature Refuges providing habitat for a suite of threatened species including the giant barred frog, greater glider, brushed-tailed phascogale, koala, glossy black-cockatoo and black-breasted button-quail.



Map 4: Sunshine Coast Council area core and connecting habitat areas

Our catchments' biodiversity results

The Sunshine Coast Council area is made up of five major river catchments:

1. Maroochy River
2. Mooloolah River
3. Mary River
4. Upper Stanley River
5. Pumicestone Passage (northern portion of Bribie Island).

Map 5: Sunshine Coast Council area river catchments

Maroochy River catchment

Mary River catchment

Mooloolah River catchment

Stanley River catchment

Pumicestone Passage catchment

Noosa River catchment

Approximately 1% of the Noosa River catchment occurs within the Sunshine Coast Local Government Area, covering 1275 hectares of predominately rural and rural residential land surrounding the western and southern shores of Lake Weyba. Given its limited extent, the biodiversity results have not been captured in this report. The results for the Noosa River catchment can be found in the Background Technical Report.

Maroochy River catchment

The Maroochy River system dominates the northern half of the Sunshine Coast Council area. It drops quickly from its headwaters in the Blackall and Mooloolah Ranges onto a large broad floodplain dominated by farmland and sugar cane paddocks before reaching the sea at Maroochydore. 99% of the Maroochy River catchment occurs within the Sunshine Coast Council area. The catchment's most northern watershed area falls within the neighbouring Noosa Council area.

Native vegetation

Native vegetation covers 51% of the catchment area.

Of the native vegetation cover 67% is remnant and 33% is non-remnant vegetation.

Table 10: Maroochy River catchment vegetation extent

	Urban* area (ha)	Rural area (ha)	Total area (ha)
Catchment	16,387	46,756	63,143
Remnant vegetation	4023	17,636	21,659
Non-remnant vegetation	3367	7368	10,735
Combined remnant and non-remnant vegetation	7390	25,004	32,394
No vegetation	8997	21,752	30,749

*Urban includes Urban Footprint and Rural Living Areas as defined by the ShapingSEQ SEQRP 2017.

Vegetation communities

54 regional ecosystems representing all six vegetation communities.

6 Endangered, 23 Of Concern and 25 Least Concern regional ecosystems.

34% of the catchment is remnant vegetation.

17% of the catchment is non-remnant vegetation.

Table 11: Maroochy River catchment vegetation communities

		Regional ecosystems					Non-remnant
		Pre-clear number	Pre-clear extent (ha)	Current number	Current extent (ha)	Loss (%)	Current extent (ha)
	Catchment	55	63,143	54	21,659	65	10,735
Vegetation communities	Mangrove and Saltmarsh	2	578	2	523	10	19
	Foredune	2	187	2	123	35	12
	Heath and Wallum	11	1991	11	1002	50	151
	Melaleuca and Casuarina	6	9134	6	2385	74	930
	Eucalypt	27	42,413	26	14,936	65	7573
	Rainforest	7	8166	7	2,690	77	2015

Conservation estate

The conservation estate conserves 36% (11,655 ha) of the catchment's native vegetation.

The protected area's conserve 30% of the catchment's native vegetation.

49 regional ecosystems and all six vegetation communities are represented in the conservation estate.

20,739 hectares of native vegetation in the catchment is unprotected.

Table 12: Maroochy River catchment conservation estate

			Vegetation extent (ha)		
Conservation areas	Number of Reserves or Lots	Total Area (ha)	Remnant	Non-remnant	Native
State	15	6584	6402	113	6515
Council (incl NR)	350	2710	1943	400	2343
Nature Refuge	5	66	40	21	61
Covenants	1023	716	489	161	650
Land for Wildlife	440	2895	1383	703	2086
Total	1833	12,971	10,257	1398	11,655

Flora and fauna

41 threatened plant species.

40 threatened animal species.

