



# A Biodiversity Planning Assessment for the Wet Tropics Bioregion

Version 1.1  
Expert Panel Report

Prepared by: Biodiversity Assessment, Queensland Herbarium, Science and Technology Division, Department of Environment and Science.

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## Acronyms and abbreviations

ALA	Atlas of Living Australia
BAMM	Biodiversity Assessment and Mapping Methodology
BPA	Biodiversity Planning Assessment
BRB	Brigalow Belt Bioregion
BVG	Broad Vegetation Group
CORVEG	The site survey database maintained by the Queensland Herbarium
CYP	Cape York Peninsula bioregion
DCDB	Digital Cadastral Database - a spatial database of Queensland property boundaries.
DES	Department of Environment and Science
EHP	Department of Environment and Heritage Protection
EIU	Einasleigh Uplands Bioregion
EVNT	Endangered, vulnerable or near threatened under the Queensland <i>Nature Conservation Act 1992</i> and Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> .
EPBC	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
GIS	Geographic information system
HERBRECS	Specimen based register of plants held by Queensland Herbarium
NCA	<i>Nature Conservation Act 1992</i>
NNSW	Northern New South Wales
NP	National park
OUV	Outstanding Universal Values
QHFD	Queensland Historical Fauna Database
QPWS	Queensland Parks and Wildlife Service
RE	Regional ecosystem
REDD	Regional Ecosystems Description Database
SDRN	State Digital Road Network
SEQ	South East Queensland bioregion
SPA	<i>Sustainable Planning Act 2009</i>
WILDNET	Department of Environment and Science (DES)'s corporate wildlife application containing

	records and other information on Queensland flora and fauna
WET	Wet Tropics Bioregion
WTMA	Wet Tropics Management Authority
WTWHA	Wet Tropics World Heritage Area

# 1 Introduction

Long recognised as one of Australia's iconic regions, the Wet Tropics bioregion is a significant biodiversity hotspot. The Wet Tropics World Heritage Area (WTWHA) alone houses more than 2,800 vascular plant species, of which more than 700 are endemic, approximately 670 vertebrate animal species and the richest invertebrate fauna in Australia (WTMA 2019; WTMA 2017). The natural values of the area are one of the cornerstones that underpin the World Heritage status for much of the bioregion.

This report details the results of expert panels used to produce a Biodiversity Planning Assessment (BPA) for the Wet Tropics bioregion. To date, BPA results have been used to inform a wide range of assessment, planning and referral activities including:

- regional plans and local planning schemes
- government advice under the *Environmental Protection Act 1994 and Planning Act 2016*
- State government tenure dealings including identification of protected areas
- habitat mapping for threatened species.

Biodiversity Planning Assessments results have also been used by environmental consultants, environmental non-government organisations and natural resource management groups to:

- identify priorities for protection, regulation or rehabilitation of ecosystems
- contribute to impact assessment of large-scale development
- provide input to socio-economic evaluation and prioritisation processes
- inform natural resource management plans.

Specifically, this BPA will be an important information layer for the review of the Wet Tropics Management Plan, to support future conservation planning and as an input into the mapping of those ecological Outstanding Universal Values (OUV) that support the World Heritage listing.

The Biodiversity Assessment and Mapping Methodology (BAMM, version 2.2) (EHP 2014) was developed to provide a consistent approach for assessing biodiversity values at the landscape scale using vegetation mapping data generated or approved by the Queensland Herbarium. The BAMM is being used by the Department of Environment and Science (DES) to generate BPAs for all bioregions across Queensland. The BAMM is continually being refined and is published on the DES website at <https://www.qld.gov.au/environment/plants-animals/biodiversity/planning/>. The methodology was modified from an approach initially developed by Chenoweth EPLA (2000), and the results can be used by DES staff, other government departments, local governments or members of the community to advise on a range of decision-making processes.

The methodology is applied in two stages (Figure 1). The first stage uses existing data to assess seven diagnostic criteria. These account for ecological concepts including rarity, diversity, fragmentation, habitat condition, resilience, threats, and ecosystem processes. They are diagnostic in that they are used to filter available data and provide a 'first-cut' determination of significance. This initial assessment is generated on a geographic information system (GIS) and is then refined using a second group of expert panel criteria. These criteria rely more upon expert opinion than on quantitative data, and focus on information that may not be available uniformly across the bioregion. A generalised terms of reference for the expert panels is provided in EHP (2014).

This project was led by DES with significant contributions from regional stakeholders, experts and the Wet Tropics Management Authority (WTMA). This report should be read in conjunction with the accompanying Summary Report (DES 2019). For convenience, the Wet Tropics Bioregion is hereafter referred to as WET.

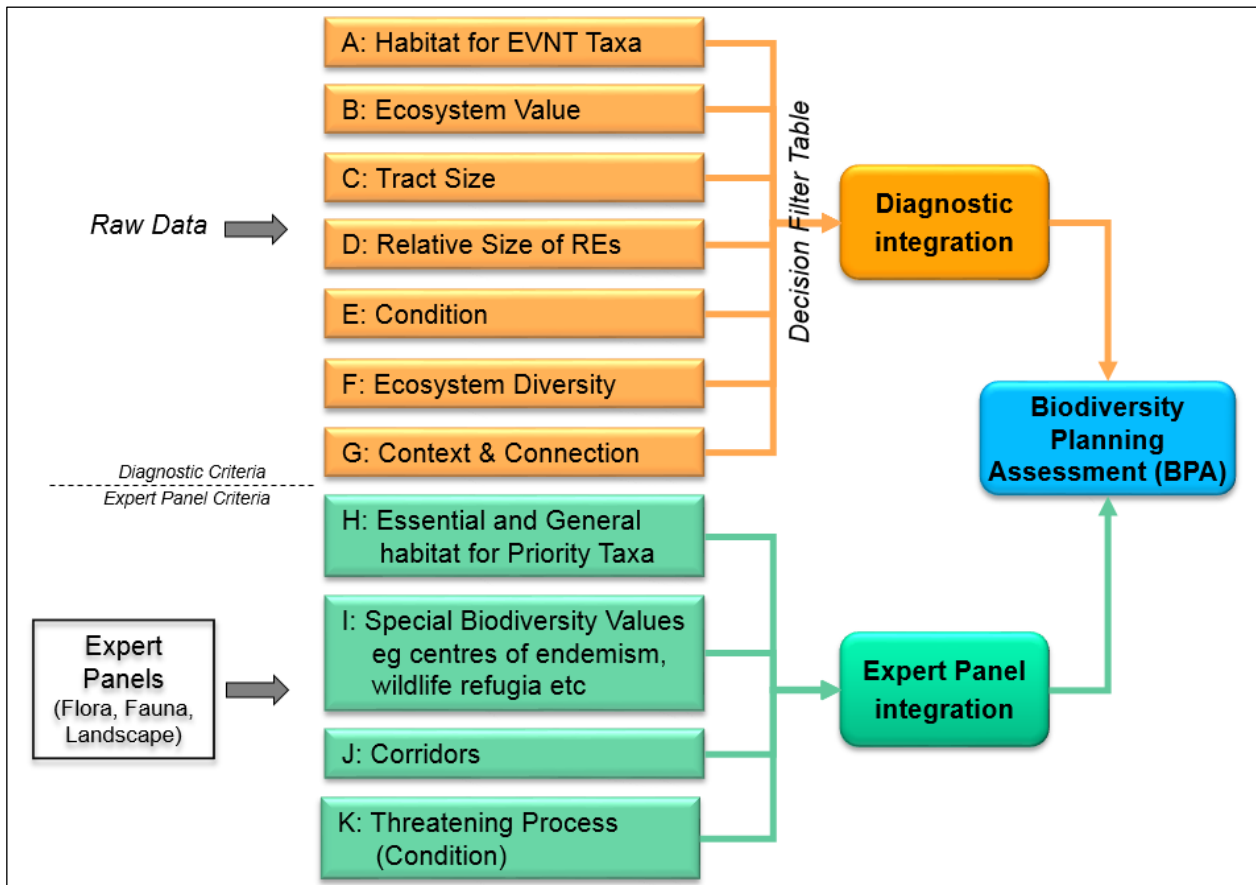


Figure 1. Biodiversity Assessment and Mapping Methodology (BAMM) process



## 2 Method

### 2.1 Study area

Covering 1.99 million hectares the WET is the second smallest bioregion in Queensland (Accad et al. 2017), extending for approximately 415km from just south of Cooktown to north of Townsville, including some offshore islands and a prominent outlier at Mt Elliot further south (Figure 2). The WET landscape is dominated by a series of coastal and sub-coastal granite, metamorphic and basalt ranges and plateaus. This includes Mt Bartle Frere at 1,622m, the highest mountain in Queensland. These uplands are cut by several major eastward flowing rivers (e.g. Herbert, Johnstone, Daintree, Tully and Mulgrave-Russell rivers) whose alluvial valleys and intervening coastlines form the only lowland parts of the region. Soils are mostly deep and derived from the underlying granite, metamorphic and volcanic rocks (Stanton et al. 2014). Rainforest occurs on highly-weathered soils with high organic matter content (Spain 1991). The WET is a region of contrasting climates with cool mountain summits and plateaus (minimums down to 5°C), warm humid lowlands (maximums up to 35°C). While the mean average rainfall is around 1,300mm, it can reach 12,000mm on Mt Bellenden Ker (Nix & Switzer 1991; WTMA 2016a). The hot wet summers also regularly experience Tropical cyclones resulting in significant rainfall event across the region.

The early Tertiary saw much of Australia covered by rainforest but changing climate saw major contraction to just 1 per cent of land surface in late Pliocene-early Pleistocene (White 1986). The WET represents the largest remnant of Australia's last major greening, with biotic elements that can be traced back to Gondwanan origins. Climatic oscillations during the Quaternary has seen expansion and contraction in the extent, as well as changes in composition, of the wet forest of the WET (Barlow & Hyland 1988). Also, increasing proximity to Asia has seen inclusion of genera from this region. Patches of closed forest, especially on certain mountain ranges, but also in some lowland river valleys that have remained relatively stable over geological time (Hilbert 2008; VanDerWal et al. 2009), have acted as refugia for relictual taxa foci for speciation and endemism. Of an estimated 4,374 terrestrial vascular plant species in the WET, 745 (17 per cent) are restricted/largely restricted to the bioregion and 322 (7.5 per cent) are listed as threatened (critically endangered, endangered, vulnerable or near threatened) under State or Commonwealth legislation (DES 2018).

High topographical, edaphic and climatic gradients have resulted in a high diversity of vegetation types. In terms of numbers of regional ecosystems per unit area, with 185 regional ecosystems (RE) the WET is the richest bioregion in Queensland (Neldner et al. 2017). Lowland vegetation types range from mangroves, beach scrub and palm forest to mesophyll rainforest, *Melaleuca* swamp/woodland and eucalypt woodland (Goosem et al. 1999). In the upland areas various forms of rainforest (simple to complex notophyll/microphyll/mesophyll) and wet sclerophyll forest dominate with some eucalypt forest along the drier western margin (Figure 3). Communities such as cloud forest (simple notophyll vine-forest and simple microphyll vine-fern thicket) are restricted to the highest elevations above 1,200m (Goosem et al. 1999). Another distinct habitat comprises boulder fields and rock pavements that are inhabited by a number of endemic plants and animals.

The most dramatic changes in WET vegetation have been associated with European settlement. In the past 200 years there has been extensive clearing of the lowlands and the Atherton Tableland for agriculture. Currently the amount of native vegetation remaining in these sub-regions is 41–49 per cent, compared to 81–98 per cent in the sub-regions dominated by mountains (Accad et al. 2017). While only littoral rainforest and broad-leaved tea-tree swamps currently protected under the EPBC, remnant coastal lowland rainforest in the WET have been assessed as endangered (Metcalf & Lawson 2015), particularly those on alluvial soils.

Rainforest refugia of upland areas in eastern Queensland from Windsor Tableland in the WET, to the MacPherson Range on NSW border, form the mesotherm archipelago which enable temperate adapted taxa, either as distinct species or subspecies, to exist in subtropical and tropical regions (Nix 1993). These topographical isolates, combined with habitat stability in the WET, have led to remarkable level of endemism with taxa being restricted to the bioregion or even individual peaks within the region. For example, 34 per cent of frog species in the bioregion are restricted to the WET (WTMA 2016a). Many of the endemic vertebrate taxa are currently listed as threatened. Endemic invertebrates (e.g. beetles and spiders) can also have highly localised altitudinal distributions within the WET, while several taxa exhibit Gondwanan origins being found elsewhere in distant locations in southern Australia, New Zealand, South America and New Caledonia (Monteith & Davies 1991). Nearly 45 per cent of Australia's vertebrate taxa have been recorded in the WET with large tracts identified as significant biodiversity hotspots (e.g. Birdlife Australia 2018).

Land use in the WET is primarily agriculture, especially sugar cane and tourism. The major population centres are situated either on or near the coast, e.g. Cairns, Tully, Ingham and Innisfail, or on the tablelands, e.g. Atherton. Approximately 48 per cent of the bioregion is within protected areas (national parks, conservation parks, or resource reserves), most of which lies in the WTWHA that covers 45 per cent of the bioregion.

Key threats to biodiversity values within the bioregion include:

- habitat loss and hydrological changes due to clearing for agriculture and urbanisation (Laurance & Goosem 2008; WTMA 2013)
- climate change (Balston 2008; Williams et al. 2008)
- invasion by exotic and non-local native plants and animals, both terrestrial and freshwater (Goosem 2008; Congdon & Harrison 2008; WTMA 2013)
- changed fire regimes, e.g. loss of sclerophyll forest/woodland due to invasion by rainforest (Hilbert 2008; Stanton et al. 2014)
- disease, e.g. impact of chytrid fungus leading to the extinction of four species and decline in upland populations of three others (WTMA 2013)
- stochastic events, e.g. cyclones (Turton 2008 and references therein). Post-cyclone fires in disturbed forests (Unwin et al. 1988) result in ongoing degradation with a repeated cycle of invasion by flammable grasses and more intense fires.

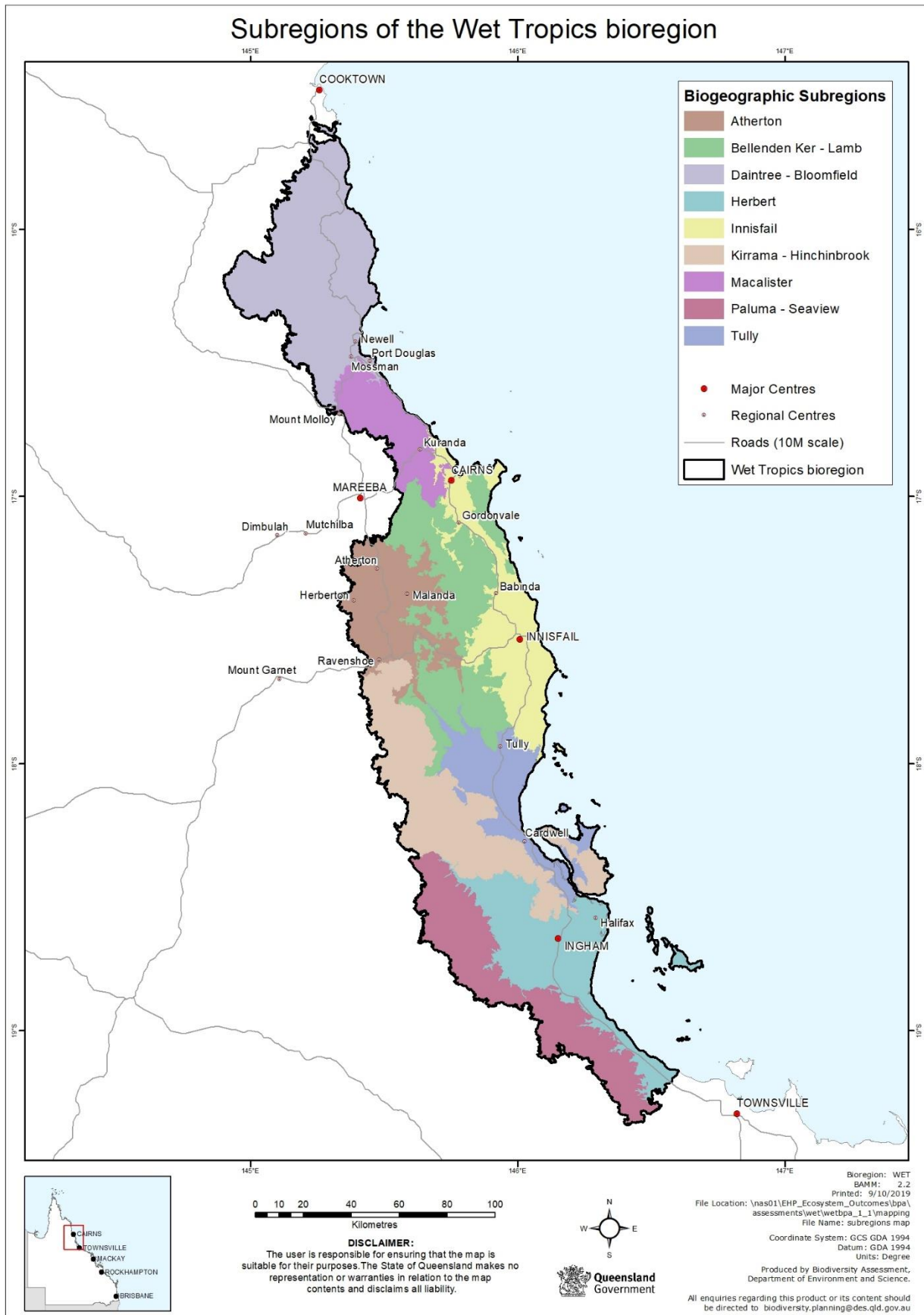


Figure 2. Subregions of the Wet Tropics bioregion

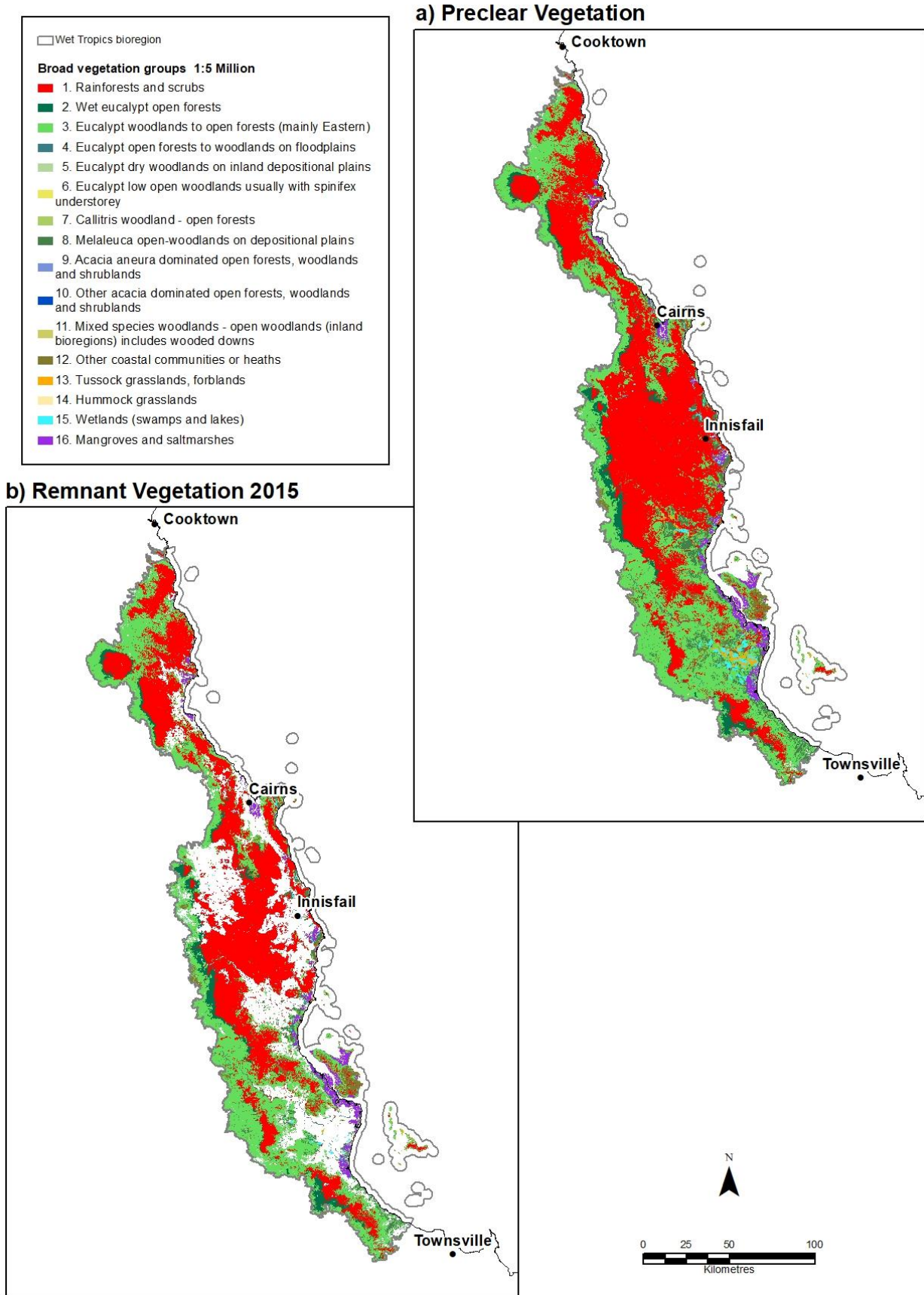


Figure 3. Broad vegetation groups across the Wet Tropics bioregion

## 2.2 Expert panel

A series of expert panel workshops were held in Cairns from 17 to 24 April, 2018. Expert panels play a significant role in the development of a BPA. The aim of the expert panel process is to:

- identify additional information sources including expert knowledge, technical reports and papers
- elicit expert opinion where quantitative data is not available uniformly across the bioregion.

Biodiversity values and issues addressed at the expert panel workshops include:

- evaluating point records and habitat models for endangered (E), vulnerable (V) and near threatened (NT) taxa to improve spatial accuracy and precision
- identifying non-EVNT taxa to be treated as priority species under Criterion H
- capturing any additional records available from expert panel members for use in Criterion A and H
- identifying areas with special biodiversity values (Criterion I)
- identifying data gaps.

The WET expert panels comprised invited persons with knowledge of the biodiversity of the bioregion and a sound understanding of ecological conservation and management principles. As far as possible, the combined expertise of participants covered the whole WET and a range of key stakeholders (e.g. local government, regional Natural Resource Management (NRM) bodies, state government, educational institutions). The terms of reference for expert panels are provided in EHP (2014). All WET BPA v1.1 expert panel participants are listed in Table 1.

The output of the panel process aims to be justifiable and transparent. Data that is captured digitally and mapped is a result of consensus within the panel and ratified by the Manager, Biodiversity Assessment, DES.

Significance ratings of State, Regional or Local are attributed to the decisions produced at the expert panels. In general, ratings are only attributed by the panel to areas of remnant vegetation, however, in some instances panel identified special areas have incorporated areas of non-remnant vegetation.