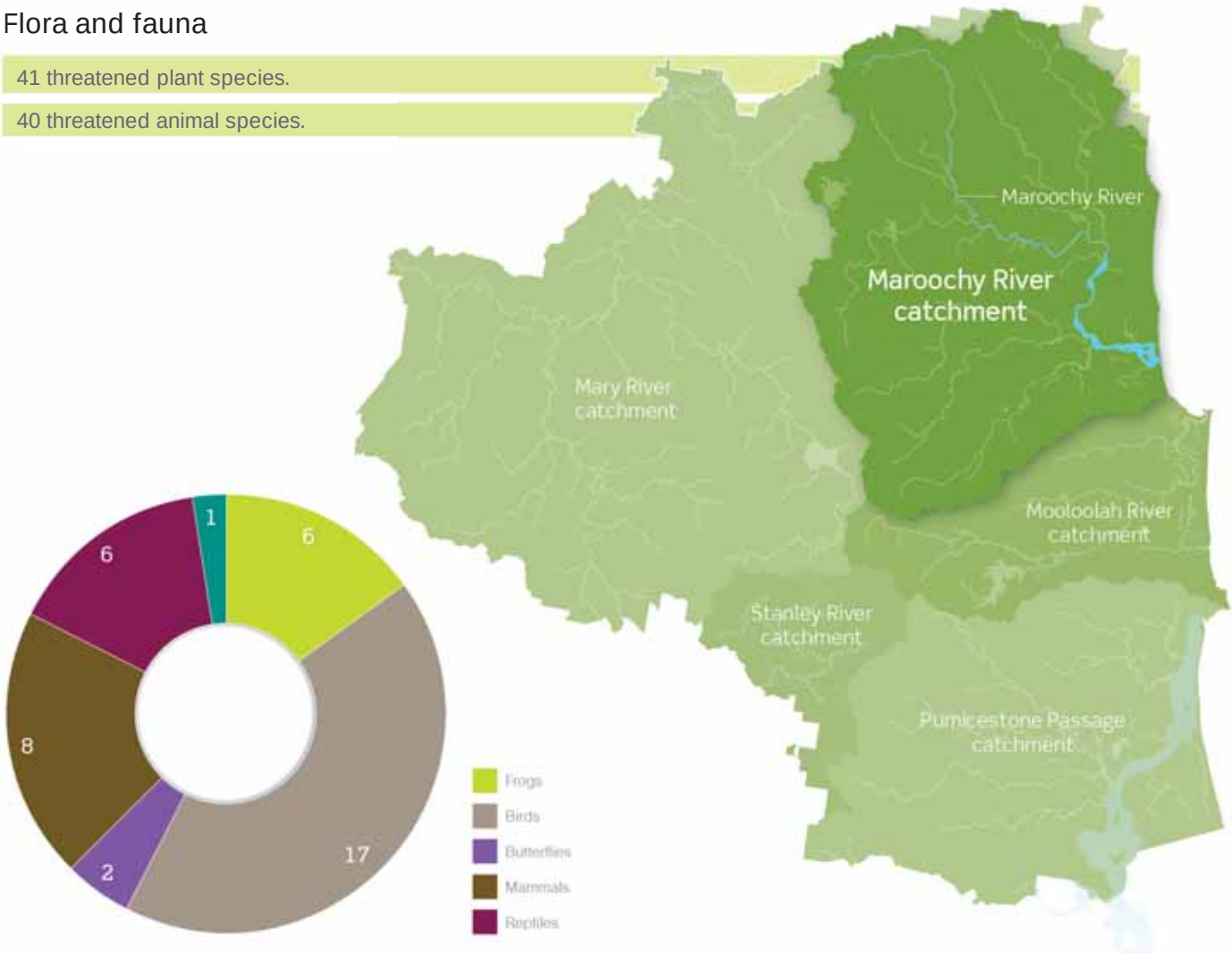


Figure 5: Maroochy River catchment threatened animals

Mooloolah River catchment

The Mooloolah River is a relatively small river, with its headwaters in the Mooloolah Range. The River winds through rainforest and natural bushland, agricultural and grazing lands, and urban development. The lower reaches have been modified for canal estates and a marina, supporting intensive boating, fishing and tourism activities. The Mooloolah River catchment occurs entirely within the Sunshine Coast Council area.

Native vegetation

Native vegetation covers 53% of the catchment area.

Of the native vegetation cover 70% is remnant and 30% is non-remnant.

Almost half (48%) of the catchment has an urban zoning.

Table 13: Mooloolah River catchment vegetation extent

	Urban* area (ha)	Rural area (ha)	Total area (ha)
Catchment	10,795	11,512	22,307
Remnant vegetation	2150	6160	8310
Non-remnant vegetation	1723	1824	3547
Combined remnant and non-remnant vegetation	3873	7984	11,857
No vegetation	6922	3528	10,450

*Urban includes Urban Footprint and Rural Living Areas as defined by the ShapingSEQ SEQRP 2017.

Vegetation communities

38 regional ecosystems representing all six vegetation communities.

One regional ecosystem has been lost from the catchment 12.12.19x2 (wallum).

4 Endangered, 13 Of Concern and 21 Least Concern regional ecosystems.

38% of the catchment is remnant vegetation and 16% of the catchment is non-remnant vegetation.

Two thirds of the catchment's remnant vegetation are eucalypt vegetation communities.

Table 14: Mooloolah River catchment vegetation communities

		Regional ecosystems					Non-remnant
		Pre-clear number	Pre-clear extent (ha)	Current number	Current extent (ha)	Loss (%)	Current extent (ha)
	Catchment	39	22,159	38	8310	62	3547
Vegetation communities	Mangrove and Saltmarsh	2	121	2	73	40	2
	Foredune	2	169	2	86	49	20
	Heath and Wallum	10	2684	9	626	77	171
	Melaleuca and Casuarina	6	3,807	6	1126	70	397
	Eucalypt	16	13,062	16	5498	58	2481
	Rainforest	3	2316	3	901	61	474

Conservation estate

The conservation estate conserves 41% (4833 ha) of the catchment's native vegetation.

The protected area conserves 33% of the catchments native vegetation.

36 regional ecosystems and all six vegetation communities are represented in the conservation estate.

7025 hectares of native vegetation in the catchment is unprotected.

Table 15: Mooloolah River catchment conservation estate

			Vegetation extent (ha)		
Conservation areas	Number of Reserves or Lots	Total Area (ha)	Remnant	Non-remnant	Native
State	7	2100	2027	61	6515
Council (incl NR)	197	1737	1193	296	2343
Nature Refuge	4	83	70	9	61
Covenants	385	307	236	59	650
Land for Wildlife	123	1237	604	277	881
Total	716	5464	4130	703	4833

Flora and fauna

31 threatened plant species.

36 threatened animal species.

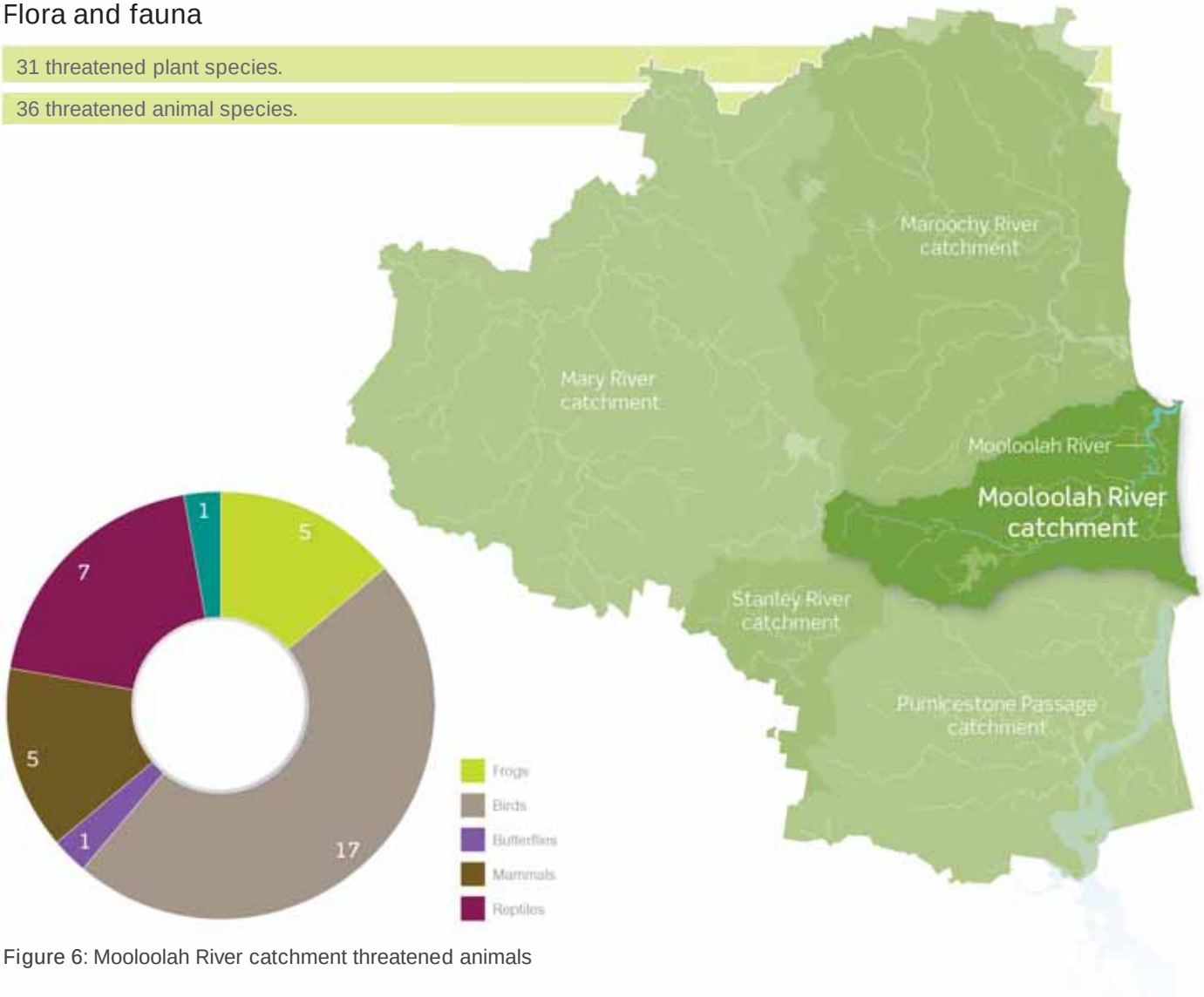


Figure 6: Mooloolah River catchment threatened animals

Pumicestone Passage catchment

The Ramsar-listed Pumicestone Passage is a long, tidal waterway, enclosed between the mainland and Bribie Island. The Passage receives inflows from a network of creeks (Bells, Halls, Coochin and Coonowrin) which have their headwaters in the D'Aguilar Range, and passes through native bush, forestry, pine plantations, grazing, horticulture and urban areas. Approximately 60% or more than 45,700 hectares of the Pumicestone Passage catchment (including the northern portion of Bribie Island) occurs within the Sunshine Coast Council area.

Native vegetation

Native vegetation covers 38% of the catchment area.

Of the native vegetation cover 74% is remnant and 26% is non-remnant vegetation.

Lowest proportion of native vegetation cover of the three Sunshine Coast coastal catchments.