The ratings used by the panel were described as:

**State significance** - areas assessed as being significant for biodiversity at the bioregional or state scales. Includes areas assessed as being significant at national or international scales.

**Regional significance** - areas assessed as being significant for biodiversity at the sub-bioregional scale. These areas have lower significance for biodiversity than areas assessed as being of State significance.

**Local significance** - areas assessed as being significant for biodiversity at a local scale. These areas have lower significance for biodiversity than areas assessed as being of Regional significance.

**Table 1. Expert panel participants**

Name	Organisation	Flora	Fauna	Landscape
Eda Addicott	Queensland Herbarium, DES	Attended		
Sandra Abell	Wet Tropics Management Authority, DES	Attended	Attended	Attended
Mat Bradford	CSIRO			Attended
Lorraine Briggs	Wet Tropics Management Authority	Attended		Attended
Chris Burwell	Queensland Museum, DES		Out-of-session	
Terry Carmichael	Wet Tropics Management Authority, DES	Attended	Attended	Attended
Campbell Clark	Wet Tropics Management Authority, DES			Attended
Wendy Cooper	Community Member	Attended		
Darren Crayn	Australian Tropical Herbarium/James Cook University			Attended
Brendan Ebner	CSIRO		Attended	
Ashley Field	Queensland Herbarium, DES	Attended		
Andrew Ford	CSIRO	Attended		
Amanda Freeman	The School for Field Studies			Attended
Miriam Goosem	James Cook University			Attended
Steve Goosem	Ex- Wet Tropics Management Authority, DES			Attended
Desiree Gowell	Wet Tropics Management Authority, DES			Attended
Robert Harrison	World Heritage, DES			Attended
Andrew Hedges	Queensland Parks and Wildlife Service, DES			Attended
Ian Holloway	Queensland Parks and Wildlife Service, DES			Attended
Bruce Jennison	Wet Tropics Management Authority, DES	Attended	Attended	Attended
Blake Johnston	Wet Tropics Management Authority, DES	Attended	Attended	
Karin Koch	Queensland Museum, DES		Out-of-session	
Christine Lambkin	Queensland Museum, DES		Out-of-session	
Susan Laurance	James Cook University		Attended	Attended
Golo Maurer	Birdlife Australia		Attended	
David McFarland	Biodiversity Assessment Team, DES		Out-of-session	
Sean McNamara	Wet Tropics Management Authority, DES	Attended		
Andrew Mitchell	Ecologist	Attended		Attended

Name	Organisation	Flora	Fauna	Landscape
Mark Newton	Queensland Herbarium, DES	Attended		Attended
Tony O'Malley	Terrain, Wet Tropics NRM			Attended
Rob Raven	Queensland Museum, DES		Out-of-session	
Chris Roach	Queensland Parks and Wildlife Service, DES	Attended	Attended	Attended
Greg Smyth	World Heritage, DES			Attended
John Stanisic	Queensland Museum, DES		Attended	
Peter Stanton	Australian Wildlife Conservancy			Attended
Carly Starr	Wet Tropics Management Authority, DES		Attended	
Travis Sydes	Far North Queensland Regional Organisation of Councils			Attended
Bruce Wannan	Queensland Herbarium, DES			Attended
David Westcott	CSIRO		Attended	Attended
Stephen Williams	James Cook University			Attended
Tim Wong	Wet Tropics Management Authority, DES			Attended
Stuart Worboy	Australian Tropical Herbarium	Attended		
Susan Wright	Queensland Museum, DES		Out-of-session	
Hans Wurzel	Wet Tropics Management Authority, DES			Attended
<b>Support staff</b>				
Stephen Trent	Biodiversity Assessment Team, DES	Attended	Attended	Attended
Steven Howell	Biodiversity Assessment Team, DES	Attended		
Shane Chemello	Biodiversity Assessment Team, DES	Attended	Attended	Attended
Simon Goudkamp	Biodiversity Assessment Team, DES			Attended
Courtney Duncan	Biodiversity Assessment Team, DES	Attended	Attended	Attended
Catherine Walsh	Biodiversity Assessment Team, DES		Attended	

## 2.3 Expert panel considerations format

The expert panel workshops used an interactive approach of GIS software, spreadsheets, reports, laptops and data projectors. Prior to the panel being convened, relevant information was collated and disseminated to the workshop participants.

Resources made available to the participants during the workshop proceedings included:

- copy of the BAMB (EHP 2014)
- information from databases such as HerbreCs, Corveg, Queensland Historical Fauna Database (QHFD) and WildNet

- available regional ecosystem mapping and 1:100,000 topographic maps
- relevant reports and published literature
- ancillary GIS layers provided for local reference including roads and cadastral information, drainage, protected areas including nature refuges and recently captured high resolution imagery.

Appendix 1 provides a full list of the resources made available at the panel workshops.

### 2.3.1 Taxa (Criteria A and H)

Flora and fauna taxa considered by the expert panel were EVNT species listed under the Queensland *Nature Conservation Act 1992* (NCA) or the Australian Government *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) and priority (non-EVNT) taxa including those identified through the Back on Track species prioritisation framework and other natural resource assessments focused on the bioregion. Records were compiled using WildNet, Corveg, HerbreCs, QHFD and from project specific data sets obtained from other sources. Other species were nominated, discussed and either added or discarded from the priority taxa list by workshop participants prior to and during the panel workshops. Experts were asked to identify known preferences of species for particular habitat features, e.g. specific REs or geology and landscape position.

Selected species records were interactively reviewed using GIS commencing with EVNT species then priority species. Participants were asked to accept, add, shift or exclude records based upon their expert knowledge. Panel participants accepted records located within their known distributions, at known locations or if collected by a reliable source. They identified records that were incorrectly located and added records either during the workshop proceedings or with follow-up consultation.

Records were excluded for the following reasons:

- incorrect coordinates - a mismatch between location description and coordinates
- is a cultivated plant
- duplicate records which had been cited by a number of sources
- records with a precision > 2,000m
- records collected before 1950 (flora) or 1975 (fauna).

For most BPAs, priority taxa are identified for each bioregion on the basis of one or more values and the written opinion of experts. These values include:

1. Taxa at risk - taxa that, from a bioregional perspective, are under threat and consequently have had significant population and/or range declines based on scientific evidence and/or expert opinion.
2. Taxa of scientific interest as relictual (ancient or primitive) - taxon (e.g. species or other lineage) that is the sole surviving representative of a formerly diverse group. Some flora and fauna taxa have been linked with important stages in the Earth's evolutionary history.
3. Endemic taxa - taxa which have at least 75 per cent of their geographical range within one bioregion (Commonwealth of Australia 1995, Queensland CRA/RFA Steering Committee 1998).
4. Significant taxa - these species identified by experts as important from a bioregional perspective as they exhibit characteristics such as: taxa which have limited distribution in Queensland mostly within the bioregion, or with a restricted range bordering two or more bioregions; the species may be found outside the State within Australia and/or overseas; the species in the bioregion exhibits characteristics or traits not evident elsewhere in its range; the bioregion is a stronghold for the species.
5. Taxa important for maintaining genetic diversity such as complex patterns of genetic variation - species that exhibit a recognised variation in genetic composition across the bioregion, or with respect to other bioregions. This could include taxa that appear to comprise several cryptic taxa.
6. Disjunct species populations - populations broken by climatic, topographic or edaphic barriers bridged by long distance dispersal of propagules; or seen as insurmountable barriers to dispersal requiring a geological (historical) rather than a behavioural (ecological) explanation for their presence (Groves 1981).
7. Taxa functionally important to ecosystem integrity - plant or animal taxa that play a unique and crucial role in the way an ecosystem functions, and whose decline or disappearance would see a dramatic change in the nature of that ecosystem. The contributions of such species are large compared to the species' prevalence in the habitat. They are often, but not always, a predator. A few predators can control the distribution and population of large numbers of prey species.
8. Taxa performing a role as an ecological indicator of ecosystem integrity - can be of many different types. They can be used to reflect a variety of aspects of ecosystems, including biological, chemical and physical integrity. Indicators are used to communicate information about ecosystems and the



impact human activity has on ecosystems.

9. Taxa vulnerable to impacts of climate change - species that are considered to be adversely affected by the predicted changes in climate, e.g. increasing temperatures, sea level rise and increasing frequency of extreme weather events (drought, flood and cyclones). Species can only be listed under this reason if there is sufficient knowledge of species' biology and its interaction with climate that would support an assessed impact under climate change scenarios.

The panel also assigns a significance category of "Priority type A", or "Priority type B" for each nominated taxa.

### 2.3.1.1 Modified priority species eligibility specific to the Wet Tropics bioregion.

The WET is rather unique in having a very large number of endemic species. It was therefore decided to modify the eligibility criteria for a species to be included as priority as follows:

Only taxa considered: at risk - eligibility criteria 1, keystone species - eligibility criteria 7, or climate change risk - eligibility criteria 9 were to be included as priority species. Only one of these need apply.

"Priority A" importance was assigned to those species considered at "High" risk under eligibility criteria 1 or 9, or where in combination with another criteria, i.e. narrow endemic (subset of eligibility criterion 3), and/or relictual (criterion 2) taxa.

"Priority B" importance was assigned to the remainder.

Decisions were recorded in the spatial database and minutes, as well as habitat information, the threatening processes identified for each species, and the nomination of additional experts to be consulted regarding certain records or species. Individuals were also consulted following the workshops to clarify some recommendations and to add records.

### 2.3.2 Special area considerations (Criteria I and J)

The flora and fauna panels nominated areas of special biodiversity value for inclusion under Criterion I. Panels assigned State, Regional, or in some instances Local Significance to the nominated areas on the basis of presence of at least one of the following elements:

- Criterion Ia - the area supports a number of taxa endemic to the WET
- Criterion Ib - wildlife refugia (Morton et al. 1995), for example, mound springs, caves, wetlands, gorges, mountain ranges and topographic isolates that act as shelters from clearing, stochastic events (fire, flood, drought) and exotic animals
- Criterion Ic - the area supports a number of taxa that are present in other bioregions and have a limited number of occurrences in the WET bioregion (outliers/disjunct populations)
- Criterion Id - the area supports a number of taxa at or near the limits of their respective geographical ranges
- Criterion Ie - the area supports high species richness
- Criterion If - the area supports concentrations of relictual (ancient and primitive) taxa
- Criterion Ig - the area contains a regional ecosystem or regional ecosystems that exhibit variation in species composition
- Criterion Ih - an artificial waterbody or managed/manipulated wetland of ecological significance
- Criterion Ii - the area contains high relative densities of habitat shelters (i.e. nesting or resting shelters - hollow-bearing trees, caves, rock outcrops etc.) that provide animal habitat
- Criterion Ij - the area is used by significant numbers of individuals for roosting or breeding
- Criterion Ik - climate change refugia.

The biodiversity issues addressed at landscape panel workshops were:

- nomination of new special areas with landscape values - these may include areas that have been identified by both the flora and fauna panels which warrant a landscape scale decision, or areas that have not been previously identified under Criterion I
- review of corridors and linkages, based on consideration of the overall configuration of remnant and other vegetation and areas where landscape restoration would be desirable (Criterion J).

The above criteria are focussed on terrestrial values with some consideration of aquatic values. The importance of specific aquatic values such as habitat dependences associated with aquatic species, ecosystem processes and other aquatic criteria are assessed in more detail through application of the Aquatic Biodiversity Assessment and Mapping Methodology (AquaBAMM, Clayton et al. 2006).

The diagnostic criteria in BAMM use prescribed thresholds for determining the relative importance of individual

criteria and standard rules for assigning biodiversity significance based on combinations of values present. However, BAMB (EHP 2014) deliberately provides non-specific guidance on how expert panels are to assess and assign significance ratings to expert criteria. The WET expert panels used a consensus approach in assigning overall significance. Where there was uncertainty or further work needed, tasks were assigned for follow-up. In some cases, the areas were specifically identified by RE polygons, whilst in others, a bounding box was drawn to indicate the general location and specific recommendations provided which allow later spatial delineation using a combination of other vegetation, geology or landform mapping. Subsequently the areas were mapped, and distributed to the expert panel for review and then finalised.

### **2.3.3 Corridors (Criterion J)**

Landscape scale corridors have been defined and mapped at a statewide level for most of the state. The network is being expanded as BPAs are completed for additional bioregions. Their broad purpose is to provide for ecological and evolutionary processes by:

- maintaining long term evolutionary/genetic processes that allow the natural change in distributions of species and connectivity between populations over long periods of time
- maintaining landscape/ecosystems processes associated with geological, altitudinal and climatic gradients, to allow for ecological responses to climate change
- maintaining seasonal migrations and movement of fauna
- maximising connectivity between large tracts/patches of remnant vegetation
- identifying key areas for rehabilitation and offsets.

Corridors routes may be selected to reflect:

- major watershed and catchment boundaries
- intact river systems
- major altitudinal/geological/climatic gradients
- connectivity between remnant vegetation in good condition
- linkages between bioregions
- linkages between permanent waterholes.

The methods used to identify bioregional terrestrial and riparian corridors, and gaps and critical weaknesses in terrestrial corridors, are outlined in EHP (2018). Corridors that form part of the statewide network are assigned State significance. Other corridors providing connectivity at a sub-regional scale are assigned Regional significance.

### **2.3.4 Threatening processes: condition (Criterion K)**

The condition of remnant vegetation is affected by threatening processes such as clearing, weeds, feral animals, grazing and burning regime, selective timber harvesting/removal, salinity, soil erosion and climate change. A consistent assessment of condition for whole bioregions is not yet possible under the diagnostic criteria. In lieu of this, Criterion K can be used to upgrade or downgrade an area's overall biodiversity significance based upon expert judgement of an area's habitat quality.

In selected instances, previous expert panels nominated to upgrade the overall significance of areas which represented outstanding, or comparatively intact examples of specific habitats which, elsewhere, were largely degraded.

### 3 Results

Outcomes from the flora, fauna and landscape panels are recorded in the following sections.

#### 3.1 Flora taxa considerations (Criteria A and H)

Criteria A and H attribute significance to areas based on the presence of EVNT taxa scheduled under the NCA or the EPBC, or, the presence of priority species. The WET flora expert panels identified 384 species for inclusion in Criteria A and H. Table 2 summarises the categories of taxa. The standard BAMB record filtering rules were applied (EHP 2014).

**Table 2. Summary of flora taxa considered by the expert panel for Criteria A and H**

\* There is one species that is listed as "presumed extinct" and is not included in the count below. Recent specimens have been located, therefore, the species records have been included in the spatial dataset despite its official status.

	Endangered	Vulnerable	Near Threatened	Priority (non-EVNT) taxa	Total
Number of taxa considered	59*	146	101	78	384

##### 3.1.1 Habitat for endangered, vulnerable and near threatened flora taxa (Criterion A)

The panel identified and selectively reviewed species records to define a list of 306 WET EVNT flora taxa (Table 3). A number of taxa were excluded from the table below either because there were no (or too few) reliable records in the WET or, based upon expert opinion, the taxa was considered not to occur in the bioregion (refer to [Appendix 2](#)). For inclusion in the WET BPA the records were first filtered as described in the section (2.3.1) and subsequently buffered by twice the precision with a minimum of 300m, and a maximum of 2km.

**Table 3. WET - endangered, vulnerable and near threatened flora taxa (Criterion A)**

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>Acacia guymeri</i>		V		
<i>Acacia homaloclada</i>		V		
<i>Acacia hylonoma</i>		V		
<i>Acacia longipedunculata</i>		NT		
<i>Acacia lumholtzii</i>		V		
<i>Acacia purpureopetala</i>	purple wattle	V	CE	Not strictly a Wet Tropics species, but occurs in the bioregion (valid records)
<i>Acacia tingoorensis</i>		V		
<i>Acalypha lyonsii</i>		V		
<i>Aceratium ferrugineum</i>	rusty carabeen	NT		Wet Tropics endemic
<i>Aceratium sericoleopsis</i>	silky aceratium	NT		Wet Tropics endemic
<i>Acianthus sublestus</i>		NT		
<i>Acriopsis emarginata</i>	pale chandelier orchid	V	V	
<i>Acronychia acuminata</i>		NT		Wet Tropics endemic

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>Acrotliche baileyana</i>		NT		Wet Tropics endemic
<i>Actephila foetida</i>		V	V	Wet Tropics endemic
<i>Agathis microstachya</i>	bull kauri	NT		Wet Tropics endemic
<i>Aglaia brassii</i>		NT		Wet Tropics endemic
<i>Albizia</i> sp. (Windsor Tableland B.Gray 2181)		V		Wet Tropics endemic
<i>Alloxylon flammeum</i>		V	V	Wet Tropics endemic
<i>Alpinia hylandii</i>		NT		Wet Tropics endemic
<i>Amphineuron immersum</i>		E		
<i>Amyema plicatula</i>		C	E	
<i>Anoectochilus yatesiae</i>	jewel orchid	NT		Wet Tropics endemic. Collection a significant threatening process
<i>Antrophyum plantagineum</i>		NT		
<i>Antrophyum subfalcatum</i>		V		
<i>Aphyllorchis anomala</i>		NT		
<i>Aphyllorchis queenslandica</i>		NT		
<i>Aponogeton bullosus</i>		E	E	Wet Tropics endemic. Collector targeted
<i>Aponogeton lancesmithii</i>		E		Wet Tropics endemic. Collector targeted
<i>Aponogeton proliferus</i>		E	E	Wet Tropics endemic. Collector targeted
<i>Archidendron kanisii</i>		E		Wet Tropics endemic
<i>Archidendropsis xanthoxylon</i>	yellow siris	NT		Wet Tropics endemic
<i>Archontophoenix myolensis</i>		E	E	Wet Tropics endemic
<i>Ardisia fasciculata</i>		V		Wet Tropics endemic. Under IUCN technically should have been classified as extinct. There are no valid records
<i>Arenga australasica</i>		V		
<i>Argophyllum cryptophlebium</i>		V		Wet Tropics endemic

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>Argyrodendron</i> sp. (Boonjie B.P.Hyland RFK2139)		NT		Wet Tropics endemic
<i>Arytera dictyoneura</i>		NT		
<i>Asplenium normale</i>		V		
<i>Asplenium unilaterale</i>		V		
<i>Asplenium wildii</i>		V	V	Wet Tropics endemic
<i>Austrobuxus megacarpus</i>		NT		Wet Tropics endemic
<i>Austromuelleria trinervia</i>		NT		Wet Tropics endemic
<i>Austromuelleria valida</i>		V		Wet Tropics endemic
<i>Banksia plagiocarpa</i>		V		Wet Tropics endemic
<i>Barongia lophandra</i>		V		Wet Tropics endemic
<i>Beilschmiedia castrisinensis</i>		NT		Wet Tropics endemic
<i>Boea kinnearii</i>		E		Wet Tropics endemic
<i>Breynia macrantha</i>		V	V	
<i>Bryobium dischoreense</i>		V		
<i>Bryobium irukandjianum</i>		V		
<i>Bubbia queenslandiana</i> subsp. <i>australis</i>		V		Wet Tropics endemic
<i>Bubbia queenslandiana</i> subsp. <i>queenslandiana</i>		NT		Wet Tropics endemic
<i>Bubbia whiteana</i>		V		Wet Tropics endemic
<i>Buchanania mangooides</i>		V		Wet Tropics endemic
<i>Buckinghamia ferruginiflora</i>		V		Wet Tropics endemic
<i>Bulbophyllum boonjee</i>		V		Wet Tropics endemic
<i>Bulbophyllum grandimesense</i>		V		Wet Tropics endemic
<i>Bulbophyllum windsorensense</i>		V		Wet Tropics endemic
<i>Bulbophyllum wolfei</i>		V		Wet Tropics endemic
<i>Calamus aruensis</i>		V		

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>Callerya pilipes</i>	northern wisteria	NT		Wet Tropics endemic
<i>Calochilus psednus</i>		E	E	
<i>Calochlaena villosa</i>		NT		
<i>Canarium acutifolium</i>		V	V	An EIU species with a few records in the Wet Tropics
<i>Canarium acutifolium</i> <i>var. acutifolium</i>		V	V	
<i>Carex breviscapa</i>		V		
<i>Carronia pedicellata</i>		E	E	Wet Tropics endemic
<i>Ceratopetalum corymbosum</i>		V		Wet Tropics endemic
<i>Ceratopetalum macrophyllum</i>		NT		Wet Tropics endemic
<i>Cheilocostus potierae</i>		E		
<i>Chiloglottis longiclavata</i>		NT		Wet Tropics endemic
<i>Chingia australis</i>		E	E	Wet Tropics endemic
<i>Cinnamomum propinquum</i>	pepperwood	V		Wet Tropics endemic
<i>Citrus inodora</i>		V		Wet Tropics endemic
<i>Comesperma praecelesum</i>		V		Wet Tropics endemic
<i>Cooktownia robertsii</i>		E		Wet Tropics endemic
<i>Corsia dispar</i>		NT		Wet Tropics endemic
<i>Corunastylis alticola</i>		V		
<i>Corybas abellianus</i>	nodding helmet orchid	NT		
<i>Corybas cerasinus</i>		NT		
<i>Corymbia leptoloma</i>		V	V	Wet Tropics endemic
<i>Corymbia rhodops</i>	red-throated bloodwood	V	V	An EIU species with a few records in the Wet Tropics
<i>Crepidium flavovirens</i>		V		Wet Tropics endemic
<i>Crepidium lawleri</i>		E	E	Wet Tropics endemic
<i>Crepidomanes aphlebioides</i>		E		
<i>Crepidomanes</i>		V		

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>majoriae</i>				
<i>Croton densivestitus</i>		NT		Wet Tropics endemic
<i>Ctenopteris walleri</i>		V	V	
<i>Cucumis costatus</i>		NT		
<i>Cupaniopsis cooperorum</i>		V		Wet Tropics endemic
<i>Cyathea celebica</i>		NT		
<i>Cyclophyllum costatum</i>		V	V	Wet Tropics endemic
<i>Cyperus cephalotes</i>		E	E	
<i>Dansiea elliptica</i>		NT		
<i>Demorchis queenslandica</i>		NT		
<i>Dendrobium bigibbum</i>		V	V	Collector targeted
<i>Dendrobium callitrophilum</i>	cypress orchid	V	V	Wet Tropics endemic. Collector targeted
<i>Dendrobium fellowsii</i>		V		Collector targeted
<i>Dendrobium nindii</i>	blue orchid	E	E	Collector targeted
<i>Dendrobium x superbiens</i>		V		
<i>Didymoglossum mindorense</i>		NT		
<i>Didymoplexis pallens</i>	crystal bells	NT		
<i>Dinosperma longifolium</i>		E		Wet Tropics endemic
<i>Dioclea hexandra</i>		V		
<i>Diospyros granitica</i>		NT		Wet Tropics endemic
<i>Diplazium cordifolium</i>		V	V	
<i>Diplazium pallidum</i>		E	E	
<i>Diploglottis harpullioides</i>		NT		Wet Tropics endemic
<i>Diploglottis pedleyi</i>		NT		Wet Tropics endemic
<i>Dipteris conjugata</i>		NT		
<i>Dissiliaria tuckeri</i>		V		Wet Tropics endemic
<i>Diteilis simmondsii</i>		NT		