Table 16: Pumicestone Passage catchment vegetation extent

	Urban* area (ha)	Rural area (ha)	Total area (ha)
Catchment	10,693	35,062	45,755
Remnant vegetation	1582	11,135	12,717
Non-remnant vegetation	1333	3127	4460
Combined remnant and non-remnant vegetation	2915	14,262	17,177
No vegetation	7778	20,800	28,578

*Urban includes Urban Footprint and Rural Living Areas as defined by the ShapingSEQ SEQRP 2017.

Vegetation communities

37 regional ecosystems representing all six vegetation communities.

One RE has been lost from the catchment 12.5.9 (wallum).

4 Endangered, 13 Of Concern and 17 Least Concern regional ecosystems.

28% of the catchment is remnant vegetation and 10% of the catchment is non-remnant vegetation.

Melaleuca and eucalypt vegetation communities make up nearly 80% of the remaining remnant vegetation.

Table 17: Pumicestone Passage catchment vegetation communities

		Regional ecosystems					Non-remnant
		Pre-clear number	Pre-clear extent (ha)	Current number	Current extent (ha)	Loss (%)	Current extent (ha)
Catchment		38	43,572	37	12,717	71	4460
Vegetation communities	Mangrove and Saltmarsh	2	1630	2	1510	7	34
	Foredune	2	253	2	106	58	21
	Heath and Wallum	9	3263	8	991	70	187
	Melaleuca and Casuarina	8	14,447	8	4669	68	1957
	Eucalypt	14	23,721	14	5295	78	2148
	Rainforest	3	258	3	147	43	65

Conservation estate

Conservation estate conserves 41% (7048 ha) of the catchment's native vegetation.

Protected area conserves 38% of the catchment's native vegetation.

34 of the catchment's 37 regional ecosystems are in the conservation estate.

All six vegetation communities are represented in the conservation estate.

Table 18: Pumicestone Passage catchment conservation estate

			Vegetation extent (ha)		
Conservation areas	Number of Reserves or Lots	Total Area (ha)	Remnant	Non-remnant	Native
State	5	5777	4880	603	5484
Council (incl NR)	123	1137	875	179	1054
Nature Refuge	2	12	11	0	11
Covenants	55	62	54	6	60
Land for Wildlife	52	595	317	121	439
Total	237	7582	6138	910	7048

Flora and fauna

24 threatened plant species.

38 threatened animal species.

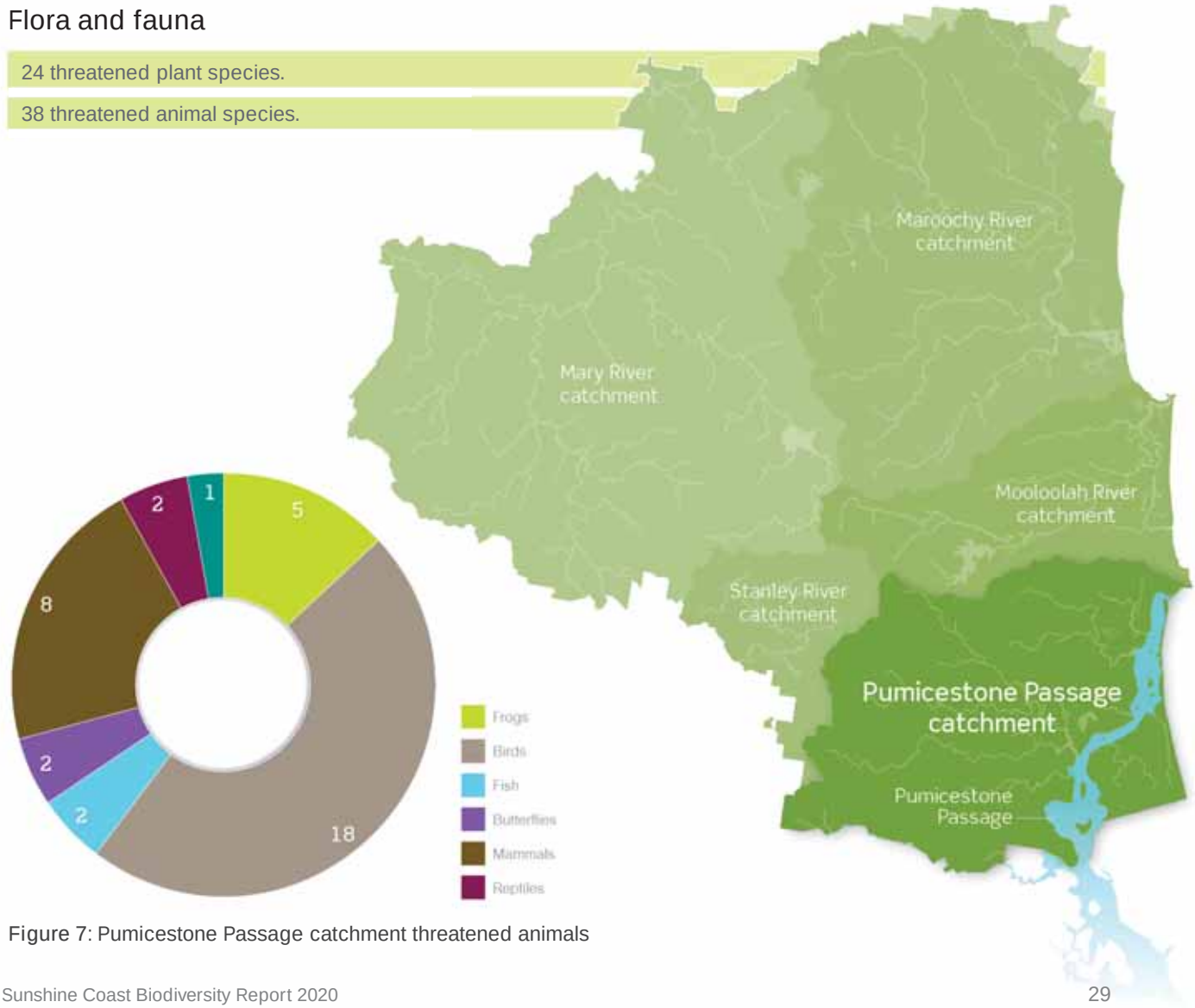


Figure 7: Pumicestone Passage catchment threatened animals

Mary River catchment

The Mary River is one of the most environmentally and economically diverse catchments in Queensland, supporting a range of activities including agriculture and tourism. Its headwaters are in the Conondale and Blackall Ranges and it flows northwards for hundreds of kilometres to the Great Sandy Strait, influencing the coastal environment of Hervey Bay and ultimately the Coral Sea. Large areas of the catchment are protected natural areas and support several iconic threatened species – notably the Mary River cod, Mary River turtle and Queensland lungfish. Approximately one sixth or 84,771 hectares of the Mary River catchment occurs within the Sunshine Coast Council area.

Native vegetation

Native vegetation covers 66% of catchment area.

Of the native vegetation cover 80% is remnant vegetation and 20% is non-remnant vegetation.

The Mary River catchment contributes 45% of the LGA's native vegetation.

Table 19: Mary River catchment vegetation extent

	Urban* area (ha)	Rural area (ha)	Total area (ha)
Catchment	1414	83,356	84,771
Remnant vegetation	70	44,957	45,027
Non-remnant vegetation	456	10,685	11,141
Combined remnant and non-remnant vegetation	526	55,642	56,168
No vegetation	888	27,714	28,602

*Urban includes Urban Footprint and Rural Living Areas as defined by the ShapingSEQ SEQRP 2017.

Vegetation communities

38 regional ecosystems representing four vegetation communities.

2 Endangered, 16 Of Concern and 19 Least Concern regional ecosystems.

53% of the catchment is remnant vegetation and 13% of the catchment is non-remnant vegetation.

Eucalypt and rainforest vegetation communities make up nearly 99% of the remaining remnant vegetation.

Nine regional ecosystems are found only in the Mary River catchment.

Table 20: Mary River catchment vegetation communities

		Regional ecosystems					Non-remnant
		Pre-clear number	Pre-clear extent (ha)	Current number	Current extent (ha)	Loss (%)	Current extent (ha)
Catchment		38	84,771	38	45,027	47	11,141
Vegetation communities	Heath and Wallum	1	80	1	73	9	0.2
	Melaleuca and Casuarina	4	1114	4	547	51	193
	Eucalypt	24	57,827	24	32,531	44	6749
	Rainforest	9	25,750	9	11,875	54	4197

Conservation estate

Conservation estate conserves 56% (31,679 ha) of the catchment's native vegetation.

Protected area conserves 48% of the catchments native vegetation.

34 regional ecosystems and all four vegetation communities are represented in the conservation estate.

24,489 hectares of native vegetation in the catchment is unprotected.

Table 21: Mary River catchment conservation estate

			Vegetation extent (ha)		
Conservation areas	Number of Reserves or Lots	Total Area (ha)	Remnant	Non-remnant	Native
State	5	25,508	25,250	211	25,462
Council (incl NR)	60	916	611	196	807
Nature Refuge	23	675	545	112	657
Covenants	387	783	420	106	526
Land for Wildlife	319	6774	2703	1525	4228
Total	794	34,656	29,529	2150	31,679

Flora and fauna

31 threatened plant species.

31 threatened animal species.