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>Diuris oporina</i>	northern white donkeys tails	NT		
<i>Dodonaea uncinata</i>		NT		
<i>Dracophyllum sayeri</i>		V		Wet Tropics endemic
<i>Drosera adelae</i>		NT		Wet Tropics endemic. Collector targeted
<i>Drosera prolifera</i>	trailing sundew	V	V	Wet Tropics endemic. Collector targeted
<i>Drosera schizandra</i>	notched sundew	V	V	Wet Tropics endemic. Collection a significant threatening process
<i>Dryopteris hasseltii</i>		NT		
<i>Dryopteris sparsa</i>		V		
<i>Dryopteris wattsi</i>		V		Wet Tropics endemic
<i>Dubouzetia saxatilis</i>		V		Fredrick Peak Vine Forests - situated in Wet Tropics outlier regional ecosystems
<i>Ehretia microphylla</i>		V		
<i>Eidothea zoexylocarya</i>		V		Wet Tropics endemic
<i>Elaeocarpus coorangooloo</i>	brown quandong	NT		Wet Tropics endemic
<i>Elaeocarpus thelmae</i>		V		Wet Tropics endemic
<i>Elaphoglossum callifolium</i>		NT		
<i>Eleocharis retroflexa</i>		V	V	
<i>Endiandra anthropophagorum</i>		V		Wet Tropics endemic
<i>Endiandra bellendenkerana</i>		NT		Wet Tropics endemic
<i>Endiandra cooperana</i>		E	E	Wet Tropics endemic
<i>Endiandra globosa</i>	ball-fruited walnut	NT		
<i>Endiandra grayi</i>		V		Wet Tropics endemic
<i>Endiandra jonesii</i>		V		Wet Tropics endemic
<i>Endiandra microneura</i>		NT		Wet Tropics endemic
<i>Endiandra phaeocarpa</i>		V		Wet Tropics endemic
<i>Eucalyptus paedoglauca</i>	Mt Stuart ironbark	V	V	
<i>Eucryphia wilkiei</i>		V	V	Wet Tropics endemic



Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>Eulophia bicallosa</i>		NT		
<i>Eulophia zollingeri</i>		V		
<i>Euodia hylandii</i>		V		Wet Tropics endemic
<i>Euodia pubifolia</i>		V		Wet Tropics endemic
<i>Firmiana papuana</i>	lacewood	V		
<i>Flindersia oppositifolia</i>	mountain silkwood	V		Wet Tropics endemic
<i>Freycinetia marginata</i>		V		
<i>Freycinetia percostata</i>		V		
<i>Gardenia actinocarpa</i>		E	E	Wet Tropics endemic
<i>Gastrodia urceolata</i>		V		Wet Tropics endemic
<i>Genoplesium tectum</i>		E	E	Wet Tropics endemic
<i>Glochidion pruinatum</i>		E		Wet Tropics endemic
<i>Glochidion pungens</i>		NT		Wet Tropics endemic
<i>Goodyera viridiflora</i>		NT		
<i>Grammitis albosetosa</i>		V		
<i>Grammitis reinwardtii</i>		V	V	
<i>Graptophyllum excelsum</i>		NT		
<i>Grevillea glossadenia</i>		V	V	An EIU species with a few records in Wet Tropics
<i>Gymnostoma australianum</i>		V		
<i>Habenaria rumphii</i>		NT		
<i>Habenaria xanthantha</i>		NT		
<i>Hedyotis novoguineensis</i>		E		
<i>Helicia grayi</i>		V		Wet Tropics endemic
<i>Helicia lewisensis</i>		V		Wet Tropics endemic
<i>Helicia recurva</i>		NT		Wet Tropics endemic
<i>Hemmantia webbii</i>		V		Wet Tropics endemic
<i>Hexaspora pubescens</i>		V	V	Wet Tropics endemic

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>Hollandaea riparia</i>		V		Wet Tropics endemic
<i>Homoranthus porteri</i>		V	V	
<i>Hymenophyllum digitatum</i>		V		
<i>Hymenophyllum gracilescens</i>		V		Wet Tropics endemic
<i>Hymenophyllum kerianum</i>		V		Wet Tropics endemic
<i>Hymenophyllum pallidum</i>		NT		
<i>Hymenophyllum whitei</i>		PE	EX	Wet Tropics endemic. Although listed as 'extinct' - this species was rediscovered on Thornton Peak in 2017
<i>Ipomoea saintronanensis</i>		V		
<i>Kunzea truncata</i>		E		
<i>Lasjia grandis</i>		V		Wet Tropics endemic
<i>Lastreopsis grayi</i>		V		
<i>Lastreopsis tinarooensis</i>		V		Wet Tropics endemic
<i>Lastreopsis walleri</i>		V	V	Wet Tropics endemic
<i>Leionema ellipticum</i>		V		Wet Tropics endemic
<i>Lepiderema hirsuta</i>		NT		Wet Tropics endemic
<i>Lepiderema largiflorens</i>		NT		Wet Tropics endemic
<i>Leucopogon malayanus</i> subsp. <i>novoguineensis</i>		V		
<i>Lindsaea terrae-reginae</i>		V		Endemic mountain flora species - Mts Lewis, Spurgeon, Thornton and Main Coast Range
<i>Linospadix palmerianus</i>		NT		Wet Tropics endemic
<i>Litsea granitica</i>		V		Wet Tropics endemic
<i>Livistona concinna</i>		NT		
<i>Livistona drudei</i>	Halifax fan palm	V		
<i>Lobelia membranacea</i>		NT		
<i>Macropteranthes</i>		V	V	

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>montana</i>				
<i>Mammea touriga</i>	brown touriga	NT		Wet Tropics endemic
<i>Marsdenia brevifolia</i>		V	V	
<i>Marsdenia rara</i>		V		
<i>Marsdenia straminea</i>		V		Wet Tropics endemic
<i>Medicosma glandulosa</i>		NT		Wet Tropics endemic
<i>Megahertzia amplexicaulis</i>		NT		Wet Tropics endemic
<i>Meiogyne hirsuta</i>		NT		Wet Tropics endemic
<i>Melaleuca sylvana</i>		E		
<i>Melaleuca uxorum</i>		E		Wet Tropics endemic
<i>Mesua larnachiana</i>		V		Wet Tropics endemic
<i>Micromyrtus delicata</i>		E		
<i>Microsorium membranifolium</i>	pimple fern	NT		
<i>Mischocarpus albescens</i>		NT		Wet Tropics endemic
<i>Mitrantia bilocularis</i>		V		Wet Tropics endemic
<i>Musa jackeyi</i>		E		Wet Tropics endemic
<i>Myrmecodia beccarii</i>		V	V	Collector targeted
<i>Neostrearia fleckeri</i>		NT		Wet Tropics endemic
<i>Nepenthes mirabilis</i> (Bramston Beach)		E		Collector targeted
<i>Nervilia crocifformis</i>		NT		
<i>Nicotiana wuttkei</i>		E		
<i>Noahdendron nicholasii</i>		E		Wet Tropics endemic
<i>Oberonia attenuata</i>	Mossman fairy orchid	E	CE	Wet Tropics endemic. Collection a significant threatening process
<i>Oenanthe javanica</i>		NT		
<i>Oldenlandia polyclada</i>		NT		
<i>Paramapania parvibractea</i>		V		
<i>Pararistolochia</i>		NT		

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>praevenosa</i>				
<i>Parsonsia bartlensis</i>		V		Wet Tropics endemic
<i>Parsonsia largiflorens</i>		E		
<i>Parsonsia wildensis</i>		V		
<i>Parsonsia wongabelensis</i>		E		Wet Tropics endemic
<i>Peripentadenia mearsii</i>	buff quandong	NT		Wet Tropics endemic
<i>Peripentadenia phelpsii</i>		V		Wet Tropics endemic
<i>Peristylus banfieldii</i>		E		Collector targeted
<i>Phaius australis</i>		E	E	Collection a significant threatening process
<i>Phaius pictus</i>		V	V	Collector targeted
<i>Phalaenopsis rosenstromii</i>	moth orchid	E		Collection a significant threatening process
<i>Phaleria biflora</i>		V	V	Wet Tropics endemic.
<i>Phlegmariurus creber</i>		E	E	Original records were <i>P. filiformis</i> . There is a taxonomic split - <i>P. filiformis</i> does not occur in Australia. This is a recent change – March 2018. Collection a significant threatening process
<i>Phlegmariurus lockyeri</i>		V	V	Wet Tropics endemic. Collection a significant threatening process
<i>Phlegmariurus marsupiiiformis</i>		V	V	Wet Tropics endemic. Collection a significant threatening process
<i>Phlegmariurus phlegmarioides</i>		V		Collection a significant threatening process
<i>Phlegmariurus squarrosus</i>		E	CE	Collection a significant threatening process
<i>Phlegmariurus tetrastichoides</i>		V	V	Collection a significant threatening process
<i>Phyllanthera grayi</i>		V		
<i>Phyllanthus brassii</i>		V		
<i>Piper mestonii</i>	long pepper	NT		
<i>Plectranthus amoenus</i>		V		Wet Tropics endemic
<i>Plectranthus graniticola</i>		V		
<i>Plectranthus gratus</i>		V	V	Wet Tropics endemic
<i>Plesioneuron</i>		E	E	Collector targeted

<b>Scientific Name</b>	<b>Common Name</b>	<b>NCA<sup>1</sup></b>	<b>EPBC<sup>2</sup></b>	<b>Expert Panel Comments</b>
<i>tuberculatum</i>				
<i>Pneumatopteris costata</i>		NT		
<i>Polyalthia submontana</i> subsp. <i>submontana</i>		NT		Wet Tropics endemic
<i>Polyphlebium</i> <i>endlicherianum</i>		V	E	
<i>Polyscias</i> <i>bellendenkerensis</i>		V	V	Wet Tropics endemic
<i>Prostanthera albohirta</i>		E	CE	Wet Tropics endemic
<i>Prostanthera</i> <i>clotteniana</i>		E	CE	
<i>Prumnopitys ladei</i>	Mt Spurgeon black pine	NT		Wet Tropics endemic
<i>Pseuduvaria hylandii</i>		NT		Wet Tropics endemic
<i>Pteridoblechnum</i> <i>acuminatum</i>		NT		Wet Tropics endemic
<i>Pterostylis caligna</i>		E		Wet Tropics endemic
<i>Randia audasii</i>		NT		Wet Tropics endemic
<i>Remusatia vivipara</i>		NT		
<i>Rhaphidospora</i> <i>cavernarum</i>		V		
<i>Rhodamnia longisepala</i>		E		Wet Tropics endemic
<i>Rhomboda</i> <i>polygonoides</i>		V	V	
<i>Ristantia gouldii</i>		V	V	Wet Tropics endemic
<i>Romnaldia</i> <i>ophiopogonoides</i>		V		Wet Tropics endemic
<i>Ryparosa kurrangii</i>		NT		Wet Tropics endemic
<i>Salacistis ochroleuca</i>		E		
<i>Samadera baileyana</i>		NT		Wet Tropics endemic
<i>Sankowskya stipularis</i>		E	E	Wet Tropics endemic
<i>Sannantha papillosa</i>		E		
<i>Sarcopteryx montana</i>		NT		Wet Tropics endemic
<i>Senegalia albizioides</i>		NT		
<i>Solanum angustum</i>		E		

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>Solanum hamulosum</i>		E		Wet Tropics endemic
<i>Spathoglottis paulinae</i>		NT		Collector targeted
<i>Sphaerantia chartacea</i>	Shipton's penda	V		Wet Tropics endemic
<i>Sphaerantia discolor</i>	Tully penda	V		Wet Tropics endemic
<i>Steghanthera australiana</i>		NT		Wet Tropics endemic
<i>Steghanthera laxiflora</i> subsp. <i>lewisensis</i>		NT		Wet Tropics endemic
<i>Stenocarpus cryptocarpus</i>	giant-leaved stenocarpus	NT		Wet Tropics endemic
<i>Stenocarpus davallioides</i>	fern-leaved stenocarpus	V		Wet Tropics endemic
<i>Stockwellia quadrifida</i>		V		Wet Tropics endemic
<i>Strongylodon lucidus</i>		NT		
<i>Stylidium elachophyllum</i>		E		Wet Tropics endemic
<i>Symplocos ampulliformis</i>		NT		Wet Tropics endemic
<i>Symplocos crassiramifera</i>		V		Wet Tropics endemic
<i>Symplocos graniticola</i>		V		Wet Tropics endemic
<i>Symplocos oresbia</i>		NT		Wet Tropics endemic
<i>Symplocos wooroonooran</i>		NT		Wet Tropics endemic
<i>Syzygium glenum</i>		E		Wet Tropics endemic
<i>Syzygium hodgkinsoniae</i>	red lilly pilly	V	V	
<i>Taeniophyllum confertum</i>		NT		Wet Tropics endemic
<i>Taeniophyllum lobatum</i>		NT		
<i>Tetramolopium</i> sp. (Mt Bowen D.G.Fell+ DGF1224)		V		Wet Tropics endemic
<i>Thelypteris confluens</i>		V		
<i>Toechima pterocarpum</i>	orange tamarind	E	E	Wet Tropics endemic
<i>Torenia polygonoides</i>		V		

Scientific Name	Common Name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Expert Panel Comments
<i>Trachymene geraniifolia</i>		NT		Wet Tropics endemic
<i>Triplarina nitchaga</i>		V	V	
<i>Tristellateia australasiae</i>		NT		
<i>Tylophora rupicola</i>		E	E	
<i>Uncaria cordata</i> var. <i>cordata</i>		E		
<i>Vrydagzynea grayi</i>		E	E	Wet Tropics endemic
<i>Waterhousea mulgraveana</i>		V		Wet Tropics endemic
<i>Wendlandia connata</i>		NT		Wet Tropics endemic
<i>Wetria australiensis</i>		V		Wet Tropics endemic
<i>Whyanbeelia terrae-reginae</i>		NT		Wet Tropics endemic
<i>Wilkiea</i> sp. (McDowall Range J.G.Tracey 14552)		NT		Wet Tropics endemic
<i>Xanthophyllum fragrans</i>		NT		Wet Tropics endemic
<i>Xanthostemon formosus</i>		E	E	Wet Tropics endemic
<i>Xanthostemon graniticus</i>		V		Wet Tropics endemic
<i>Xanthostemon verticillatus</i>		V		Wet Tropics endemic
<i>Xylosma</i> sp. (Mt Lewis G.Sankowsky+ 1108)		V		Wet Tropics endemic
<i>Zieria obovata</i>		V	V	
<i>Zieria rimulosa</i>		V	V	

<sup>1</sup> E = endangered, V = vulnerable, NT = near threatened as per *Nature Conservation Act 1992*

<sup>2</sup> CE = critically endangered, E = endangered, V = vulnerable as per the *Environment Protection and Biodiversity Conservation Act 1999*

### 3.1.2 Habitat for priority flora taxa (Criterion H)

Priority species are non-EVNT species that are considered to be of particular conservation significance in the bioregion. The rationale for inclusion is based upon the eligibility criteria described in section 2.3.1. A total of 78 flora taxa were listed for Criterion H (Table 5). Due to the significant number of endemic and relictual taxa present in the WET, the decision was made to focus on those of highest significance. Selection was limited to taxa deemed at risk or declining (criteria 1 or 9), keystone (Criterion 7) or had greater than 2 eligibility criteria listed. The number of species pertaining to each eligibility criteria is summarised in Table 4. Most species listed had more than one eligibility criteria. Two of the species exhibited three or more eligibility criteria.

For inclusion in the WET BPA, priority species records were first subject to filtering rules as described in the section 2.3.1 and subsequently, buffered by twice the precision (as for Criterion A) with a minimum of 300m, and a maximum of 1km. The decision rules for assigning Criterion H values ratings (Low to Very High) are summarised in Table 6.

**Table 4. Number of priority flora taxa listed for each eligibility criterion.**

Eligibility value <sup>1</sup>	Taxa count
1. Taxa at risk	22
2. Taxa of scientific interest as relictual (ancient or primitive)	6
3. Endemic taxa	47
4. Significant taxa	0
5. Taxa important for maintaining genetic diversity such as complex patterns of genetic variation	0
6. Disjunct species populations	2
7. Taxa functionally important to ecosystem integrity	9
8. Taxa performing a role as an ecological indicator of ecosystem integrity	1
9. Taxa vulnerable to impacts of climate change	53



**Table 5. WET - priority flora taxa (Criterion H)**

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>Agathis atropurpurea</i>	blue kauri pine	Type B	2,3	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker, Kahlpahlm, Spurgeon, Pieter Botte
<i>Aidia gyropetala</i>		Type A	3,9	Endemic mountain flora species - Mt Lewis
<i>Aponogeton cuneatus</i>		Type B	1	At risk from trade - minor risk
<i>Aponogeton queenslandicus</i>		Type B	1	At risk from trade - minor risk
<i>Aponogeton vanbruggenii</i>		Type B	1	At risk from trade - minor risk
<i>Backhousia tetraptera</i>		Type A	1,3	Wet Tropics Narrow endemic - occurs in very localised area - small number of individuals. At risk from myrtle rust
<i>Barringtonia racemosa</i>		Type A	1,8,9	At risk from land use activities, draining works, cane farms. Only dominant where the ecosystem is healthy. At risk from sea level rise
<i>Bulbophyllum liliana</i>		Type A	3,9	Endemic mountain flora species - Mts Fisher, Bartle Frere, Bellenden Ker, Lewis, Thornton, Finnigan
<i>Bulbophyllum wadsworthii</i>		Type A	3,9	Endemic mountain flora species - Mts Fisher, Bartle Frere, Bellenden Ker, Lewis
<i>Ceratopetalum hylandii</i>		Type A	3,9	Endemic mountain flora species - Mts Lewis, Spurgeon
<i>Comesperma anemosmaragdinum</i>		Type A	1,3, 9	High elevation - very restricted narrow distribution. At risk of population decline
<i>Cryptocarya bellendenkerana</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker, Bell peak, Kahlpahlm, Black mtn., Lewis, Spurgeon, Carbine East, Thornton, Finnigan
<i>Cyathea baileyana</i>	wig tree fern	Type A	3,9	Endemic to the mountains of the WT
<i>Dendrobium carrii</i>		Type A	3,9	Endemic mountain flora species - Mts Lewis, Spurgeon, Windsor
<i>Dendrobium finniganense</i>		Type A	3,9	Endemic mountain flora species - Mts Thornton, Finnigan
<i>Diplazium bostockii</i>		Type A	1,3	EVNT eligible. Narrow endemic
<i>Diploglottis alaticarpa</i>		Type A	1	Restricted/rare - risk from land clearing
<i>Dockrillia x foederata</i>		Type A	1	Collection a significant threat to species survival
<i>Elaeocarpus hylobroma</i>		Type A	3,9	Endemic mountain flora species - Mts Kahlpahlm, Lewis, Carbine East, Windsor,

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
				Thornton
<i>Elaeocarpus linsmithii</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker, Lewis
<i>Elaeocarpus</i> sp. (Mt Misery L.J.Webb+ 10905)		Type A	3,9	Is about to be renamed. Endemic mountain flora species - Mt Lewis
<i>Erythrina fusca</i>		Type A	1	Risk from lowland land clearing - two locations at Clump Point and Daintree River. Impacted by cyclone. High risk
<i>Eugenia reinwardtiana</i>	beach cherry	Type B	1	Myrtle Rust - part of range, not all. Moderate risk?
<i>Garcinia brassii</i>		Type A	3,9	Endemic mountain flora species - Mts Lewis, Spurgeon, Carbine East, Thornton. Collection a significant threatening process
<i>Gossia bidwillii</i>		Type A	1	Myrtle rust
<i>Gossia hillii</i>		Type A	1	Extreme impact - Myrtle rust
<i>Gossia lewisensis</i>		Type B	1, 3	Previously listed. Impacted by myrtle rust - moderate impact
<i>Gossia myrsinocarpa</i>		Type A	1	Extreme impact - Myrtle rust
<i>Grammitis wurunuran</i>		Type A	3,9	Endemic mountain flora species - Mts Fisher, Bartle Frere, Bellenden Kerr, Kahlpahlm, Lewis, Spurgeon, Carbine East, Windsor, Thornton, Finnigan, Black Mtn
<i>Gymnosporia inermis</i>		Type B	1,9	Restricted to above intertidal zone - impacted by sea level rise
<i>Gynochthodes constipata</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker
<i>Gynochthodes podistra</i>		Type A	3,9	Endemic mountain flora species - Mts Lewis, Spurgeon, Carbine tableland East
<i>Hollandaea porphyrocarpa</i>		Type A	3,9	Endemic mountain flora species - Mt Carbine Tableland East
<i>Hydrocotyle miranda</i>		Type A	3,9	Endemic mountain flora species: Mts - Fisher, Bellenden Kerr
<i>Hypsophila halleyana</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker, Carbine East, Finnigan
<i>Kleinhovia hospita</i>		Type A	1	Risk from land clearing; Clump Point and Daintree River. Cyclone impacted. High risk
<i>Korthalsella grayi</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker, Kahlpahlm, Lewis, Windsor
<i>Lenbrassia</i>		Type A	3,9	Endemic mountain flora species - Mts Lewis,

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>australiana</i>				Spurgeon, Carbine East, Thornton
<i>Leptospermum woornooran</i>		Type A	3,9	Endemic mountain flora species - Mts Bellenden Ker, Lewis, Carbine East
<i>Linospadix apetirolatus</i>		Type A	3,9	Endemic mountain flora species - Mts Lewis, Carbine East, Spurgeon
<i>Lycopodiella lateralis</i>	slender clubmoss	Type B	2,6,9	Possible at risk from climate change in WT - but occurs elsewhere
<i>Lycopodium deuterodensum</i>	bushy clubmoss	Type B	2,6,9	Possible at risk from climate change in WT - but occurs elsewhere
<i>Lysiphyllum binatum</i>		Type B	9	Restricted to high tide line; Risk from sea level rise
<i>Melaleuca cajuputi</i> subsp. <i>platyphylla</i>		Type A	7, 9	Essential habitat for many spp. of fauna and flora. Climate change vulnerable
<i>Melaleuca dealbata</i>	swamp tea-tree	Type A	7, 9	Essential habitat for many spp. of fauna and flora. Climate change vulnerable
<i>Melaleuca leucadendra</i>	broad-leaved tea-tree	Type A	7, 9	Essential habitat for many spp. of fauna and flora. Climate change vulnerable
<i>Melaleuca quinquenervia</i>	swamp paperbark	Type A	7, 9	Essential habitat for many spp. of fauna and flora. Climate change vulnerable
<i>Melaleuca viridiflora</i>		Type A	7, 9	Essential habitat for many spp. of fauna and flora. Climate change vulnerable
<i>Melaleuca viridiflora</i> var. <i>attenuata</i>		Type A	7, 9	Essential habitat for many spp. of fauna and flora. Climate change vulnerable
<i>Melaleuca viridiflora</i> var. <i>viridiflora</i>		Type A	7, 9	Essential habitat for many spp. of fauna and flora. Climate change vulnerable
<i>Nothorites megacarpus</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Lewis
<i>Pemphis acidula</i>		Type B	9	Limited to the coastal zone; mostly on rocky headlands; Risk from sea level rise
<i>Peperomia hunteriana</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker, Lewis, Spurgeon, Black Mtn
<i>Phlegmariurus phlegmaria</i>		Type B	2,1	Not massively at risk
<i>Platynerium hillii</i>		Type B	7	Host plant for ferns and lycophytes
<i>Podocarpus dispersus</i>		Type B	2,3	
<i>Podocarpus smithii</i>		Type B	2,3	
<i>Polyosma reducta</i>		Type A	3,9	Narrow endemic from Bellenden Ker. Records only valid from Bellenden Ker and surrounds.

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
				Records on Carbine and Windsor tablelands are <i>Polyosma</i> sp. (Windsor Tableland)
<i>Polyosma</i> sp. (Mt Lewis B.P.Hyland RFK25241)		Type A	3,9	Endemic mountain flora species - Mt Lewis
<i>Polyscias willmottii</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker, Lewis, Spurgeon, Windsor, Thornton
<i>Prostanthera athertoniana</i>		Type A	1,3,9	Endemic mountain flora species - Mt Kahlpahlm. . Highly susceptible to climate change/demographic events
<i>Psydrax montigena</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker, Kahlpahlm, Lewis, Spurgeon, Carbine tableland East, Windsor, Thornton, Finnigan and Black mountain
<i>Rhodamnia spongiosa</i>		Type B	1	Myrtle rust - impacted in local areas
<i>Rhododendron lochiaie</i>	native rhododendron	Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker, Bell Peak, Lewis, Spurgeon, Carbine Tableland east, Windsor, Thornton, Finnigan
<i>Rhodomyrtus pervagata</i>		Type A	1	Myrtle rust - impacted wide spread
<i>Ristantia pachysperma</i>	yellow penda	Type A	1	Myrtle rust - juveniles predominantly hit hard
<i>Scirpodendron ghaeri</i>		Type A	7, 9	Widespread; Sea level rise - found in swales behind mangroves. Dominant understory plane of this ecosystem
<i>Sersalisia sessiliflora</i>		Type A	3,9	Endemic mountain flora species - Mt Lewis
<i>Solanum dimorphispinum</i>		Type A	3,9	Endemic mountain flora species - Mts Lewis, Spurgeon, Carbine tableland east, Thornton
<i>Solanum eminens</i>		Type A	3,9	Endemic mountain flora species - Mt Bellenden Ker
<i>Symplocos bullata</i>		Type A	3,9	Endemic mountain flora species - Mts Fisher, Lewis, Spurgeon
<i>Syzygium fratris</i>		Type A	3,9	Endemic mountain flora species - Mt Bartle Frere. Narrow endemic
<i>Tasmannia</i> sp. (Mt Bellenden Ker J.R.Clarkson 6571)		Type A	3,9	Endemic mountain flora species - Mt Bellenden Ker
<i>Tristaniopsis exiliflora</i>	kanuka box	Type A	1, 7	Threatened by Myrtle rust; Major riverbank species
<i>Trochocarpa</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>bellendenkerensis</i>				Frere, Bellenden Ker, Spurgeon, Thornton
<i>Uromyrtus metrosideros</i>		Type A	3,9	Endemic mountain flora species - Mts Bartle Frere, Bellenden Ker, Lewis, Spurgeon, Carbine East, Windsor, Thornton, Finnigan
<i>Zieria alata</i>		Type A	3,9	Endemic mountain flora species - Mts Lewis, Spurgeon, Carbine Tableland east
<i>Zieria madida</i>		Type A	3,9	Endemic mountain flora species - Mts Pieter Botte and Thornton

**Table 6. Priority taxa value rating rules**

Low	Medium	High	Very High
<p>The remnant has no confirmed records/models or otherwise defined areas of habitat for priority taxa</p>	<p>The area within the remnant unit has a precise record (precision &lt;= 500m), or core habitat for ONE "Priority type A" taxa</p> <p>OR</p> <p>The area within the remnant unit has precise records (precision &lt;= 500m) or core habitat for only ONE or TWO "Priority type B" taxa</p> <p>OR</p> <p>The area within the remnant unit has imprecise records or non-core habitat for "Priority type A or B" taxa</p>	<p>The area within the remnant unit has precise records (precision &lt;= 500m), or core habitat for TWO "Priority type A" taxa</p> <p>OR</p> <p>The area within the remnant unit has precise records (precision &lt;= 500m), or core habitat for THREE "Priority type B" taxa</p> <p>OR</p> <p>The area within the remnant unit has precise records (precision &lt;= 500m), or core habitat for ONE "Priority type A" taxa AND TWO "Priority type B" taxa</p>	<p>The area within the remnant unit has precise records (precision &lt;= 500m), or core habitat for a minimum of THREE "Priority type A" taxa</p> <p>OR</p> <p>The area within the remnant unit has precise records (precision &lt;= 500m), or core habitat for a minimum of FOUR "Priority type B" taxa</p> <p>OR</p> <p>The area within the remnant unit has precise records (precision &lt;= 500m), or core habitat for TWO "Priority type A" AND TWO OR THREE "Priority type B" priority taxa</p>

### **3.1.3 Special flora area decisions (Criterion I)**

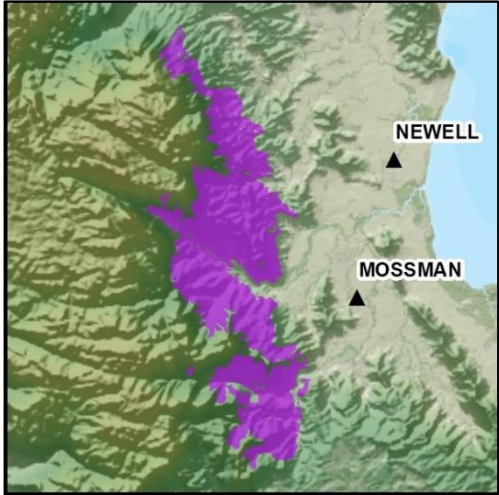
The flora panel was asked to identify areas with special biodiversity values within the WET under the BAMB supplementary Criterion I. Areas with special biodiversity value are important because they can contain multiple taxa in unique ecological and often highly biodiverse environments. Values can include centres of endemism, wildlife refugia, disjunct populations, geographic limits of species distributions, high species richness and relictual populations. The full rationale for inclusion is based on eligibility criteria described in section 2.3.2.

Using expert knowledge and available information (records, maps, GIS derived datasets), panel members discussed 26 areas and described their values. Of these areas, 15 were implemented as flora decisions. A number of decisions were consolidated with fauna or other values to become landscape decisions. The special areas proposed by the panel are detailed in Table 7. A range of species are listed for most decisions including EVNT and endemics.

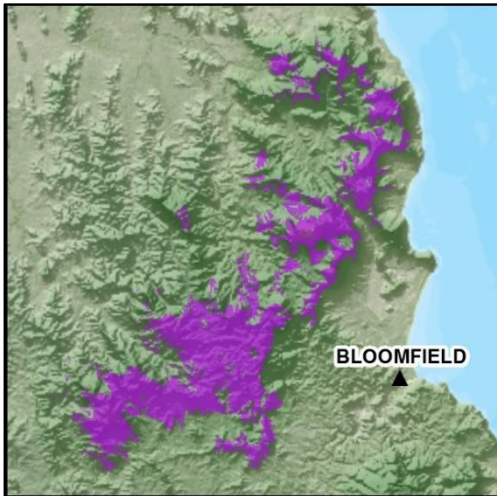
To ensure consistency and provide better integration with BPAs conducted across adjoining bioregions, special areas nominated during the course of non-WET expert panels, however, which impact WET remnant units, have been incorporated and are listed at the end of Table 7.

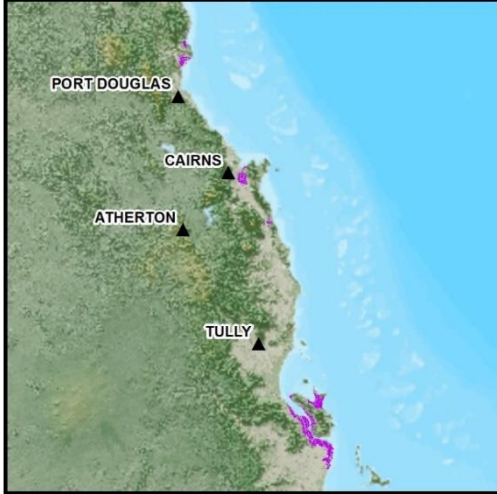
**Table 7. Areas of special flora biodiversity value (Criterion I)**

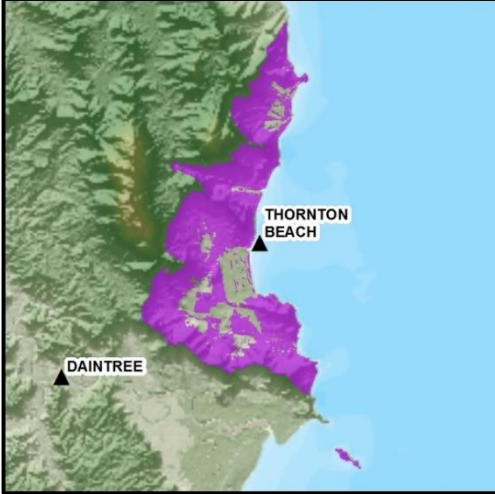
<sup>1</sup> VH = Very High, H = High and M = Medium. For more information on the criteria values, see section 2.3.2.

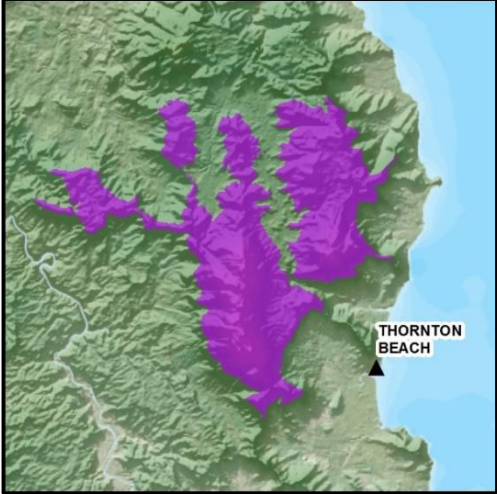
Decision Number	Description (including spatial extent where implemented)	Significance	Identified Values in BPA	Criteria values <sup>1</sup>
wet_fl_01	<p>Eastern face of Carbine Tableland</p> 	State	<p>A topographic and structurally complex area situated on granites above 100m altitude. Environmental heterogeneity and varied aspects afford resilience from cyclone impacts and over the longer term, may support pockets of refugia from climate change. As a result of limited cyclone impact (compared to other areas in the bioregion), and the steepness of the higher slopes which impeded selective logging (largely restricted to the lower slopes and foothills), the area is largely intact.</p> <p>Very high levels of species diversity and richness, local endemics, and ancient/relictual taxa are attributed to the area. The area is unusual, in that lowland endemics are also present. Examples of endemics taxa include <i>Aceratium ferrugineum</i>, <i>Acmena divaricate</i>, <i>Albizia</i> sp. (Windsor Tableland B.Gray 2181), <i>Alpinia arctiflora</i>, <i>Athertonia diversifolia</i>, <i>Carnarvonia araliifolia</i> var. <i>araliifolia</i>, <i>Cryptocarya oblate</i>, <i>Dysoxylum pumilum</i>, <i>Garcinia russellii</i>, <i>Helicia nortoniana</i>, <i>Ixora biflora</i>, <i>Lepidozamia hopei</i> (Hope's cycad), <i>Medicosma fareana</i>, <i>Mesua larnachiana</i>, <i>Oberonia attenuate</i>, <i>Psychotria</i> sp. (Daintree NP P.I.Forster+ PIF21974), <i>Symplocos cyanocarpa</i> var. <i>cyanocarpa</i>, <i>Waterhousea hedraiophylla</i>, <i>Wendlandia inclusa</i>. Examples of relictual taxa include: <i>Phlegmariurus phlegmaria</i>, <i>Phlegmariurus phlegmarioides</i>, <i>Phlegmariurus squarrosus</i>, <i>Phlegmariurus tetrastichoides</i>, <i>Psilotum complanatum</i>, <i>Selaginella australiensis</i> and <i>Lepidozamia hopei</i> (Hope's cycad).</p> <p>The area is globally significant for lycophytes, epiphytic orchids and ferns (and other epiphytes in general), however, has a relatively low diversity of terrestrial ferns as much of the substrate is granite based with relatively low nutrient levels. Orchids include: <i>Oberonia attenuate</i>, <i>Bulbophyllum boonjee</i>, <i>Demorchis queenslandica</i>, <i>Taeniophyllum confertum</i>, <i>Grastidium cancroides</i>, <i>Hetaeria oblongifolia</i>.</p> <p>Other threatened species include: <i>Peripentadenia phelpsi</i>, <i>Mesua larnachiana</i>, <i>Endiandra anthropophagorum</i>, <i>Cyclophyllum</i></p>	<p>la (endemic richness): VH                      lb (refugia): VH                      lc (disjunct populations): VH                      le (species richness): VH                      lf (relictual taxa): VH                      lg (ecosystem variation): VH                      lk (climate change refugia): VH</p>

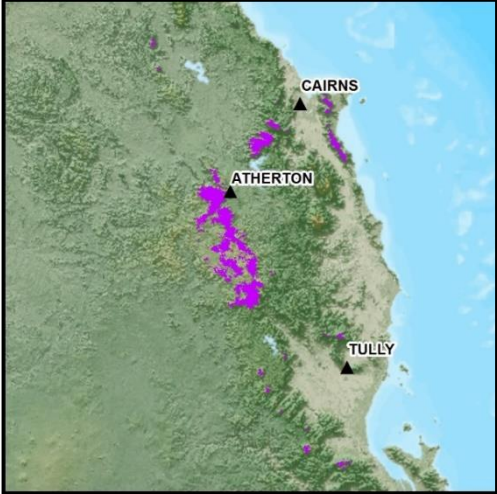


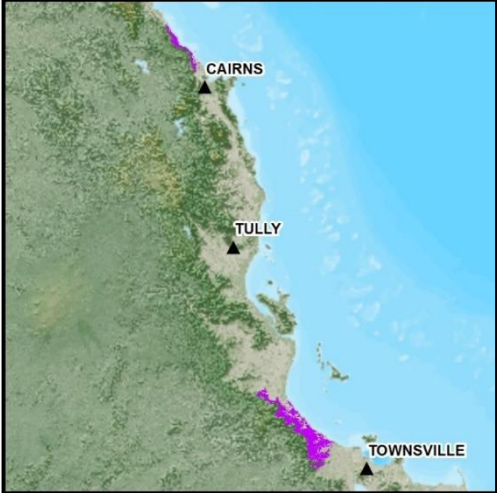
			<p><i>costatum</i>, <i>Austromuelleria valida</i> - found only above 1,050m), <i>Aceratium ferrugineum</i>, <i>Bubbia queenslandiana</i> subsp. <i>queenslandiana</i>, <i>Endiandra microneura</i>, <i>Lepiderema hirsuta</i> and <i>Pteridoblechnum acuminatum</i>.</p> <p>There is a high concentration of disjunct species, including species also found outside Australia.</p>	
02	Carbine Tableland	NA	Implemented as landscape decision. Refer to wet_I_28	NA
wet_fl_03	<p>Upland notophyll rainforest - Mt Amos to Boolbun South</p> 	State	<p>An upland feature encompassing notophyll rainforest on metamorphic and granite landscapes extending from Mt Amos to Mt Boolbun South incorporating the peaks of: Yates Romeo, McMillan, Finnigan, Hartley, Sampson and Thornton. Mt Finnigan is the most northern mountain in Australia above 1,000m and was attributed by the panel as being an important climate refugia. The area depicted captures a mosaic of ecosystems on different substrates, and in combination with variation in altitude, this results in a patterned diversity.</p> <p>A number of species are at the northern most limit of their distribution (<i>Bulbophyllum evasum</i>, <i>Bulbophyllum liliana</i>, <i>Dendrobium lichenastrum</i>, <i>Plexaure crassiuscula</i>, <i>Pterostylis stricta</i>, <i>Ctenopteris walleri</i>, <i>Grammitis albosetosa</i>, <i>Aglaia meridionalis</i>). Also of note, is that the area is unusual in that there appears to be an Oceanic rather than a Melanesian association with respect to ferns, mosses and cryptogams.</p> <p>Considered species rich in general, the area is also noted for its terrestrial orchids including: <i>Apostasia wallichii</i>, <i>Bulbophyllum grandimesense</i>, <i>Bulbophyllum newportii</i>, <i>Dendrobium finniganense</i>, <i>Dendrobium lichenastrum</i>, <i>Dockrillia brevicauda</i> and <i>Sarcochilus falcatus</i></p> <p>Habitat supports numerous endemic species including: <i>Bulbophyllum grandimesense</i>, <i>Dissiliaria tuckeri</i>, <i>Leionema ellipticum</i>, <i>Phlegmariurus marsupiformis</i>, <i>Bubbia queenslandiana</i> subsp. <i>queenslandiana</i>, <i>Linospadix palmerianus</i>, <i>Medicosma glandulosa</i>, <i>Sarcopteryx montana</i>, <i>Symplocos ampulliformis</i>, <i>Symplocos oresbia</i>, <i>Dockrillia brevicauda</i>, <i>Ardisia brevipedata</i>, <i>Argyrodendron peralatum</i>, <i>Cardwellia sublimis</i>, <i>Casearia costulata</i>, <i>Cupaniopsis diploglottoides</i>, <i>Denhamia viridissima</i>, <i>Flindersia bourjotiana</i> and <i>Hypsophila dielsiana</i>.</p> <p>Similarly, a number of disjunct taxa are known to occur including:</p>	<p>la (endemic richness): H  lb (refugia): H  lc (disjunct populations): H  ld (range limits): VH  le (species richness): H  lf (relictual taxa): M  lg (ecosystem variation): VH  lk (climate change refugia): VH</p>

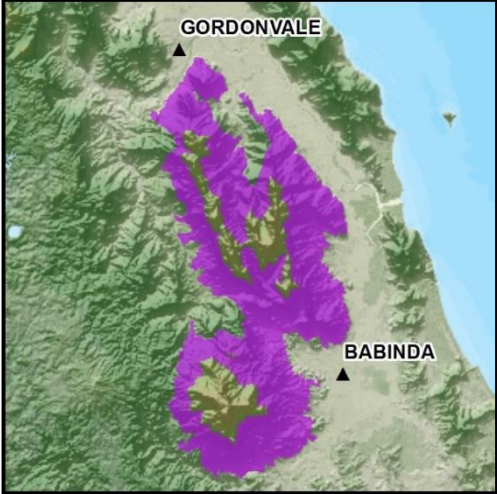
			<i>Halfordia kendack</i> , <i>Plectranthus graniticola</i> , <i>Acacia fasciculifera</i> , <i>Dichapetalum papuanum</i> and <i>Eupomatia laurina</i> .	
04	Battle Camp Range, Black Mountain and Dowlings Hill outlier	NA	Implemented as landscape decision. Refer to wet_I_21	NA
05	Windsor Tableland	NA	Implemented as landscape decision. Refer to wet_I_29	NA
wet_fl_06	<p>Mangrove systems of Daintree and Mulgrave-Russell rivers, Trinity inlet and Hinchinbrook island.</p> 	State	<p>The mangrove systems identified by the panel were noted as being of global significance in that they have the highest diversity of mangrove species known, with the Daintree and Mulgrave-Russell slightly more so than the Trinity and Hinchinbrook systems.</p> <p>All of the systems are hydrologically intact with no presence of dams or deep drainage, and availability of good clean water all year round that follows natural climate patterns. Structure and species composition of these systems varies greatly, depending upon distance from the sea, micro topography and differential freshwater influence. Gradation in mangrove species occurs dependent on the level of freshwater incursion.</p> <p>In addition to the diversity of mangrove species, these systems support high diversity of orchids and provide habitat for species such as: <i>Huperzia dalhousiana</i> and <i>Myrmecodia beccarii</i> (ant plant). Other species include: <i>Acrostichum speciosum</i> (mangrove fern); <i>Nephrolepis acutifolia</i> (epiphyte). The Trinity site is notable for a newly discovered mangrove species which appears to be a hybrid of <i>Bruguiera cylindrica</i> and <i>B. gymnorhiza</i>. Orchids include: <i>Calochilus caeruleus</i>, <i>Chiloschista phyllorhiza</i>, <i>Microtis parviflora</i> (slender onion orchid). The mangrove palm (<i>Nypa fruticans</i>) is at its southern most range limit in the Hinchinbrook mangrove area. The next known population is at the Escape river area in the Cape York bioregion. The mangrove species <i>Ceriops pseudodecandra</i> is also at its southern range limit at the Lucinda point area located within this feature.</p>	<p>Id (range limits): M                      le (species richness): VH                      lg (ecosystem variation): H                      lk (climate change refugia): H</p>