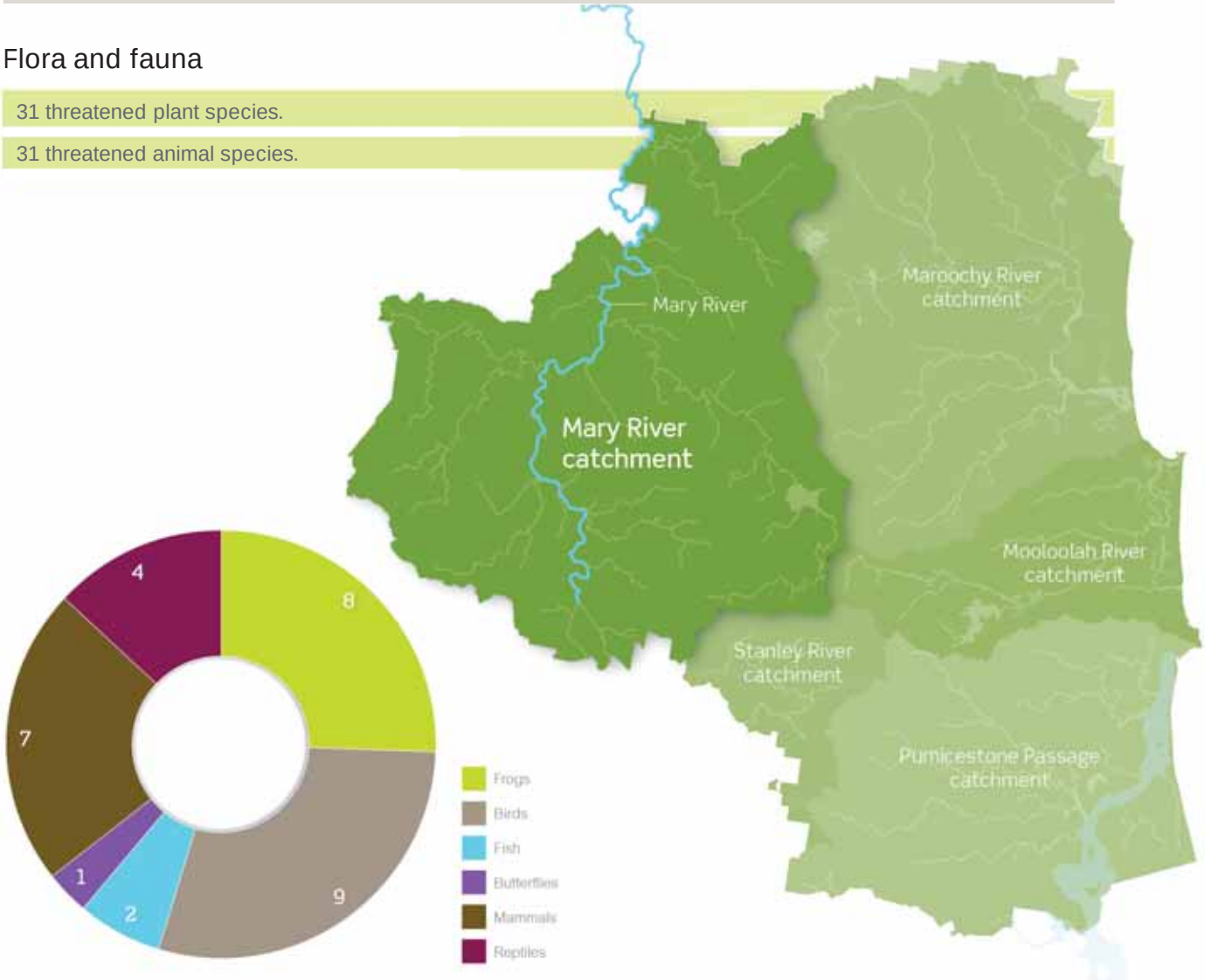


Figure 8: Mary River catchment threatened animals

Upper Stanley River catchment

The Stanley River headwaters are located in the Great Dividing Range and the Conondale Range, where large areas of land remain in a relatively natural state. The catchment contributes substantially to Brisbane's water supply through its impoundment at Somerset Dam. Catchment size: 11,224 hectares.

Native vegetation

Native vegetation covers 57% of the catchment area.

66% is remnant vegetation and 34% is non-remnant vegetation.

High proportion of non-remnant vegetation (33%) compared to other catchments.

Table 22: Upper Stanley River catchment vegetation extent

	Urban* area (ha)	Rural area (ha)	Total area (ha)
Catchment	535	10,689	11,224
Remnant vegetation	97	4134	4231
Non-remnant vegetation	182	1997	2179
Combined remnant and non-remnant vegetation	279	6131	6410
No vegetation	256	4558	4814

*Urban includes Urban Footprint and Rural Living Areas as defined by the ShapingSEQ SEQRP 2017.

Vegetation communities

23 regional ecosystems representing four vegetation communities.

2 endangered, 10 Of Concern and 11 Least Concern regional ecosystems.

37% of the catchment area is remnant vegetation.

Eucalypt and rainforest vegetation communities make up 99% of the remaining remnant vegetation.

One regional ecosytem has been lost from the catchment 12.5.6c (Eucalypt).

Table 23: Upper Stanley River catchment vegetation communities

		Regional ecosystems					Non-remnant
		Pre-clear number	Pre-clear extent (ha)	Current number	Current extent (ha)	Loss (%)	Current extent (ha)
Catchment		24	11,200	23	4230	62	2180
Vegetation communities	Heath and Wallum	2	11	2	11	0	0
	Melaleuca and Casuarina	1	152	1	27	82	84
	Eucalypt	16	8315	15	3047	63	1506
	Rainforest	5	2746	5	1146	58	590

Conservation estate

Conservation estate conserves 26% (1679 ha) of the catchment's native vegetation.

Protected area conserves 16% of the catchments native vegetation.

17 regional ecosystems with heath, eucalypt and rainforest vegetation communities represented.

4730 hectares of native vegetation in the catchment is unprotected.

Table 24: Upper Stanley River catchment conservation estate

			Vegetation extent (ha)		
Conservation areas	Number of Reserves or Lots	Total Area (ha)	Remnant	Non-remnant	Native
State	2	483	463	14	477
Council (incl NR)	17	364	244	112	356
Nature Refuge	4	85	64	19	84
Covenants	29	130	92	34	126
Land for Wildlife	59	936	373	264	637
Total	111	1998	1236	443	1679

Flora and fauna

22 threatened plant species.

13 threatened animal species.

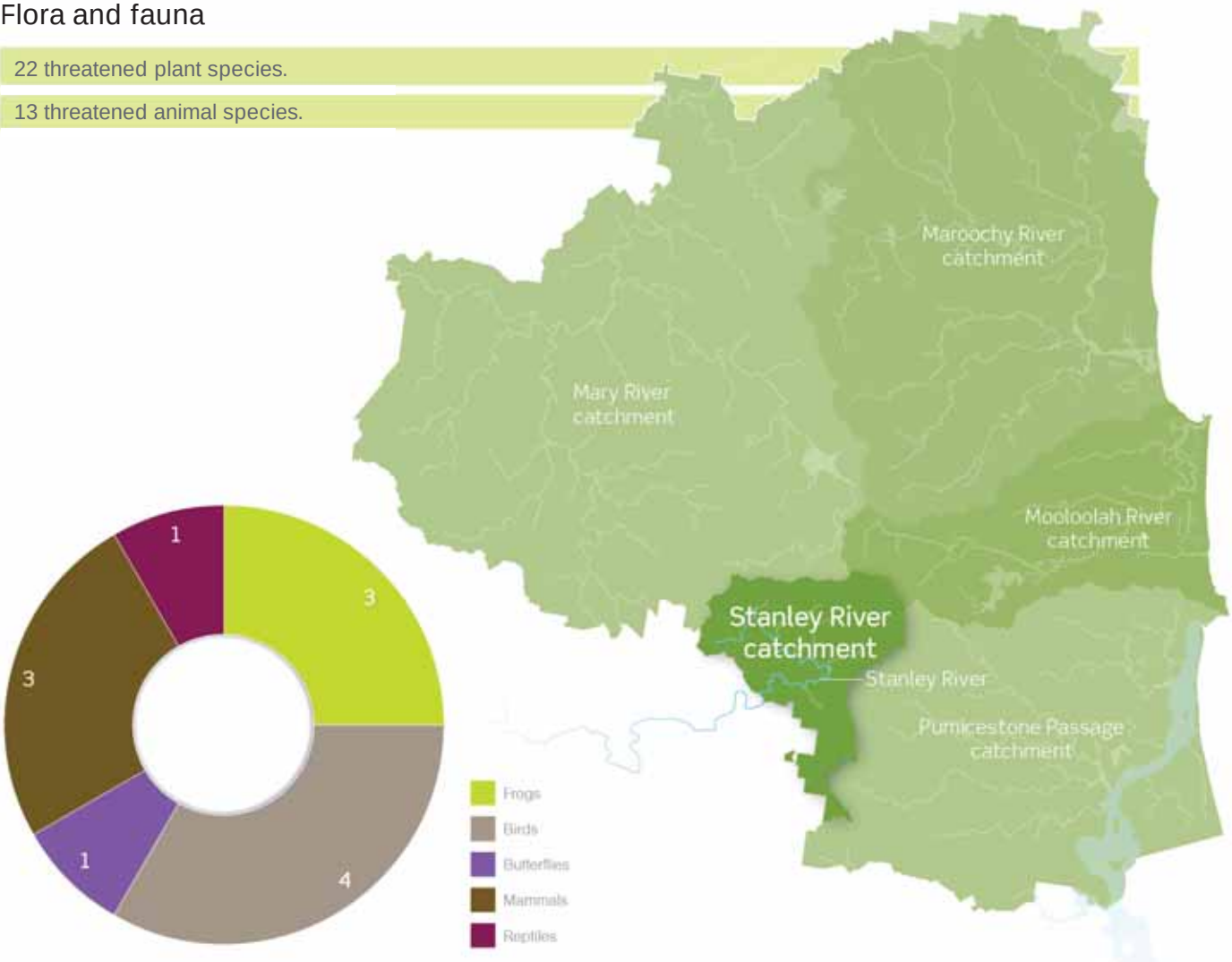


Figure 9: Upper Stanley River catchment threatened animals

Glossary

Report terminology	Definitions
Biodiversity	Biodiversity—the variety of plants, animals, micro-organisms and ecosystems that constitute our living environment— is not static; it is constantly changing. It can be increased by genetic change and evolutionary processes, and it can be reduced by threats which lead to population decline and extinction.
Catchment	A drainage basin is any area of land where precipitation collects and drains off into a common outlet, such as into a river, bay, or other body of water.
Conservation estate	Includes land parcels with legally binding protection mechanisms as well as land parcels with voluntary intent to preserve the environmental values contained within.
Conservation status	Described under the *Vegetation Management Act 1999* and is a measure of a regional ecosystems loss and subsequent level of vulnerability based on current extent relative to its pre-European extent.
Critically endangered	A critically endangered species is one that has been categorised by the International Union for Conservation of Nature and subsequently under the EPBC 1999 as facing an extremely high risk of extinction in the wild.
Endangered	Under the Queensland *Nature Conservation Act 1992*, a regulation may prescribe native wildlife as endangered wildlife if: a there have not been thorough searches conducted for the wildlife and the wildlife has not been seen in the wild over a period that is appropriate for the life cycle or form of the wildlife b the habitat or distribution of the wildlife has been reduced to an extent that the wildlife may be in danger of extinction c the population size of the wildlife has declined, or is likely to decline, to an extent that the wildlife may be in danger of extinction d the survival of the wildlife in the wild is unlikely if a threatening process continues
Environment Levy	Refers to a levy raised by the Sunshine Coast Regional Council (in accordance with section 971 of the Queensland *Local Government Act 2009*), on all rateable properties within the jurisdiction, in order to assist with environmental protection and management.
EPBC Act	The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places – defined in the EPBC Act as matters of national environmental significance.
Fine-scale vegetation (FSV)	Fine-scale vegetation (woody vegetation) was identified from a dataset produced by the Sunshine Coast Council generated using a combination of Aerial Laser Survey (LiDAR), Vegetation Index (NDVI), infra-red and aerial photography. It captures much of the vegetation outside the mapped blocks of vegetation through the regional ecosystem mapping. This report also refers to this data set as 'non-remnant vegetation' layer.
Land for Wildlife program	Land for Wildlife is a free, voluntary conservation program that supports participants in protecting, enhancing and rehabilitating native flora and fauna on their property. Land for Wildlife registration does not alter the legal status of a property, convey the right of public access, nor represent an official wildlife sanctuary.
Landscape ecology	The science of studying and improving relationships between ecological processes in the environment and particular ecosystems. This is done within a variety of landscape scales, development spatial patterns, and organizational levels of research and policy.