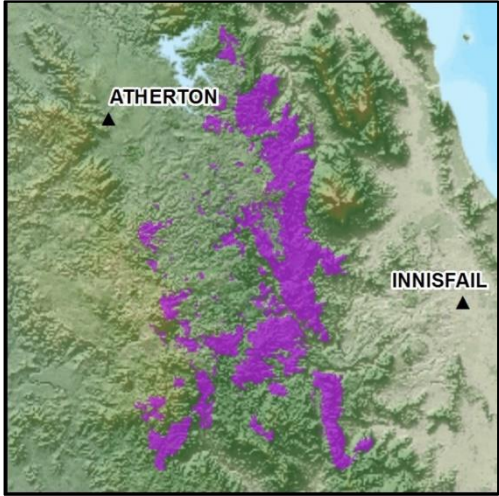
<p>wet_fl_07</p>	<p>Daintree lowlands</p> 	<p>State</p>	<p>The Daintree lowlands (below 400m and excluding mangrove and saltmarsh communities - refer to decision wet_fl_6) incorporates metamorphic, granite, alluvial and dune landzone systems. This substrate variation within the dominant landzone (metamorphics), drives high species turnover resulting in a taxa rich and ecosystem diverse landscape. Over 50 regional ecosystems occur including rainforests, large fan palm forests (with greater development than those found in the Mission Beach area) and unique swamp wetland communities not found elsewhere in the bioregion. The Daintree rainforests also forms the northern limit for many rainforest dependent plants.</p> <p>Atypical in comparison to other lowland areas of the wet tropics, the area includes the highest concentration and diversity of lowland bioregional endemics. Notable examples include: <i>Archidendron kanisii</i>, <i>Chingia australis</i>, <i>Endiandra cooperana</i>, <i>Gardenia actinocarpa</i>, <i>Noahdendron nicholasii</i>, <i>Syzygium glenum</i>, <i>Xanthostemon formosus</i>, <i>Argophyllum cryptophlebium</i>, <i>Buckinghamia ferruginiflora</i>, <i>Citrus inodora</i>, <i>Dissiliaria tuckeri</i>, <i>Endiandra grayi</i>, <i>Gymnostoma australianum</i>, <i>Myrmecodia beccarii</i>, <i>Romnalda ophiopogonoides</i>, <i>Acronychia acuminata</i>, <i>Beilschmiedia castrisinensis</i>, <i>Ceratopetalum macrophyllum</i>, <i>Endiandra microneura</i>, <i>Lepiderema hirsuta</i>, <i>Ryparosa kurrangii</i>, <i>Stenocarpus cryptocarpus</i>, <i>Xanthophyllum fragrans</i>.</p> <p>In addition to high species and ecosystem diversity, a number of other OUV for which the WTWHA was originally nominated are encompassed, including the presence of relictual, or evolutionary important taxa. A high concentration of fern species occur, a number of which are considered representative of ancient and primitive lineages (<i>Phlegmariurus phlegmaria</i>, <i>Phlegmariurus phlegmarioides</i>, <i>Lygodium reticulatum</i>, <i>Ophioglossum pendulum</i>, <i>Ptisana oreades</i>, <i>Schizaea dichotoma</i> (branched comb fern), <i>Dicranopteris linearis</i>, <i>Dicranopteris linearis var. altissima</i>). Similarly, the area is also considered relatively rich in taxa representative of ancient and evolutionary important flowering plant lineages (<i>Eupomatia laurina</i>, <i>Eupomatia barbata</i>, <i>Idiospermum australiense</i>).</p>	<p>la (endemic richness): VH          lb (refugia): VH          ld (range limits): VH          le (species richness): VH          lf (relictual taxa): VH          lg (ecosystem variation): VH          lk (climate change refugia): VH</p>
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<p>wet_fl_08</p>	<p>Mountain tops north of Daintree</p> 	<p>State</p>	<p>The feature encompasses the granite and metamorphic ranges and peaks north of the Daintree, incorporating parts of the McDowall and Thornton Ranges and the area extending from Mount Halcyon south to Mount Hemmant. The ranges and peaks are located within a cloud interception zone with very high rainfall. There is moderate variation among ecosystem types, however, high variation within ecosystem structure, driven in part by wind exposure. Past climate modelling suggests this area has been highly stable for microphyll-notophyll rainforests.</p> <p>Whilst topographic ruggedness and inaccessibility has made survey effort difficult, the panel considered the areas to have similar biodiversity values with a number of endemics present as well as species at their northern range limits. Specifically, high concentrations of narrow endemics are present, many of which are restricted within the area. The presumed extinct fern <i>Hymenophyllum whitei</i> was also recently re-discovered here. Many regional endemics are restricted to the higher peaks occurring as isolated populations, whilst boulder fields, fernlands and herb fields contain endemics found in few other places in the bioregion. Notable examples of such taxa present include: <i>Glochidion pruinosum</i>, <i>Argophyllum cryptophlebium</i>, <i>Bubbia whiteana</i>, <i>Ceratopetalum corymbosum</i>, <i>Eidothea zoexylocarya</i>, <i>Euodia pubifolia</i>, <i>Helicia lewisensis</i>, <i>Hymenophyllum kerianum</i>, <i>Lindsaea terrae-reginae</i>, <i>Ristantia gouldii</i>, <i>Stenocarpus davallioides</i>, <i>Xanthostemon graniticus</i>, <i>Aglaia brassii</i>, <i>Beilschmiedia castrisinensis</i>, <i>Megahertzia amplexicaulis</i>, <i>Stenocarpus cryptocarpus</i> and <i>Wilkiea</i> sp. (McDowall Range J.G.Tracey 14552).</p> <p>The panel also noted that the area contains a number of evolutionary important taxa of ancient/relictual lineage such as <i>Lycopodiella cernua</i>, <i>Lycopodiella lateralis</i>, <i>Selaginella australiensis</i>, <i>Agathis atropurpurea</i> and <i>Lepidozamia hopei</i>.</p>	<p>la (endemic richness): VH          lb (refugia): VH          lc (disjunct populations): H          le (species richness): VH          lf (relictual taxa): VH          lg (ecosystem variation): H          lk (climate change refugia): VH</p>
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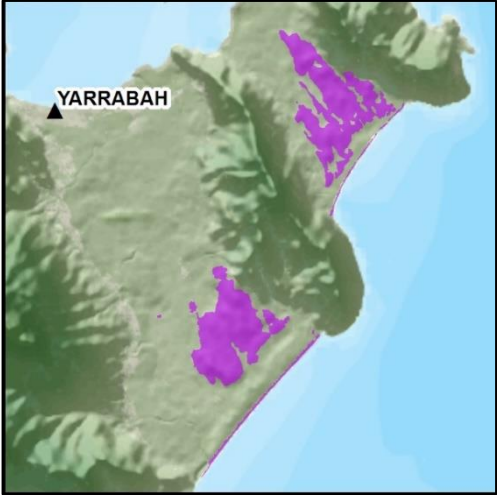
<p>wet_fl_09</p>	<p>Mountain tops south of Daintree - Harris Peak to Herbert River above 950m</p> 	<p>State</p>	<p>The following description provides a general overview of the peaks above 950m from Harris Peak to the Herbert River with the exclusion of Mt Bartle Frere and Bellenden Ker. The feature encompasses areas such as Harris Peak, Herberton Range, Cardwell Ranges, Hann Tableland peak tops, and Bakers Blue. The range east of Cairns including Bell Peak (Malbon Thompson) are included but use a different altitudinal cut off due to change in elevation of cloud cover (450m rather than 950m).</p> <p>Based upon past climatic modelling, these general Wet Tropic Mountain Ranges are considered as having exhibited moderate to strong stability in terms of microphyll-notophyll rainforest retention. Regional ecosystem 7.12.16a (communities of simple notophyll vine forest on wet and moist uplands) exhibits significant variation in taxa composition across the areas depicted. Rock pavements and outcrops occur which provide microhabitat for sedge and fern lands. Also of note, some peaks exhibit similar characteristics to Windsor Tablelands in harbouring both wet and dry rainforest types due to distinct climate/environmental gradients.</p> <p>In general, floristically the panel considered the areas as being species rich, also with very high levels of endemism, although less than similar mountain top decisions.</p>	<p>la (endemic richness): VH          lb (refugia): H          lc (disjunct populations): H          ld (range limits): VH          le (species richness): VH          lf (relictual taxa): VH          lg (ecosystem variation): VH          lk (climate change refugia): H</p>
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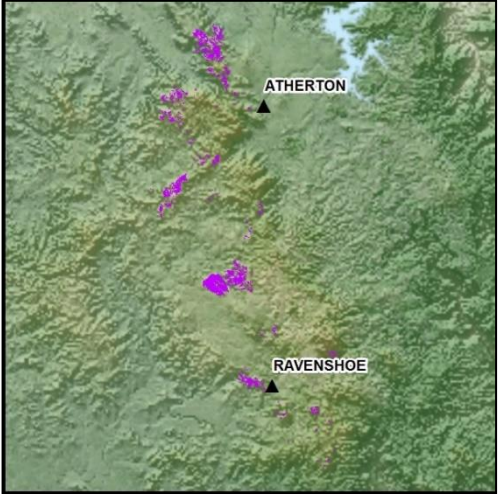
<p>wet_fl_10</p>	<p>Lowlands east of Macalister Range from Yule Point to Palm Cove and equivalent sites between Ingham and Bluewater</p> 	<p>Regional</p>	<p>The feature encompasses two geographically distinct areas (situated towards the northern and southern portions of the bioregion). The Macalister area is mudstone and sand while the Rollingstone area is granite, rhyolite and sand. Despite these differences in geology, similar suites of species and broad vegetation groups are present. Whilst dominated by eucalypt communities, both areas also support the threatened ecological communities' littoral rainforest and <i>Melaleuca viridiflora</i> swamps.</p> <p>High floristic richness is attributed to both, however, bioregional endemic taxa are relatively few. A number of unusual disjunct occurrences are present including the <i>Acacia</i> spp.: <i>Acacia mangium</i>, <i>Acacia spirorbis</i> subsp. <i>solandri</i>.</p> <p>Compared to the other areas of upland/lowland rainforest, the areas depicted contain unusual species assemblages including species not endemic to Australia. Of particular note are the rare vegetation types in the rainforest, (alluvial, littoral and riparian) around Wangetti Beach and Tin Creek.</p>	<p>lc (disjunct populations): VH le (species richness): H</p>
<p>11</p>	<p>Mountain tops on Bartle Frere and Bellenden Ker</p>	<p>NA</p>	<p>Implemented as landscape decision. Refer to wet_I_26.</p>	<p>NA</p>


<p>wet_fl_12</p>	<p>Lower slopes of the Bartle Frere and Bellenden Ker</p> 	<p>State</p>	<p>This feature captures the steep deeply incised hill slopes on landzone 12 below 950m adjoining the peaks of Bartle Frere and Bellenden Ker (captured in decision wet_l_26). A diversity of habitats present supports high flora species richness, many taxa of which are considered as being of evolutionary importance and reflective of selected OUV for which the WTWHA was nominated. OUV present are similar to those attributed to the Mountain tops on Bartle Frere and Bellenden Ker (refer to wet_fl_11), however, exclude the notably high levels of endemism. The slopes provide a very significant refuge for moisture dependent species, and support a diversity of fern taxa including those from ancient families of tree ferns (e.g. <i>Angiopteris evecta</i>, <i>Lygodium reticulatum</i>, <i>Ophioglossum pendulum</i>, <i>Phlegmariurus phlegmaria</i>, <i>Selaginella longipinna</i>) and those from primitive fern families (e.g. <i>Diplazium longissimum</i>, <i>Gleichenia dicarpa</i>, <i>Lygodium reticulatum</i>). The stability of rainforest extent over evolutionary time, suggests that the area may also have a significant refugial role in mitigating future impacts from climate change.</p> <p>A number of conifers and cycads considered to be the most ancient of living seed plants can be found within this special feature and include: <i>Agathis atropurpurea</i>, <i>Agathis robusta</i>, <i>Bowenia spectabilis</i>, <i>Podocarpus dispersus</i>. Another notable relictual species located within this feature is <i>Idiospermum australiense</i>. Scientists recognise <i>Idiospermum</i> genus as one of the earliest known lineages to have branched out from the first flowering plants and still living today. Since as long ago as 120 million years, they continue living today only in the Daintree and Wet Tropics rainforests region of north-eastern Queensland.</p> <p>As per the peaks, the slopes act as a refuge for a relatively high number of threatened flora, including for example: <i>Boea kinnearii</i>, <i>Carronia pedicellata</i>, <i>Chingia australis</i>, <i>Dinosperma longifolium</i>, <i>Plesioneuron tuberculatum</i>, <i>Tylophora rupicola</i>, <i>Uncaria cordata</i> var. <i>cordata</i>, <i>Acacia hylonoma</i>, <i>Citrus inodora</i>, <i>Endiandra anthropophagorum</i>, <i>Plectranthus gratus</i>, <i>Croton densivestitus</i>, <i>Diploglottis harpullioides</i>, <i>Endiandra bellendenkerana</i>, <i>Linospadix palmerianus</i>, <i>Neostrearia fleckeri</i>, <i>Piper mestonii</i>, <i>Pseuduvaria hylandii</i> and <i>Stenocarpus cryptocarpus</i>.</p> <p>Examples of disjunct species present include: <i>Alangium villosum</i> subsp. <i>polyosmoides</i>, <i>Asplenium cuneatum</i>, <i>Castanospermum australe</i>, <i>Connarus conchocarpus</i> subsp. <i>conchocarpus</i>, <i>Cordyline cannifolia</i>, <i>Cyperus pedunculatus</i>, <i>Didymoglossum bimarginatum</i>,</p>	<p>lb (refugia): VH  lc (disjunct populations): H  le (species richness): H  lf (relictual taxa): VH  lg (ecosystem variation): VH  lk (climate change refugia): VH</p>
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			<p><i>Epipremnum pinnatum</i>, <i>Piper mestonii</i>, <i>Pneumatopteris sogerensis</i>, <i>Rhaphidophora australasica</i> and <i>Rockinghamia angustifolia</i>.</p>	
<p>wet_fl_13</p>	<p>Eastern Atherton Tablelands escarpment</p> 	<p>State</p>	<p>This feature comprises remnant units located on the escarpments to the east and south of the Atherton Tablelands and as far west as Mt Fisher. It includes the high value metamorphics on the Francis Range just north of the Johnstone River. Valleys funnel sea breezes upwards resulting in cloud cover at relatively lower altitudes than normal. The area is also situated in a very high rainfall belt which extends from the west of the Bartle Frere massif, north to the Lake Tinaroo area, before sweeping eastwards. The western portions of the feature extend to the 2.5m isohyet range (approximately).</p> <p>Very high levels of both subregional and bioregional endemism are associated with flora situated on metamorphic landzones in the area, (and to a lesser extent those on basalt), which result in local additions to the normal suite of species present. These include: <i>Acronychia aberrans</i>, <i>Beilschmiedia brunnea</i>, <i>Beilschmiedia oligandra</i>, <i>Cryptocarya putida</i>, <i>Cryptocarya smaragdina</i>, <i>Ceratopetalum virchowii</i>, <i>Coelospermum purpureum</i>, <i>Crispiloba disperma</i>, <i>Pilidiostigma tropicum</i>, <i>Gossia dallachiana</i>, <i>Schistocarpea johnsonii</i>, <i>Mesua</i> sp. (Boonjee), <i>Stockwellia quadrifida</i>, <i>Wendlandia basistaminea</i> and <i>Ilex</i> sp. (Gadgarra).</p> <p>The area is also considered important in terms of the presence of evolutionary important, relictual and primitive taxa, many of which are representative of selected OUV for which the WTWHA was nominated. Of note, is that the area is also home to the only Wet Tropics basal (ANITA) angiosperm i.e. Austrobaileyaceae (basal taxa, diverged from the lineage leading to most flowering plants).</p> <p>In addition to providing a refuge of notophyll rainforest, parts of the area contain concentrations of threatened taxa. These include: <i>Drosera schizandra</i>, <i>Chingia australis</i>, <i>Phlegmariurus</i> spp., <i>Bubbia queenslandica</i> subsp. <i>australis</i>, <i>Ristantia gouldii</i> and <i>Hedyotis novoguineensis</i>.</p> <p>Due to lower diversity values, Mabi forests have been excluded from this special feature.</p>	<p>la (endemic richness): VH  lb (refugia): VH  ld) range limits: M  le (species richness): VH  lf (relictual taxa): VH  lk (climate change refugia): H</p>

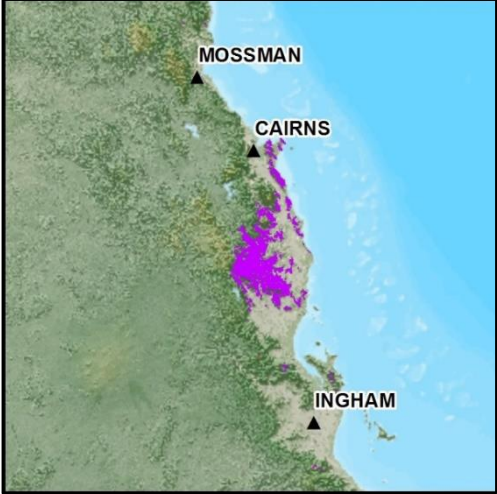


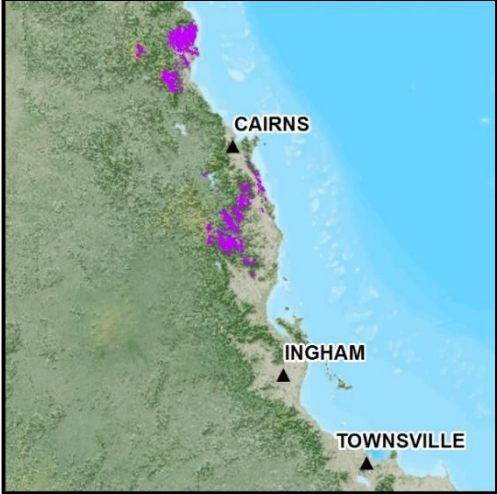
<p>wet_fl_14</p>	<p>Yarrabah heath</p>  <p>The map shows a coastal area with green terrain and blue water. Two distinct areas are highlighted in purple, representing the heath swamps. A black triangle points to a location labeled 'YARRABAH' on the western coast.</p>	<p>Regional</p>	<p>This feature depicts heath swamps on sand dunes. The regional ecosystems identified are: 7.2.10 (a – e) and 7.2.7a. The two focal areas forming this feature are sandwiched between coastal mountain ranges. The heath ecosystems are not species rich, nor botanically diverse, however, they are unique systems with comparable species composition to those found in Cape York. Regional ecosystem 7.2.10 contains flora which occur at the extremes of their range (species which are more typical of the Cape York bioregion). Species within the site that represent disjunct occurrences include: <i>Dianella pavopennacea</i> var. <i>pavopennacea</i>, <i>Leucopogon yorkensis</i>, <i>Nepenthes mirabilis</i> and <i>Syzygium forte</i>.</p>	<p>lc (disjunct populations): H ld (range limits): H</p>
<p>15</p>	<p>Peat bogs and swamps in Atherton Tablelands</p>	<p>NA</p>	<p>Implemented as landscape decision. Refer to wet_I_01.</p>	<p>NA</p>

<p>wet_fl_16</p>	<p>Emerald Range to Ravenshoe - low sclerophyll shrub and heath woodlands</p> 	<p>Regional</p>	<p>This feature captures low sclerophyll shrub and heath woodlands above 950m extending from Walsh's Bluff in the north (Emerald Range) to the Ravenshoe area in the south. Representative regional ecosystems include: 7.12.37 (a,c,d,e,g,i); 7.12.57 (a,c); 7.12.65 (a,b,f,k); 7.12.66 (b,d,e). Relatively high species richness is attributed to these ecosystems compared to similar sclerophyll communities in the bioregion.</p> <p>A high degree of species and structural variation is present across the feature due to variability in microclimate, exposure, soil depth and mosaic fire regime. Reliant upon minor cloud interception for survival, these systems are under threat from climate change.</p> <p>The ecosystems captured provide habitat for a number of threatened flora species including: <i>Acacia purpureopetala</i>, <i>Melaleuca sylvana</i>, <i>Melaleuca uxorum</i>, <i>Prostanthera albohirta</i>, <i>Prostanthera clotteniana</i>, <i>Grevillea glossadenia</i>, <i>Homoranthus porter</i>, <i>Plectranthus amoenus</i> and <i>Diuris oporina</i>. Most of these species are very restricted and localised in their range. Examples of endemics include: <i>Banksia aquilonia</i>, <i>Comesperma anemosmaragdinum</i>, <i>Dianella longifolia</i>, <i>Eucalyptus lockyeri</i>, <i>Glochidion hylandii</i>, <i>Melaleuca uxorum</i>, <i>Prostanthera albohirta</i> and <i>Zieria whitei</i>.</p> <p>Examples of disjunct taxa include: <i>Acacia burrana</i>, <i>Allocasuarina inophloia</i> (SEQ and sthn BRB), <i>Zieria cytisoides</i> (SEQ), <i>Boronia occidentalis</i> (SEQ and sthn BRB), <i>Stylidium graminifolium</i> (SEQ and sthn BRB), <i>Sannantha angusta</i> (SEQ) and <i>Hybanthus monopetalus</i> (SEQ and sthn BRB predominantly). Whilst species at their range limit include: <i>Acacia burrana</i> (N limit), <i>Allocasuarina inophloia</i> (N limit), <i>Apowollastonia cylindrical</i> (NE limit), <i>Boronia occidentalis</i> (N limit), <i>Monotoca scoparia</i> (N limit), <i>Zieria cytisoides</i> and <i>Hybanthus monopetalus</i> (N limit).</p>	<p>la (endemic richness): M          lb (refugia): M          lc (disjunct populations): H          le (species richness): H          lg (ecosystem variation): M          lk (climate change refugia): H</p>
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17	Eubenangee Swamp	NA	Implemented as landscape decision. Refer to wet_I_27.	NA
wet_fl_18	<p>Clump Point and Stephens Island rainforest on basalt</p> 	Regional	<p>This feature represents rainforest on coastal basalt, distinct from other such communities in the region in that they are the only locations where rainforest situated on basalt occurs at the coastal interface. The area is susceptible to clearing and weed invasion and approximately half this feature occurs on private land.</p> <p>Although the floristic taxa present are widespread and common, the vegetation includes the only littoral rainforest on basalt in the Wet Tropics, with the basalt and climate supporting possibly Australia's best example of complex mesophyll littoral rainforest. The panel noted the intent that the predominant regional ecosystem 7.8.1a, is to be altered under the Queensland Herbarium's framework to reflect the uniqueness of the system.</p> <p>With respect to values, the feature is one of two locations where the species <i>Kleinhovia hospita</i> and <i>Erythrina fusca</i> are found. <i>Pandanus monticola</i> supports populations of the patchily and naturally restricted peppermint stick insect (<i>Megacrania batesii</i>). The vulnerable species <i>Arenga australasica</i> is also present and a number of species (<i>Lindera queenslandica</i> (sthn limit); <i>Ailanthus integrifolia</i> subsp. <i>integrifolia</i> (sthn limit)) occur at their limit of range.</p> <p>In addition to the above biodiversity values, the panel also commented on the presence of a number of massive <i>Ficus albipila</i> and bordering coastal <i>Themeda</i> grassland communities (rare in the bioregion), which are considered of cultural significance.</p>	<p>lc (disjunct populations): H                      ld (range limits): H                      lg (ecosystem variation): VH</p>
19	Cowley Creek Serpentinite	NA	Not Implemented. This feature will be mapped under Criterion B (Ecosystem Value).	NA
20	Swamp complexes	NA	Implemented as fauna decision. Refer to wet_fa_16.	NA
21	<i>Melaleuca viridiflora</i> communities	NA	Not Implemented. This feature will be mapped under Criterion B (Ecosystem Value).	NA
22	Cowley Beach and Kelly Beach sand dunes	NA	Not Implemented, values captured in landscape decision, wet_I_05. Littoral rainforest values are captured under Criterion B (Ecosystem Value).	NA

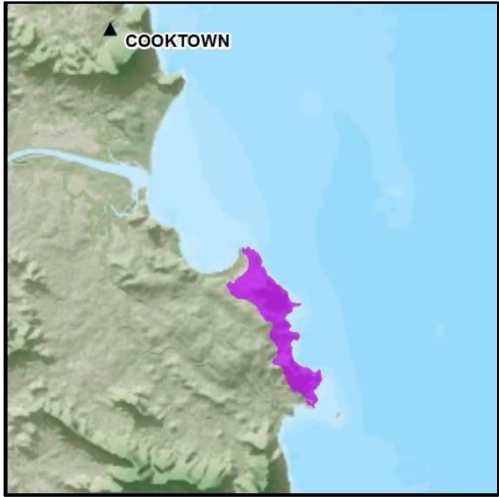
23	Trinity Inlet and Hinchinbrook Mangroves	NA	Implemented as wet_fl_6.	NA
wet_fl_24	<p>Paluma Range</p> 	Regional	<p>A relatively large area at the southern extent of the bioregion. Vegetation communities include: microphyll rainforest, notophyll vine forests, wet sclerophyll forest, vine thickets and hoop pine emergent. The eastern and southern portions of the range are composed of notophyll rainforest. Multiple ecotones associated with changes in gradient over the range result in an unusual sequence of vegetation communities. Ecotones transitions are broader and more gradual comparative to similar ecotones in the north, and regional ecosystem variation occurs within ecotones.</p> <p>The range is relatively species rich, with survey work identifying approximately 120 species per 0.1 hectares in areas across the range. Examples of endemics present include: <i>Corymbia leptoloma</i>, <i>Crepidomanes majoriae</i>, <i>Gastrodia urceolate</i>, <i>Elaeocarpus coorangooloo</i>, <i>Archidendron vaillantii</i>, <i>Bulbophyllum evasum</i>, <i>Cardwellia sublimis</i>, <i>Cryptocarya putida</i>, <i>Dendrobium agrostophyllum</i>, <i>Endiandra bessaphila</i>, <i>Glochidion hylandii</i>, <i>Laccospadix australasicus</i>, <i>Motherwellia haplosciadea</i>, <i>Peperomia bellendenkerensis</i>, <i>Rhodamnia sessiliflora</i> and <i>Solanum magnifolium</i>.</p> <p>Numerous species also occur at their range limit. Examples of species at or near northern range limit: <i>Livistona australis</i>, <i>Argyrodendron actinophyllum</i> subsp. <i>diversifolium</i>, <i>Cassia</i> sp. (Paluma Range G.Sankowsky+ 450) and <i>Acacia rhodoxylon</i>. Examples of species at or near southern range limit: <i>Cardwellia sublimis</i>, <i>Cryptocarya putida</i>, <i>Flindersia brayleyana</i> and <i>Flindersia pimenteliana</i>.</p>	<p>la (endemic richness): H  lb (refugia): M  lc (disjunct populations): M  ld (range limits): VH  le (species richness): H  lf (relictual taxa): M  lk (climate change refugia): M</p>


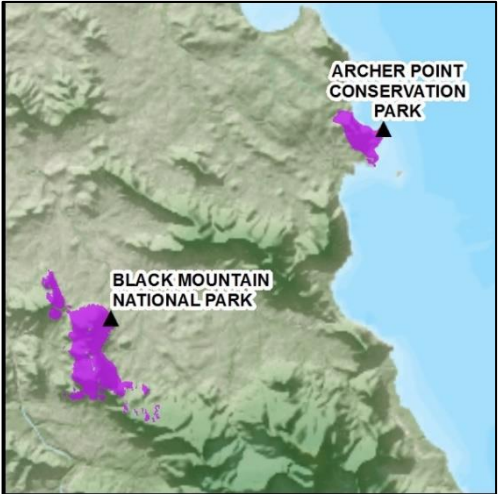
<p>wet_fl_25</p>	<p>Flora richness mapping</p> 	<p>State</p>	<p>This special feature is an adaptation of that produced by Mokany et al. (2014b) in which 527 plant community survey plots in the Australian Wet Tropics were used to generate models and predictions of species richness, compositional dissimilarity, and community composition for 4,313 vascular plant species recorded across the region.</p> <p>The current special area representation focuses on areas of Wet Tropics remnant vegetation macroecologically modelled as being highly species rich. The extent captured reflects the most species rich modelled 10% of remnant vegetation within the WET.</p>	<p>le (species richness): VH</p>
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<p>wet_fl_26</p>	<p>Endemic Richness mapping</p> 	<p>State</p>	<p>This special feature is an adaptation of that produced by Mokany et al. (2014b) in which 527 plant community survey plots in the Australian Wet Tropics were used to generate models and predictions of species richness, compositional dissimilarity, and community composition for 4,313 vascular plant species recorded across the region.</p> <p>The current feature focuses on identifying areas of Wet Tropics remnant vegetation macroecologically modelled as being of high species endemism. The modelling predicted the number of species within each community that were endemic to a circular area of radius 30km centred on that community. The highest species modelled centres of endemism (top 10<sup>th</sup>-90<sup>th</sup> percentile) of remnant vegetation is depicted in the current special area representation.</p>	<p>la (endemic richness): VH</p>
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**Adjoining bioregion decisions (not reviewed by the 2018 expert panel)**

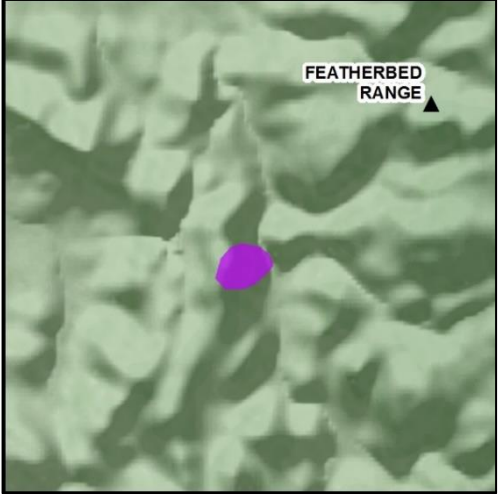
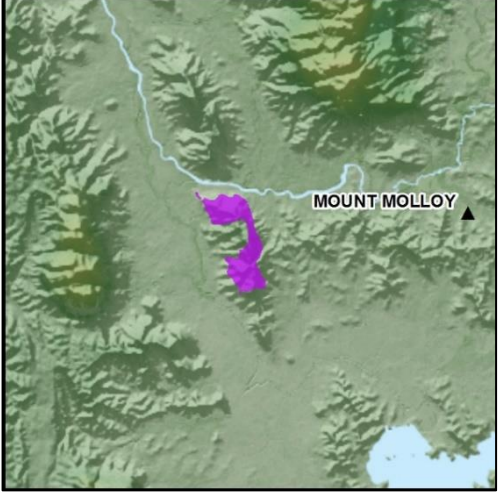
*Nb. for the following non- Wet Tropics BPA decisions, only affected Wet Tropics assessment units are depicted in the images below.*

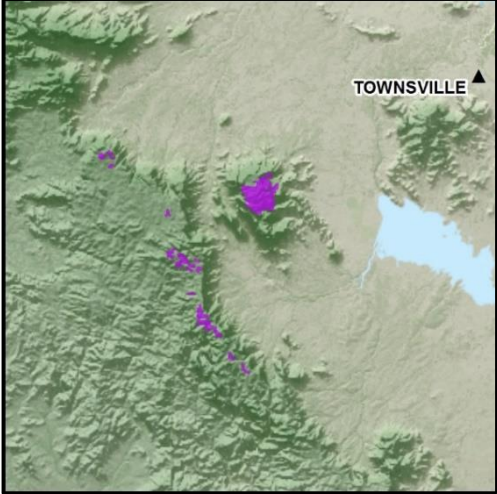
<p>cyp_fl_02</p>	<p>Grassland REs less than 10,000ha</p> 	<p>State</p>	<p>REs including 3.3.57, 3.3.62, 3.5.30, 3.8.4, 3.9.8, 3.12.30, 3.12.31, 3.12.32, 3.12.29 and 3.11.19a. Under threat from thickening. Many less than 1,000ha. Habitat for threatened bird species, general concern about the loss of grasslands on CYP (Crowley and Garnett 1998).</p>	<p>Ib (wildlife refugia): H/VH Ig (ecosystem variation): VH</p>
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<p>cyp_fl_05</p>	<p>Significant rainforests</p> 	<p>State</p>	<p>Nationally Rare Vegetation Community (Abrahams et al. 1995)</p>	<p>la (centre of endemism): H                  lb (wildlife refugia): VH                  le (high species richness): VH</p>
<p>cyp_fl_07</p>	<p>Heath</p> 	<p>State</p>	<p>Heath communities are nationally restricted and uncommon. CYP contains the largest areas of heathland in Australia, and these examples are largely undisturbed (Abrahams et al. 1995).</p>	<p>la (centre of endemism): VH                  lb (wildlife refugia): VH                  lc (disjunct populations): VH                  ld (taxa at the limits of their ranges): VH                  le (high species richness): VH                  lf (relictual taxa): VH                  lg (ecosystem variation): H                  lj (significant breeding or roosting sites): H</p>



<p>eiu_fl_01</p>	<p>Stannary Hills (west of Herberton) and Glen Gordon Volcanics</p> 	<p>State</p>	<p>Extensive area of hills and ranges west of Herberton, on granites and metamorphic rocks. Includes the highest altitude parts of the Herberton-Wairuna Subregion, continuous with the western edge of the Atherton-Wairuna Tablelands. It includes the most extensive area over 700m ASL within the WET/EIU ecotone. Due to its unique combination of climate, altitude and geomorphology the area is a centre of endemism, contains a large number of species that are disjunct occurrences or at the limit of their ranges (including a number of NCA listed R &amp; T species), and a significant climate refugia. Flora endemic to the area include: <i>Acacia purpureopetala</i> (V), <i>Corymbia rhodops</i> (V) and <i>Grevillea glossadenia</i> (V). Species of conservation significance that have the major extent of their occurrence here include <i>Acacia longipedunculata</i> (R), <i>Cycas platyphylla</i> (V), <i>Eucalyptus atrata</i>, <i>Eucalyptus lockyeri</i> subsp. <i>lockyeri</i> (R), <i>Eucalyptus lockyeri</i> subsp. <i>exuta</i> (R), <i>Eucalyptus lockyeri</i> (R), <i>Eucalyptus pachycalyx</i> subsp. <i>pachycalyx</i> (R), <i>Goodenia stirlingii</i> (R), <i>Homoranthus porteri</i> (V), <i>Hovea nana</i>, <i>Plectranthus amoenus</i> (V, a species of the western margin of the Wet Tropics) and <i>Micromyrtus delicata</i> (E), also a WET margin species). Other plant species of significance include <i>Acacia meiosperma</i> (R), <i>Peripleura scabra</i> (R), <i>Peripleura sericea</i> (R) and <i>Prostanthera clotteniana</i> (E). Parts of the area are still poorly known and in urgent need of survey.</p>	<p>la (centre of endemism): VH                  lb (wildlife refugia): VH                  lc (disjunct populations): H                  ld (taxa at the limits of their ranges): H                  le (high species richness): VH</p>
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<p>eiu_fl_04</p>	<p>Featherbed Range</p> 	<p>State</p>	<p>Extensive rugged massif of predominantly stony rhyolite hills, with small areas of microgranite, and bisected by the Walsh River and its associated gorge. The area rises to over 1000m ASL in the east, and slopes down to about 500m in the west. It is largely surrounded by lowlands and low hills, so forms a topographic isolate that although poorly known, is believed likely to support a wide range of species of conservation interest. These include species at the limits of their range, disjunct populations, and R &amp; T species. Flora of conservation significance known to occur there include <i>Acacia meiosperma</i> (R), <i>Chamaesyce carissoides</i> (V), <i>Fimbristylis odontocarpa</i> (R), <i>Acacia wickhamii</i> subsp. <i>cassitera</i> and <i>Bonamia</i> sp. (Chillagoe K.R.McDonald KRM334). The area also contains a number of springs.</p> <p>This area adjoins a large dissected plateau of metamorphic ecosystems in good condition in the north-east (eiu_l_1), which consolidates and connects this area and Mount Mulligan eiu_fl_2 Special Biodiversity Area. Fauna Decision eiu_fa_06 covers the Walsh River and its tributaries.</p>	<p>Ib (wildlife refugia): VH Ic (disjunct populations): H Id (taxa at the limits of their ranges): H</p>
<p>eiu_fl_08</p>	<p>Bakers Blue and nearby granite areas</p> 	<p>Regional</p>	<p>Biotite granite hills north-west of Mareeba. These hills and ranges are surrounded by low sedimentary hills and plains, forming small biogeographic isolates near the western boundary of the WET. All have skeletal soils and coarse sands and are characterized by species with disjunct populations and unusual species assemblages, as well as some R &amp; T species. Ecosystems include Wet Tropics outliers as well as drier vine thickets, woodlands and heaths.</p> <p>Although poorly known, plants of conservation significance known to occur include <i>Brachychiton albidus</i> (R), <i>Pimelea</i> sp. (Bakers Blue Mt D.G.Fell DF1588) and <i>Tephrosia gaudium-solis</i>.</p> <p>Note: the Hann Tableland part of this decision was removed and included in Landscape Decision eiu_l_12.</p>	<p>Ib (wildlife refugia): H Ic (disjunct populations): H Ie (high species richness): VH</p>

<p>eiu_fl_20</p>	<p>Hervey Range-Reid River Gorge</p> 	<p>State</p>	<p>This area is centred on the Hervey Range, extending from the Pinnacles south to Reid River, along the eastern margin of the bioregion. Most of the area lies over 500m ASL, although western areas adjacent to the Fanning River are less than 300m ASL. It is an area of high geological and ecosystem diversity, and its altitude and higher rainfalls make it a biogeographic refugia for many species.</p> <p>The areas very high floristic diversity includes the highest concentration of R &amp; T species in Townsville region. Species present and listed under the NCA include the endangered <i>Sannantha papillose</i>, the vulnerable species <i>Croton magneticus</i>, <i>Dubouzetia saxatilis</i>, <i>Eucalyptus paedoglauca</i> and <i>Marsdenia brevifolia</i>, and the rare species <i>Acacia jackesiana</i>, <i>Atalaya calcicola</i>, <i>Cassia</i> sp. (Paluma Range G.Sankowsky+ 450), <i>Graptophyllum excelsum</i>, <i>Oldenlandia polyclada</i>, <i>Parsonsia lenticellata</i>, <i>Peripleura scabra</i> and <i>Peripleura sericea</i>.</p>	<p>la (centre of endemism): H                  lb (wildlife refugia): VH                  lc (disjunct populations): VH                  ld (taxa at the limits of their ranges): VH                  le (high species richness): VH                  lg (REs with distinct variation): H</p>
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### 3.2 Fauna taxa considerations (Criteria A and H)

Criteria A and H attribute significance to areas based on the presence of EVNT taxa scheduled under the NCA or the EPBC, or the presence of priority species. The WET fauna expert panels identified some 232 taxa for inclusion under Criteria A and H. Table 8 summarises the number of taxa by status categories. The standard BAMM record filtering rules were applied (EHP 2014).

**Table 8. Summary of fauna taxa considered by the expert panel for Criteria A and H**

	Endangered	Vulnerable	Near Threatened	Priority (non-EVNT) taxa	Total
Number of taxa listed	29	46	9	148	232

#### 3.2.1 Habitat for endangered, vulnerable and near threatened fauna taxa (Criterion A)

The panel identified and selectively reviewed species records to define a list of 84 WET EVNT fauna taxa (Table 9). A number of taxa were excluded from the table below either because there were no (or too few) reliable records in the WET or, based upon expert opinion, the taxa was considered not to occur in the bioregion (refer to [Appendix 2](#)). For inclusion in the WET BPA the records were first subject to filtering rules as described in the preceding section 2.3.1 and subsequently buffered by twice the precision (as for Criterion A) with a minimum of 300m, and a maximum of 2km.

**Table 9. WET - endangered, vulnerable and near threatened fauna taxa (Criterion A)**

Scientific name	Common name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Mobility <sup>3</sup>	Expert panel comments
<b>Invertebrate</b>					
<i>Euastacus bindal</i>	Mount Elliot crayfish	V	CE	L	Endemic, Mt Elliot outlier
<i>Hypochrysops apollo apollo</i>	Apollo Jewel (Wet Tropics subsp.)	V		L	Endemic
<b>Fish</b>					
<i>Bidyanus bidyanus</i>	silver perch		CE	L	Endemic to Murray Darling but translocated into WET
<i>Melanotaenia eachamensis</i>	Lake Eacham rainbowfish		E	L	Endemic
<i>Pristis pristis</i>	Freshwater sawfish		V	H1	Very few records from WET - considered extinct in WET. Collected in Cairns Harbour a long time ago
<i>Stiphodon pelewensis</i>	cling goby	V		L	Disjunct, in Australia restricted to WET
<i>Stiphodon rutilaureus</i>	orange cling goby	V		L	Disjunct, in Australia restricted to WET
<i>Stiphodon semoni</i>	opal cling goby		CE	L	Disjunct, in Australia restricted to WET
<i>Stiphodon sarrufus</i>	cling goby	V		L	Disjunct, in Australia restricted to WET
<b>Amphibian</b>					
<i>Adelotus brevis</i>	Tusked frog	V		L	

Scientific name	Common name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Mobility <sup>3</sup>	Expert panel comments
<i>Cophixalus aenigma</i>	tapping nurseryfrog	NT		L	Endemic. Risk from climate change
<i>Cophixalus concinnus</i>	beautiful nurseryfrog	V		L	Narrow endemic. Risk from climate change
<i>Cophixalus exiguus</i>	dainty nurseryfrog	V		L	Narrow endemic. Risk from climate change
<i>Cophixalus hosmeri</i>	rattling nurseryfrog	NT		L	Narrow endemic. Risk from climate change
<i>Cophixalus mcdonaldi</i>	Mount Elliot nurseryfrog	V		L	Narrow endemic, Mt Elliot outlier
<i>Cophixalus monticola</i>	mountain nurseryfrog	V		L	Narrow endemic
<i>Cophixalus neglectus</i>	Bellenden Ker nurseryfrog	V		L	Narrow endemic. Risk from climate change
<i>Cophixalus saxatilis</i>	Black Mountain boulderfrog	V		L	Narrow endemic
<i>Litoria dayi</i>	Australian lacelid	E	E	L	Endemic
<i>Litoria lorica</i>	little waterfall frog	E	CE	L	Narrow endemic
<i>Litoria myola</i>	Kuranda treefrog	E	E	L	Narrow endemic
<i>Litoria nannotis</i>	waterfall frog	E	E	L	Endemic
<i>Litoria nyakalensis</i>	mountain mistfrog	E	CE	L	Endemic
<i>Litoria rheocola</i>	common mistfrog	E	E	L	Endemic
<i>Litoria serrata</i>	tapping green-eyed treefrog	V		L	Endemic
<i>Pseudophryne covacevichae</i>	magnificent broodfrog	V	V	L	WET-EIU ecotone
<i>Taudactylus rheophilus</i>	northern tinkerfrog	E	E	L	Endemic. Relictual sp. Risk from climate change
<b>Reptile</b>					
<i>Acanthophis antarcticus</i>	common death adder	V		L	
<i>Calyptotis thorntonensis</i>	Thornton Peak calyptotis	V		L	Narrow endemic
<i>Chelonia mydas</i>	green turtle	V	V	H2	Has been recorded nesting in the bioregion
<i>Concinnia frerei</i>	Bartle Frere bar-sided skink	V		L	Narrow endemic
<i>Crocodylus porosus</i>	estuarine crocodile	V		H1	

Scientific name	Common name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Mobility <sup>3</sup>	Expert panel comments
<i>Ctenotus monticola</i>	Atherton ctenotus	V		L	Endemic. WET-EIU ecotone. Risk from climate change
<i>Delma mitella</i>	Atherton delma	NT	V	L	Restricted range, majority in WET
<i>Egernia rugosa</i>	yakka skink	V	V	L	
<i>Lampropholis mirabilis</i>	saxicoline sunskink	NT		L	Mt Elliot outlier
<i>Liburnascincus scirtetis</i>	Black Mountain rainbow-skink	V		L	Narrow endemic
<i>Lygisaurus tanneri</i>	Endeavour River litter-skink	V		L	Mostly CYP
<i>Nactus galgajuga</i>	Black Mountain gecko	V		L	Narrow endemic
<i>Natator depressus</i>	flatback turtle	V	V	H2	
<i>Phyllurus gulbaru</i>	Gulbaru gecko	E	CE	L	Narrow endemic
<i>Pygmaeascincus sadleri</i>	Magnetic Island dwarf skink	V		L	Mostly BRB
<i>Techmarscincus jigurru</i>	Bartle Frere cool-skink	V		L	Narrow endemic. Risk from climate change
<b>Bird</b>					
<i>Calidris canutus</i>	red knot	E	E	H1	
<i>Calidris ferruginea</i>	curlew sandpiper	E	CE	H1	
<i>Calidris tenuirostris</i>	great knot	E	CE	H1	
<i>Calyptorhynchus lathami</i>	glossy black-cockatoo	V		H2	SW edge of WET
<i>Casuarius casuarius</i> (sthn popl'n)	southern cassowary (southern population)	E	E	H1	Disjunct. Relictual taxon
<i>Charadrius leschenaultii</i>	greater sand plover	V	V	H1	
<i>Charadrius mongolus</i>	lesser sand plover	E	E	H1	
<i>Cyclopsitta diophthalma macleayana</i>	Macleay's fig-parrot	V		H2	Disjunct and at risk/declining
<i>Erythrotriorchis radiatus</i>	red goshawk	E	V	H2	Present in bioregion - sightings at Moresby Range and Mission Beach)
<i>Erythrura trichroa</i>	blue-faced parrot-finch	NT		L	Disjunct
<i>Esacus magnirostris</i>	beach stone-curlew	V		H2	Vulnerable to disturbance on mainland beaches and to coastal erosion of nesting sites

Scientific name	Common name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Mobility <sup>3</sup>	Expert panel comments
<i>Falco hypoleucos</i>	grey falcon	V		H2	Vagrants. Eruptions in numbers - spill over into adjoining bioregions. Core habitat is the Channel Country
<i>Geophaps scripta scripta</i>	squatter pigeon (southern subsp.)	V	V	L	
<i>Limosa lapponica baueri</i>	bar-tailed godwit (western Alaskan)	V	V	H1	
<i>Numenius madagascariensis</i>	eastern curlew	E	CE	H1	
<i>Rostratula australis</i>	Australian painted snipe	V	E	H1	
<i>Turnix olivii</i>	buff-breasted button-quail	E	E	L	Western edge WET
<i>Tyto novaehollandiae kimberli</i>	masked owl (northern subsp.)	V	V	H1	
<b>Mammal</b>					
<i>Bettongia tropica</i>	northern bettong	E	E	L	WET-EIU ecotone
<i>Dasyurus hallucatus</i>	northern quoll		E	L	
<i>Dasyurus maculatus gracilis</i>	spotted-tailed quoll (northern subsp.)	E	E	H1	Disjunct. Risk from climate change
<i>Dendrolagus bennettianus</i>	Bennett's tree-kangaroo	NT		L	Endemic
<i>Dendrolagus lumholtzi</i>	Lumholtz's tree-kangaroo	NT		L	Endemic
<i>Hipposideros cervinus</i>	fawn leaf-nosed bat	V		L	
<i>Hipposideros diadema reginae</i>	diadem leaf-nosed bat	NT		L	
<i>Hipposideros semoni</i>	Semon's leaf-nosed bat	E	V	L	
<i>Macroderma gigas</i>	ghost bat	E	V	H1	
<i>Mesembriomys gouldii</i>	black-footed tree-rat		V	L	
<i>Murina florium</i>	flute-nosed bat	V		L	Disjunct
<i>Petauroides volans</i>	greater glider	V	V	L	
<i>Petaurus australis</i> unnamed subsp. (NQ)	yellow-bellied glider (northern subsp.)	V	V	L	WET-EIU ecotone. Maybe separate species - research currently in progress
<i>Petaurus gracilis</i>	mahogany glider	E	E	L	Endemic
<i>Petrogale sharmani</i>	Sharman's rock-wallaby	V	V	L	WET-EIU ecotone

Scientific name	Common name	NCA <sup>1</sup>	EPBC <sup>2</sup>	Mobility <sup>3</sup>	Expert panel comments
<i>Phascolarctos cinereus</i>	koala	V	V	L	Western edge WET
<i>Pteropus conspicillatus</i>	spectacled flying-fox	V	V	H2	Disjunct
<i>Rhinolophus philippinensis/robertsi</i>	greater large-eared horseshoe bat	E	V	L	
<i>Sminthopsis archeri</i>	chestnut dunnart	NT		L	Western edge WET
<i>Sminthopsis leucopus</i>	white-footed dunnart	V		L	Disjunct
<i>Saccolaimus saccolaimus</i>	bare-rumped sheathtail bat	E	V	L	
<i>Taphozous australis</i>	coastal sheathtail bat	NT		L	
<i>Xeromys myoides</i>	water mouse	V	V	L	Recently found in mangrove habitat in Cairns

<sup>1</sup> E = endangered, V = vulnerable, NT = near threatened as per *Nature Conservation Act 1992*

<sup>2</sup> CE = critically endangered, E = endangered, V = vulnerable as per the *Environment Protection and Biodiversity Conservation Act 1999*

<sup>3</sup> Mobility rating: H1 = high - use all records, H2 = high - use only known breeding/feeding/roosting records, L= low - use all records



### 3.2.2 Habitat for priority fauna taxa (Criterion H)

Priority species are non-EVNT species that are considered to be of particular conservation significance. The rationale for inclusion is based upon the eligibility criteria described in section 2.3.1. Given the relatively high sampling intensity and diverse and unique fauna of WET, it not surprising that 613 taxa were initially considered for priority status, mostly on the basis of endemic or disjunct population criteria. The decision was made to focus on those taxa of highest significance. Selection was limited to taxa deemed at risk or declining (Criteria 1 or 9), keystone (Criterion 7) or had greater than 2 criteria listed. A total of 148 fauna taxa were listed for inclusion under Criterion H (Table 11). The number of species pertaining to each eligibility criteria is summarised in Table 10. Most species listed had more than one eligibility criteria assigned. Any taxa that were chosen that were at risk and narrow endemics, i.e. very small distribution in the WET, were given State significance while the remainder were assigned Regional significance.