Least concern	Under the Queensland *Nature Conservation Act 1992*, a regulation may prescribe native wildlife as least concern wildlife if the wildlife is common or abundant and is likely to survive in the wild.

Report terminology	Definitions
Local Government Area (LGA)	The area defined by the Queensland Boundary Commissioner as being the Sunshine Coast Council area.
Native vegetation	Is a combination dataset made up of state and council vegetation mapping datasets.
Nature Refuge	A nature refuge is a voluntary agreement between a landholder and the Queensland Government. A nature refuge agreement acknowledges a commitment to protect land with significant conservation value, while allowing compatible and sustainable land uses to continue.
NC Act	*Nature Conservation Act 1992* is the Queensland government's central piece of environmental legislation. It provides a legal framework to protect and manage state, nationally and internationally important flora, fauna and ecological communities.
Non-remnant vegetation	Council developed local vegetation mapping derived from LiDAR and geo-processing technology.
Of Concern	A regional ecosystem is listed as 'of concern' under the Act if: remnant vegetation is 10–30% of its pre-clearing extent across the bioregion; or. more than 30% of its pre-clearing extent remains and the remnant extent is less than 10,000ha.
Pre-clearing regional ecosystem	Pre-clearing vegetation is defined by the *Vegetation Management Act 1999 (amended 2009)* and depicted by the Queensland Herbarium's regional ecosystem mapping as the vegetation present before clearing
Protected estate	The protected estate includes land parcel tenures that have a legal protection mechanism and/or gazettal applied to ensure a level of environmental conservation on the title and over the lot.
Regional Ecosystem	Queensland Government's native vegetation mapping methodology developed by Sattler and Williams (1999) and maintained by the Queensland Herbarium. Updated versions of the dataset are released periodically.
Remnant vegetation	As defined under the *Vegetation Management Act 1999* regional ecosystems.
Rural	For the purposes of the Biodiversity Report Rural as defined under the *ShapingSEQ - South East Queensland Regional Plan 2017* and the *Sunshine Coast Planning Scheme 2014* as those areas outside of a rural and rural residential zoned area
Statutory Covenant	A statutory covenant is a legally binding written agreement entered into by the landowner to protect, preserve and often enhance environmental features on private property. They can also be used to better control built form or development on private properties.
Threatened ecological communities	Threatened ecological community is a term used in Australia for ecosystems that are in danger of being lost due to some threatening process. For example, at a federal level threatened ecological communities are identified and protected under the *Environment Protection and Biodiversity Conservation Act 1999*.
Threatened plants and animals	Native plants and animals consideration at risk of serious decline or even extinction. These are typically listed under relevant commonwealth or state legislation. The key threats to species are loss, degradation and fragmentation of habitat, invasive species and altered fire regimes Other threats include unsustainable use and management of natural resources, changes to the aquatic environment and water flows and climate change
Urban	For the purposes of the Biodiversity Report Urban includes Urban Footprint and Rural Living Areas as defined by the *ShapingSEQ - South East Queensland Regional Plan 2017* and the *Sunshine Coast Planning Scheme 2014* and are those areas where residential, commercial and industrial development and subdivision is permissible.

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