For inclusion in the WET BPA priority species records were first subject to filtering rules as described in section 2.3.1 and subsequently, buffered by twice the precision (as for Criterion A) with a minimum of 300m, and a maximum of 1km. The decision rules for assigning Criterion H values (Low to Very high) are summarised in Table 6.

**Table 10. Number of priority fauna taxa listed for each eligibility criteria**

Eligibility value <sup>1</sup>	Taxa count
1. Taxa at risk	22
2. Taxa of scientific interest as relictual (ancient or primitive)	31
3. Endemic taxa	146
4. Significant taxa	6
5. Taxa important for maintaining genetic diversity such as complex patterns of genetic variation	0
6. Disjunct species populations	2
7. Taxa functionally important to ecosystem integrity	0
8. Taxa performing a role as an ecological indicator of ecosystem integrity	0
9. Taxa vulnerable to impacts of climate change	136

**Table 11. WET - priority fauna taxa (Criterion H)**

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<b>Invertebrate</b>				
<b>Snail</b>				
<i>Aetholitis astaeus</i>	Mount Macallister bristle snail	Type A	3, 9	High mountain sp., scattered within WET
<i>Aetholitis janetzkae</i>	Thornton Peak bristle snail	Type A	3, 9	High mountain sp., scattered within WET
<i>Alpinipupina griffithsi</i>	Bakers Blue chrysalis-snail	Type A	3, 9	Top 200m of Bakers Blue
<i>Altidelos bellendenker</i>	Bellenden Ker carnivorous snail	Type A	3, 9	Above 1,100m
<i>Antiquarion collinsae</i>	Lamb Range semi-slug	Type A	3, 9	
<i>Austrocamaena thorntonensis</i>	Thornton Peak striped snail	Type A	3, 2, 9	
<i>Biomphalopa lewisrobertsi</i>	Thornton Uplands pinwheel snail	Type A	3, 9	
<i>Colmanarion burchi</i>	mountain-top semi-slug	Type A	3, 9	Above 1,000m
<i>Colmanarion thorntoniana</i>	Thornton Peak semi-slug	Type A	3, 9	Above 1,000m
<i>Craterodiscus costulatus</i>	yellow discus-snail	Type B	2, 3, 9	Above 900m
<i>Craterodiscus pricei</i>	Price's discus-snail	Type B	2, 3, 9	Above 900m
<i>Crikey steveirwini</i>	Steve Irwin's treesnail	Type B	3, 4, 9	Above 1,000m
<i>Danielleilona marycolliverae</i>	Massey Range pinwheel snail	Type B	2, 3, 9	above 1,000m
<i>Danielleilona multcostata</i>	Malbon Thompson pinwheel snail	Type A	3, 9	Above 900m. Bells Peak
<i>Dividospiralia alba</i>	Bellenden Ker pinwheel snail	Type A	3, 9	Above 1,000m
<i>Elatonitor montana</i>	montane glass-snail	Type A	3, 9	Above 1,000m
<i>Fastosarion helenkingae</i>	Mount Elliot semi-slug	Type A	3, 9	Above 900m in elevation
<i>Hedleya agnimontana</i>	Lamb Range Corkscrew-snail	Type A	3, 9	Above 1,000m
<i>Hedleya montlewis</i>	Mount Lewis corkscrew-snail	Type A	3, 9	Above 1,000m

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>Hedleyoconcha ailaketoae</i>	northern conical pinwheel snail	Type A	3, 9	Above 1,000m. Only other sp. of this genus in Australia from SEQ/NNSW
<i>Koreelahropa plowmanae</i>	Plowman's pinwheel snail	Type A	3, 9	Above 1,000m. Mt Lewis
<i>Lenwebbia paluma</i>	Paluma pinwheel snail	Type A	3, 9	Above 900m. Paluma
<i>Montanocystis bellendenker</i>	Bellenden Ker glass-snail	Type A	3, 9	Above 1,000m
<i>Montanopoma agniceps</i>	Lambs Head pendant-snail	Type A	2, 3, 9	Above 1,000m only
<i>Montanopoma bellendenker</i>	Bellenden Ker pendant-snail	Type A	2, 3, 9	Above 1,000m only
<i>Montanopoma carbine</i>	Mount Carbine pendant-snail	Type A	2, 3, 9	Above 1,000m only
<i>Montanopoma monteithi</i>	Bell Peak pendant-snail	Type A	2, 3, 9	Above 1,000m only
<i>Montanopoma waltherhill</i>	Boulder Creek pendant-snail	Type A	2, 3, 9	Above 1,000m only
<i>Monteithosites helicostracum</i>	Hann Tableland banded snail	Type B	1, 3, 9	Above 900m on Hann Tableland. At risk from burning
<i>Necopupina monticula</i>	bold-ribbed chrysalis-snail	Type B	3, 9	Above 1,000m. Thornton Peak
<i>Nesopupa hackerae</i>	tiny golden pupasnaail	Type A	1, 3	Taxa at risk - ecotone between main range at western margin - fire a threat
<i>Nitor reisi</i>	Mount Lewis glass-snail	Type B	3, 9	Above 900m. Mt Lewis
<i>Obsteugenia inflecta</i>	Malanda bristle snail	Type B	1, 3, 9	Above 900m. Evelyn Tableland
<i>Oreokera cumulus</i>	Odhner's pinwheel snail	Type B	2, 3, 9	Above 1,000m
<i>Oreokera nimbus</i>	Thornton Peak pinwheel snail	Type A	2, 3, 9	Above 1,000m
<i>Setoturbinata taylori</i>	spiny turban pinwheel snail	Type B	2, 3, 9	Above 1,000m Mt Lewis
<i>Steorra estherlilleyae</i>	giant Paluma banded snail	Type A	1, 3, 9	At risk from fire - restricted to ecotone on the western side of Paluma Range, above 900m
<i>Steorra jimfergusoni</i>	dark Paluma banded snail	Type A	3, 9	Above 900m. Paluma rainforest
<i>Suavocallia finnegan</i>	Mount Finnegan chrysalis-snail	Type A	2, 3, 9	Above 1,000m

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>Suavocallia minuta</i>	tiny chrysalis-snail	Type A	2, 3, 9	Above 1,000m
<i>Suavocallia thorntoniana</i>	Thornton Peak chrysalis-snail	Type B	2, 3, 9	Above 1,000m
<i>Theskelomensor creon</i>	Kirrama squat-keeled snail	Type A	2, 3, 9	Above 900m in the Mt Fox area
<i>Velepaina beddomei</i>	Beddome's staircase-snail	Type A	3, 9	Occurs above 900m
<i>Velepaina kirrama</i>	Kirrama staircase-snail	Type A	3, 9	Occurs above 900m
<b>Crayfish</b>				
<i>Euastacus balanensis</i>	freshwater crayfish	Type B	3, 9	Narrow range endemic - at risk from climate change. Generally found above 800m. IUCN listed. Require significant amount of high altitude stream
<i>Euastacus fleckeri</i>	freshwater crayfish	Type B	3, 9	Narrow range endemic - at risk from climate change. Generally found above 800m. IUCN listed. Require significant amount of high altitude stream
<i>Euastacus robertsi</i>	freshwater crayfish	Type A	3, 9	Narrow range endemic - at risk from climate change. Generally found above 800m. IUCN listed. Require significant amount of high altitude stream
<i>Euastacus yigara</i>	freshwater crayfish	Type A	3, 9	Narrow range endemic - at risk from climate change. Generally found above 800m. IUCN listed. Require significant amount of high altitude stream
<b>Spider</b>				
<i>Aname kirrama</i>	spider	Type A	2, 3, 4	Kirrama
<i>Hadronyche anzses</i>	tropical funnel-web spider	Type A	2, 3, 4	Mossman Bluff
<i>Macrogradungula moonya</i>	spider	Type A	2, 3, 4	Boulder Creek, Tully
<i>Namea olympus</i>	spider	Type A	2, 3, 4	Mt Bartle-Frere
<b>Beetle</b>				
<i>Anomalomorpha monteithi</i>	beetle	Type A	1, 3, 4, 9	Restricted to wet sclerophyll forest, known from four sites of high altitude, habitat threatened
<i>Aptenocanthon kabura</i>	beetle	Type A	3, 9	Restricted to the summit of Mt Finnigan

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>Aptenocanthon monteithi</i>	beetle	Type A	3, 9	Found only from four mountain massifs in WET above 1,100m
<i>Aptenocanthon winyar</i>	beetle	Type B	3, 9	In boulder caves, distinctive fauna, dung beetle feeds on swiftlet guano, endemic
<i>Aptenocanthon wollumbin</i>	beetle	Type A	3, 9	Only from summit rainforest of Mt Elliot 1,000–1,200m
<i>Apterotheca arguta</i>	beetle	Type A	3, 9	Restricted to Hann Tableland elevations 950–1,000m
<i>Apterotheca astraphes</i>	beetle	Type A	3, 9	Restricted to Carbine Tableland elevations 1,000–1,300m
<i>Apterotheca atramontana</i>	beetle	Type A	3, 9	Restricted to Black Mountain elevations above 800m
<i>Apterotheca boreafinis</i>	beetle	Type A	3, 9	Restricted to northern end of Hann Tableland
<i>Apterotheca chloros</i>	beetle	Type A	3, 9	Restricted to Carbine Tableland elevations above 1,000m
<i>Apterotheca crustularia</i>	beetle	Type A	3, 9	Restricted to Bakers Blue Mountain above 800m
<i>Apterotheca disconvexa</i>	beetle	Type A	3, 9	Restricted to Cardwell Range above 700m
<i>Apterotheca divergens</i>	beetle	Type A	3, 9	Restricted to summit of Mt Murray Prior
<i>Apterotheca elongata</i>	beetle	Type A	3, 9	Restricted to Bakers Blue Mountain elevations 800–1,100m
<i>Apterotheca gayunda</i>	beetle	Type A	3, 9	Restricted to high altitude rainforests of Hinchinbrook Island
<i>Apterotheca ghislaini</i>	beetle	Type A	3, 9	Restricted to Mt Elliott at or above 1,000m
<i>Apterotheca junctistriata</i>	beetle	Type A	3, 9	Restricted to the Thornton Peak mountain range above 750m
<i>Apterotheca miser</i>	beetle	Type A	3, 9	Only Mt Misery between 500–850m.
<i>Apterotheca mucroskela</i>	beetle	Type A	3, 9	Only from the summit of Mount Murray Prior
<i>Apterotheca pecticrinis</i>	beetle	Type A	3, 9	Restricted to Carbine Tableland elevations above 1,000m
<i>Apterotheca trichopectoris</i>	beetle	Type A	3, 9	Restricted to Carbine Tableland elevations above 1,000m

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>Aulacopris matthewsi</i>	beetle	Type A	3, 9	A large wingless species known from a very small area < 1km diameter on Mt Sorrow trail
<i>Chlamydopsis antennata</i>	beetle	Type A	2, 3, 9	Highly modified ant-inquiline, long evolutionary history in WET, restricted to Windsor Tableland
<i>Chlamydopsis myrmecophila</i>	beetle	Type A	2, 3, 9	Highly modified ant-inquiline, long evolutionary history in WET, restricted to Hann Tableland
<i>Chlamydopsis trichonota</i>	beetle	Type A	2, 3, 9	Highly modified ant-inquiline, long evolutionary history in WET, restricted to Mt Lewis
<i>Colasidia monteithi</i>	beetle	Type A	3, 9	Only from the unique holotype from Cape Tribulation
<i>Cuemus cooki</i>	beetle	Type A	3, 9	Was CM12, near Hemicera NQ1, collected only on the summit of Mt Finnigan
<i>Cuemus monteithi</i>	beetle	Type B	3, 9	Was near Tetragonomenes NQ3, restricted to high elevation rainforest in Bellenden Ker & Malbon Thompson Range
<i>Daintreeola grovei</i>	beetle	Type A	3, 9	Only from type locality, Thompson Creek
<i>Dendromigadops alticola</i>	beetle	Type A	3, 9	Only species N of Brisbane of a primitive Gondwanan tribe, known from one specimen collected at 1,500m on Mt Bartle Frere , summit of Bartle Frere
<i>Lissapterus ogivus</i>	beetle	Type A	3, 9	Flightless stag beetle, known only from above 100m on summit of Mt Elliot
<i>Matthewsius speewah</i>	beetle	Type A	3, 9	Restricted to summit rainforest on Mt Williams
<i>Monteithium ascetum</i>	beetle	Type B	3, 9	Wingless with remarkable morphology, genus endemic to WT. Only above 800m on Mt Finnigan and Mt Sorrow
<i>Monteithium storeyi</i>	beetle	Type B	3, 9	Wingless with remarkable morphology, genus endemic to WET, only above 1,000m on Carbine Tableland
<i>Notonomus (Leiradira) vadosus</i>	beetle	Type A	3, 9	Flightless ground beetle, known from summit of Mt Finnigan. Northmost record of the genus in Australia

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>Nurus rex</i>	beetle	Type A	3, 9	Flightless; largest (50mm) rainforest ground beetle in Australia. Only above 1,000m on Mt Elliott
<i>Onthophagus pinaroo</i>	beetle	Type A	1, 3, 9	Restricted to wet sclerophyll forest, known from the Atherton Tableland, habitat threatened
<i>Pamborus elegans</i>	beetle	Type A	1, 3, 9	Restricted to wet sclerophyll forest
<i>Paroster anophthalmus</i>	beetle	Type B	3, 9	Movement of normally aquatic taxa into terrestrial forest floor habitats, Thornton Peak region, blind flightless water beetle
<i>Philipis agnicapitis</i>	beetle	Type A	3, 9	High altitude flightless taxa within WET known only from top of Lambs Head at 1,200m
<i>Philipis alticola</i>	beetle	Type A	3, 9	Bartle Frere, South Peak summit.
<i>Philipis alutacea</i>	beetle	Type A	3, 9	Known only from top of Mt Bellenden Ker above 1,500m
<i>Philipis atra</i>	beetle	Type A	3, 9	Known only from top of Mt Macartney.
<i>Philipis bicolor</i>	beetle	Type A	3, 9	Known only from top of Mt Demi at 1,100m
<i>Philipis distinguenda</i>	beetle	Type A	3, 9	Known only from Mossman Bluff track
<i>Philipis ellioti</i>	beetle	Type A	3, 9	Only from top of Mt Elliot above 1,000m
<i>Philipis frerei</i>	beetle	Type A	3, 9	Only from top of Mt Bartle Frere.
<i>Philipis geoffreyi</i>	beetle	Type A	3, 9	Western part of Carbine Tableland above 1,250m
<i>Philipis heatherae</i>	beetle	Type A	3, 9	Only from type locality. Isley Hills
<i>Philipis inermis</i>	beetle	Type A	3, 9	Only from top of Mt Finnigan
<i>Philipis laevigata</i>	beetle	Type A	3, 9	Only from Mt Spurgeon (1,250m), the type locality
<i>Philipis laevis</i>	beetle	Type A	3, 9	Only from top of Thornton Peak
<i>Philipis minor</i>	beetle	Type A	3, 9	Known only from type locality. Mossman Bluff Track, W of Mossman
<i>Philipis perstriata</i>	beetle	Type A	3, 9	Known only from top of Mt Bartle Frere above 1,600m
<i>Philipis picea</i>	beetle	Type A	3, 9	Known only from type locality. Mossman Bluff Track, W of Mossman
<i>Philipis picta</i>	beetle	Type A	3, 9	Known only from top of Mt Finnigan above 1,050m

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>Philipis rufescens</i>	beetle	Type A	3, 9	Known only from top of Mt Bellenden Ker above 1,500m
<i>Philipis spurgeoni</i>	beetle	Type A	3, 9	Known only from type locality at Mt Spurgeon
<i>Philipis trunci</i>	beetle	Type A	3, 9	Known only from the top of Thornton Peak
<i>Philipis vicina</i>	beetle	Type A	3, 9	Known only from type locality at Mt Misery summit
<i>Tapas armifer</i>	beetle	Type A	3, 9	Only recorded from type locality Hann Tableland. All other <i>Tapas</i> species records from southern Australia
<i>Temnoplectron cooki</i>	beetle	Type A	1, 3, 9	Restricted to wet sclerophyll forest, two discrete populations in WT, wet sclerophyll forests threatened
<i>Temnoplectron diversicolle</i>	beetle	Type B	1, 3, 9	Restricted to type locality.
<b>Midge</b>				
<i>Polypedilum australotropicus</i>	midge	Type B	3, 9	Narrowly restricted to cool streams at sea level–800m in WET from Mossman to Paluma
<b>Mayfly</b>				
<i>Austrophlebioides porphyrobranchius</i>	mayfly	Type B	3, 9	Charmillan, Goolagan and Silver Creeks only
<i>Austrophlebioides rieki</i>	mayfly	Type B	3, 9	Daintree NP & Emmagen Creek only
<i>Austrophlebioides wooroonooran</i>	mayfly	Type B	3, 9	Atherton subregion only (Wooroonooran NP)
<b>Bug</b>				
<i>Austrovelia queenslandica</i>	bug	Type A	2, 3, 9	Movement of normally aquatic taxa into terrestrial forest floor habitats, restricted to Mt Sorrow & Mt Pieter Botte tableland above 500m
<i>Craspedophysa monteithi</i>	bug	Type B	2, 3, 9	Ancient Gondwanan moss bug group at northern limit in the world, found only on Mt Finnigan above 1,000m
<i>Grosshygioides mandibularis</i>	bug	Type B	3, 9	Found only on two adjacent high altitude localities
<i>Grosshygia nigra</i>	bug	Type B	3, 9	Only found at higher elevations, Mt Spurgeon/Carbine Tableland



Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>Kumaressa storeyi</i>	bug	Type B	2, 3, 9	Restricted to Bellenden Ker, Bartle Frere, Carbine Tableland
<i>Mesophloeobia yeatesi</i>	bug	Type A	3, 9	Only known from type locality - Mt Pieter-Botte
<i>Myerslopella cardiata</i>	bug	Type A	2, 3, 9	Curious, primitive, flightless group of litter/moss inhabiting leafhoppers, restricted to the extreme summit of Mt Bellenden Ker
<i>Myerslopella monteithi</i>	bug	Type B	2, 3, 9	Curious, primitive, flightless group of litter/moss inhabiting leafhoppers. The most northerly species, occurring north of Bloomfield River near the summits of Mt Finnigan and Mt Misery 800–1,100m
<i>Peltophysa minor</i>	bug	Type A	2, 3, 9	Primitive Gondwanan moss bugs. Only at 1,500m on summit of Bellenden Ker
<b>Butterfly</b>				
<i>Euploea eichhorni</i>	Eichhorn's crow	Type B	1, 6	WET population isolated from that on CYP. Range in WET appears to have contracted possibly due to habitat loss
<b>Dragonfly</b>				
<i>Dromaeschna weiskei</i>	ochre-tipped darner	Type B	3, 9	All records within the WET. Available collection records all appear to be from mid to high elevations
<i>Eusynthemis barbarae</i>	Mount Lewis tigertail	Type B	3, 9	All records within WT, known only from Mt Lewis
<i>Eusynthemis tenera</i>	Pretty tigertail	Type B	3, 9	All records within WT, known only from Mt Lewis
<i>Lestoidea lewisiana</i>	Mount Lewis bluestreak	Type B	3, 9	All from within WT. Apparently restricted to Mt Lewis
<b>Vertebrate</b>				
<b>Amphibian</b>				
<i>Mixophyes carbinensis</i>	Carbine barred frog	Type A	2, 3, 9	Restricted to Carbine-Windsor Tablelands at higher altitude
<b>Bird</b>				
<i>Acanthiza katherina</i>	mountain thornbill	Type B	1, 3, 9	Endemic

Scientific Name	Common Name	Significance	Eligibility value no.	Expert panel comments
<i>Ailuroedus melanotis maculosus</i>	spotted catbird	Type B	1, 6	WET subsp. considered different that in CYP. Disjunct/endemic subsp
<i>Amblyornis newtonianus</i>	golden bowerbird	Type B	1, 3, 9	Endemic disjunct within the WET
<i>Colluricincla boweri</i>	Bower's shrike-thrush	Type B	1, 3, 9	Endemic
<i>Heteromyias cinereifrons</i>	grey-headed robin	Type B	1, 3	Endemic
<i>Oreoscopus gutturalis</i>	fernwren	Type B	3, 9	Disjunct within the WET
<i>Orthonyx spaldingii</i>	chowchilla	Type B	1, 2, 3	Endemic
<i>Ptiloris victoriae</i>	Victoria's riflebird	Type B	1, 3	Endemic
<i>Scenopoeetes dentirostris</i>	tooth-billed bowerbird	Type B	1, 3, 9	Endemic. Only breeds at high altitude. Lek breeding system makes it vulnerable to increasing severe weather events resulting from climate change
<i>Sericornis keri</i>	Atherton scrubwren	Type B	1, 3, 9	Endemic
<b>Mammal</b>				
<i>Hemibelideus lemuroides</i>	lemuroid ringtail possum	Type B	1, 3	Abundant - prefer high elevation. Research suggest susceptible to changes in temperature
<i>Pseudochirops archeri</i>	green ringtail possum	Type A	1, 3, 9	High elevation restricted endemic. Should be classed as NT. Considered vulnerable to climate change
<i>Pseudochirulus herbertensis</i>	Herbert River ringtail possum	Type A	1, 3, 9	High elevation restricted endemic. Should be classed as NT. Considered vulnerable to climate change
<i>Uromys hadrourus</i>	Pygmy white-tailed Rat	Type B	3, 9	High elevation restricted endemic. Considered vulnerable to climate change. Rarely recorded

### **3.2.3 Special fauna area decisions (Criterion I)**

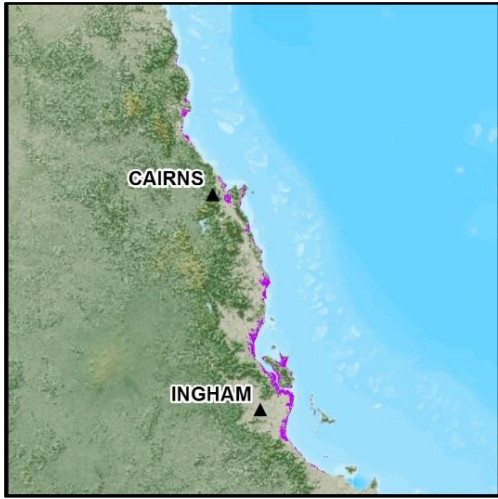
The fauna panel was asked to identify areas with special biodiversity values within the WET under the BAMB supplementary Criterion I. Areas with special biodiversity value are important because they contain multiple taxa in unique ecological and often highly biodiverse environments. Values can include centres of endemism, wildlife refugia, disjunct populations, geographic limits of species distributions, high species richness, relictual populations, high densities of hollow-bearing trees and breeding sites. The full rationale for inclusion is described in section 2.3.2.

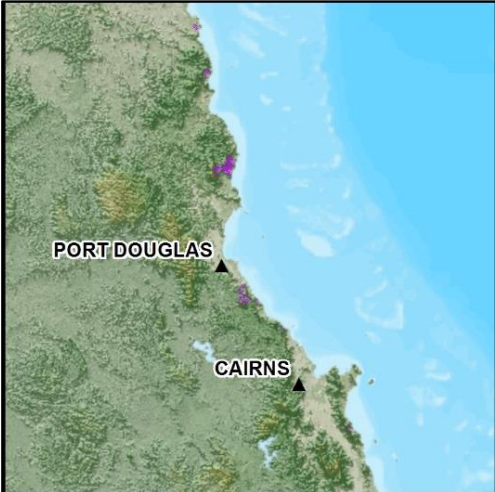
Using expert knowledge and available information (records, maps, GIS derived datasets), panel members discussed 27 areas and described their values. Of these areas 15 were implemented as fauna decisions. A number were combined with flora or other values to become landscape decisions. The special areas proposed by the panel are detailed in Table 12. Generally only EVNT and priority species are specified for each decision.

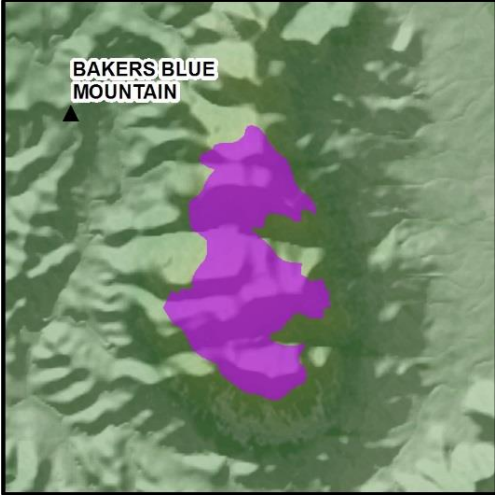

To ensure consistency and provide better integration with BPAs conducted across adjoining bioregions, special areas nominated during the course of non-WET expert panels, however, which impact WET remnant units, have been incorporated and are listed at the end of Table 12.


**Table 12. Areas of special fauna biodiversity value (Criterion I)**

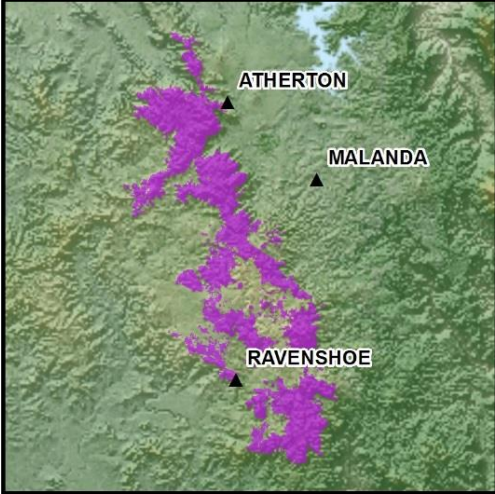
<sup>1</sup> VH = Very High, H = High and M = Medium. For more information on the criteria values, see section 2.3.2.

Decision Number	Description (including spatial extent where implemented)	Significance	Identified Values in BPA	Criteria values <sup>1</sup>
wet_fa_01	Mountain tops above 950m - Bartle Frere (BF) and Bellenden Kerr (BK)	NA	Implemented as landscape decision. Refer to wet_I_26.	NA
wet_fa_02	Coastal fringing ecosystems 	State	<p>Coastal habitats of the WET incorporate extensive areas of mudflat, beaches, mangroves and littoral forests, which stretch from Archer Point in the north to Bluewater Beach in the south.</p> <p>Various threatened taxa inhabit these environs which include <i>Hypochrypsops apollo apollo</i>, <i>Crocodylus porosus</i>, <i>Esacus magnirostris</i> and <i>Xeromys myoides</i>. Mudflat and beaches provide important staging habitat for migratory waders such as <i>Numenius madagascariensis</i>, <i>Calidris tenuirostris</i>, <i>C. canutus</i>, <i>Charadrius leschenaultia</i> and <i>C. mongolus</i>. Well known shorebird areas include Cairns Esplanade-Trinity Inlet, Yule Point and beaches between Wonga Beach and Cooya, and at Lucinda. Sections of this area recognised as part of the Coastal Wet Tropics Key Biodiversity Area (Birdlife Australia 2018).</p> <p>Vulnerable sea turtle species (i.e. <i>Chelonia mydas</i> and <i>Natator depressus</i>) occasionally nest in these areas. Mangroves provide key nursery/nesting areas for crustaceans, fish and <i>Ardea sumatrana</i>, while <i>Sternula albifrons</i> nest on scattered sandspits. Significant crocodile areas include lower Daintree River, Saltwater Creek near Newell Beach, Dicksons Inlet/Packers Creek near Port Douglas, Trinity Inlet, Hull River–Cardwell (including Hinchinbrook Channel), lower Herbert River and Cattle Creek. Breeding noted for Hull River area.</p>	lb (refugia): VH le (species richness): H lj (aggregation site): VH

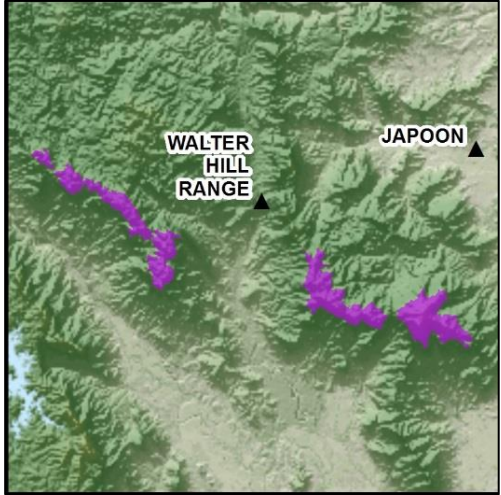
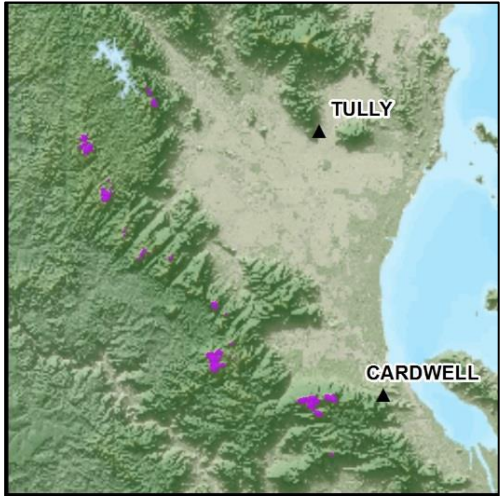
03	Dry to Wet sclerophyll transition Zone - Western fringes	NA	Not Implemented. Values incorporated into landscape decision. Refer to wet_I_15.	NA
wet_fa_04	<p>Short steep coastal streams</p> 	State	<p>Includes key streams in the Malbon-Thompson subregion (Pauls Pocket and Russell Heads Creeks), Cape Tribulation subregion (Myall and Noah Creeks), Cedar bay subregion (Ashwell Creek) and Port Douglas/Cairns Subregion (Turtle, Spring and Cascade Creeks).</p> <p>Significant habitats for cling goby assemblage (9 species) whose only presence in Australia is limited to the WET (Ebner et al. 2016). The high diversity can be attributed to the mountainous terrain and continuous streamflow over millennia. This suite of specialised fish includes several threatened taxa (<i>Stiphodon pelewensis</i>, <i>S. rutilaureus</i>, <i>S. semoni</i> and <i>S. surrufus</i>). They rely on cool flowing waters in streams which drop suddenly from high mountain ranges and escarpments into the ocean. Adults lay eggs and guard them in these streams, then larvae move out in to the sea.</p> <p>These lowland streams and the associated riparian rainforest are considered remnants of a relatively stable environment across geological time (VanDerWal et al. 2009) and consequently provide important habitat for relictual fauna.</p> <p>Other endemic or restricted range taxa in streams include <i>Tandanus tropicanus</i>, <i>Gymnothorax polyuranodon</i> (Freshwater moray eel) and <i>Cairnsichthys bitaeniatus</i>.</p>	<p>lb (refugia): H  lc (disjunct populations): VH  ld (range limits): M  le (species richness): VH  lj (aggregation site): VH</p>

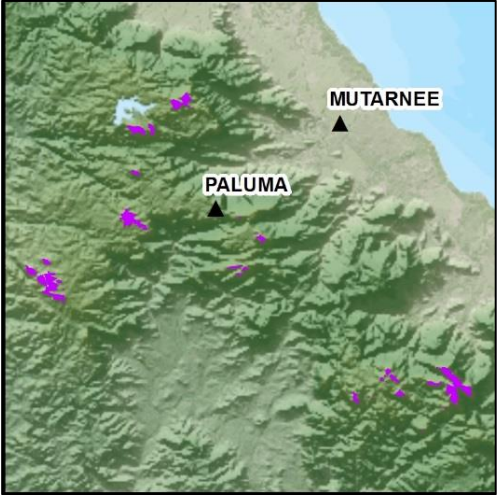

<p>wet_fa_05</p>	<p>Bakers Blue Uplands</p> 	<p>Regional</p>	<p>Upland zone of unlogged kauri forest situated in the Bakers Blue Mountain area. Endemic taxa inhabiting this zone include a range of invertebrates, e.g. <i>Alpinipupina griffithsi</i>, <i>Apterotheca crustularia</i> and <i>A. elongata</i>, and there is a high number of endemic snails present. Among vertebrates there are taxa that are threatened (<i>Cophixalus aenigma</i>), endemic to the Wet Tropics (<i>Lampropholis coggeri</i>) and a disjunct population of <i>Perameles pallescens</i>.</p> <p>Boulders with associated springs, lichens and mosses provide refugia for snails. This isolated, elevated outlier is also considered to have strong potential for the presence of distinct populations or new taxa of frogs and reptiles.</p>	<p>la (endemic richness): VH                  lb (refugia): VH                  lc (disjunct populations): VH                  le (species richness): H                  lk (climate change refugia): H</p>
<p>wet_fa_06</p>	<p>Finnigan Uplands – Mt Finnigan</p> 	<p>State</p>	<p>The high altitude area of Mt Finnigan has been identified as part of the Daintree Key Biodiversity Area (Birdlife Australia 2018). A wide range of invertebrates are restricted to the mountain summit, including snails - <i>Suavocallia finnegan</i>, beetles - <i>Aptenocanthon kabura</i>, <i>Bolusculus arcanus</i>, <i>Cuemus cooki</i>, <i>Notonomus vadosus</i>, <i>Philippis inermis</i> and <i>P. picta</i>, and spiders - <i>Amauropelma anzses</i> and <i>Lampona finnigan</i>. The crayfish <i>Euastacus robertsi</i>, a key endemic species inhabiting the streams in this area, is also considered an important relictual taxon as it is the most northern occurring <i>Euastacus</i> species, with a major separation from the Mt Lewis species. More broadly distributed endemics which occur in this area include <i>Cophixalus aenigma</i>, <i>Litoria serrata</i>, <i>Acanthiza katherina</i>, <i>Oreoscopus gutturalis</i>, <i>Xanthotis macleayanus</i> and <i>Scenopoeetes dentirostris</i>. Several of these are also threatened taxa. This upland zone is also considered a refugial stronghold for the threatened tree-kangaroo <i>Dendrolagus bennettianus</i> and it is currently unknown if the endangered <i>Dasyurus maculatus gracilis</i> still occurs in this area. Noted refugium for flightless insects (Yeates et al. 2002).</p> <p>Some of the disjunct taxa inhabiting the area include <i>Sericornis citreogularis</i>, <i>Tregellasia capito</i> and <i>Ailuroedus melanotis</i>.</p>	<p>la (endemic richness): VH                  lb (refugia): VH                  lc (disjunct populations): H                  lf (relictual taxa): H                  lk (climate change refugia): H</p>

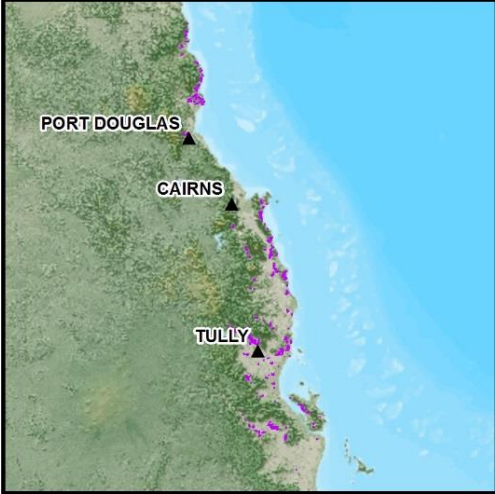
			Unique Gondwanan bug fauna are also present (e.g. <i>Craspedophysa monteithi</i> and <i>Myerslopella monteithi</i> ).	
wet_fa_07	<p>Thornton Peak Uplands - above 800m</p> 	State	<p>The Thornton Peak uplands forms the highest mountain range in the Wet Tropics north of the Daintree River. Presence of endemics restricted to summit, include both invertebrates – snails (<i>Colmanarion thortoniana</i>, <i>Necopupina monticola</i>, <i>Oreokera nimbus</i>, <i>Suavocallia thortoniana</i>), spiders (<i>Krukt ebbenielsenii</i>, <i>Spinanapis thorton</i>), beetles (<i>Apterotheca junctistriata</i>, <i>Philippis laevis</i>, <i>P. trunci</i>); and vertebrates - <i>Cophixalus concinnus</i> and <i>Calyptotis thortonensis</i> (both also listed as threatened). <i>Euastacus robertsi</i> is one of the broadly distributed endemic species which occurs in this area from approximately 800m altitude up to near the summit. This area is considered a stronghold for <i>Dasyurus maculatus gracilis</i> in this northern part of their range. Other endemics include <i>Cophixalus aenigma</i>, <i>Litoria nannotis</i>, <i>L. dayi</i>, <i>L. rhecola</i>, <i>L. serrata</i>, <i>L. nyakalensis</i>, <i>Concinnia tigrina</i>, <i>Glaphyromorphus fuscicaudis</i>, <i>Gnypetoscincus queenslandiae</i>, <i>Orthonyx spaldingii</i>, <i>Sericornis kerri</i>, <i>Scenopoeetes dentirostris</i>, <i>Acanthiza katherina</i>, <i>Bolemoreus frenatus</i>, <i>Heteromyias cinereifrons</i>, <i>Colluricincla boweri</i>, <i>Amblyornis newtonianus</i> and <i>Uromys hadrourus</i>.</p> <p>Examples of disjunct taxa present include, <i>Sericornis citreogularis</i>, <i>Pachycephala simplex</i>, <i>Ailuroedus melanotis</i>, <i>Rattus fuscipes</i> and <i>R. leucopus</i>. The area is also considered important for Aves and identified as part of the Daintree Key Biodiversity Area (Birdlife Australia 2018).</p> <p>Significant boulder fields provide refugial as well as potential roosting habitat for threatened taxa. For example, <i>Macroderma gigas</i> was recorded in the lowlands near the base of Thornton Peak, thus these upland boulderfields may provide important roosting (including maternity sites) habitat. The area is also a noted refugium for flightless insects (Yeates et al. 2002).</p>	<p>la (endemic richness): VH  lb (refugia): VH  lc (disjunct populations): VH  le (species richness): VH  lf (relictual taxa): VH  li (hollows and habitat): VH  lj (aggregation site): VH  lk (climate change refugia): VH</p>
08	Carbine upland's including Mount Spurgeon - above 950m	NA	Implemented as landscape decision. Refer to wet_I_28	NA

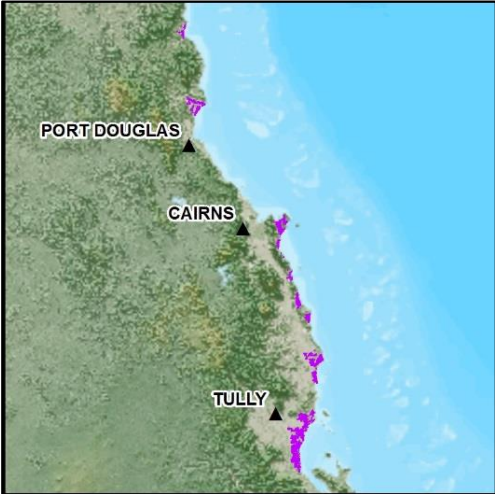
<p>wet_fa_09</p>	<p>Atherton and Evelyn Tablelands – above 950 m</p> 	<p>State</p>	<p>Relatively disturbed due to widespread historical clearing and agricultural use but remnants exist in NPs e.g. Mt Hypipamee. Endemic taxa include snails - <i>Obsteugenia inflecta</i>, <i>Setomedea ianlochi</i> and <i>Diplommatina hypipamee</i>, spiders - <i>Wabua hypipamee</i> and <i>Ixamatus barina</i>, mayflies - <i>Austrophlebioides wooroonooran</i> and odonates - <i>Eusynthemis tenera</i>. Various endemic vertebrates, several of which area threatened, include <i>Litoria nyakalensis</i>, <i>Litoria rheocola</i>, <i>Pseudophryne covacevichae</i>, <i>Austrochaperina robusta</i>, <i>Saltuarius cornutus</i>, <i>Glaphyromorphus mjobergi</i>, <i>Saproscincus basiliscus</i>, <i>Sericornis keri</i>, <i>Orthonyx spaldingii</i>, <i>Colluricincla boweri</i>, <i>Ptiloris victoriae</i>, <i>Amblyornis newtonianus</i>, <i>Pseudochirulus herbertensis</i>, <i>Pseudochirops archeri</i> and <i>Dendrolagus lumholtzi</i>.</p> <p>This area contains disjunct taxa such as <i>Litoria revelata</i>, <i>Casuarius</i>, <i>Pachycephala simplex</i>, <i>Ptilonorhynchus violaceus</i> and <i>Murina florium</i>.</p> <p>Noted refugium for flightless insects (Yeates et al. 2002). Relatively rich in flightless ground beetle diversity (Staunton et al. 2014).</p>	<p>la (endemic richness): VH                  lb (refugia): VH                  lc (disjunct populations): VH                  le (species richness): VH                  lf (relictual taxa): VH                  li (hollows and habitat): VH                  lj (aggregation site): VH                  lk (climate change refugia): VH</p>
<p>10</p>	<p>Windsor Tableland – above 850 m</p>	<p>NA</p>	<p>Implemented as landscape decision. Refer to wet_I_29.</p>	<p>NA</p>

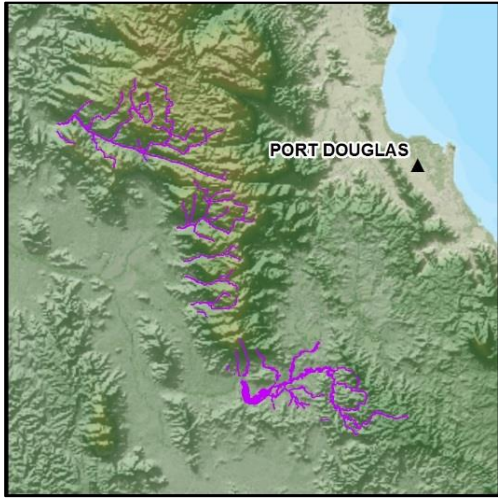



<p>wet_fa_11</p>	<p>Walter Hill Range uplands above 800 m</p> 	<p>Regional</p>	<p>Limited access to the Walter Hill Range has resulted in the area being poorly sampled for fauna. Endemic vertebrates known to inhabit this area includes several frog species such as <i>Austrochaperina robusta</i>, <i>Cophixalus australis</i>, <i>Litoria nannotis</i>, <i>Litoria rheocola</i>, <i>Mixophyes coggeri</i> and <i>Saproscincus basiliscus</i>; and invertebrates include <i>Montanopoma walterhill</i>. Occasional records of <i>Dasyurus maculatus gracilis</i> in the lowlands surrounding this range and from these records and recent survey work it is suspected the main population resides along the range. The area possesses a high richness in flightless ground beetle diversity (Staunton et al. 2014). The range has also been identified as part of the Wooroonooran Key Biodiversity Area (Birdlife Australia 2018).</p>	<p>la (endemic richness): H                  lb (refugia): H                  le (species richness): H                  lf (relictual taxa): H                  lk (climate change refugia): H</p>
<p>wet_fa_12</p>	<p>Cardwell/Kirrama Ranges uplands above 950 m</p> 	<p>Regional</p>	<p>The scattered upland areas are distributed from near Mt Theodore in the north, south to Mt Macalister (near Cardwell). High elevation areas support diverse endemic invertebrate fauna including – snails (<i>Velepasalaina kirrama</i>, <i>Malandena suturalis</i>, <i>Aetholitis agamemnon</i>), spiders (<i>Lampona kirrama</i>, <i>Wabua kirrama</i>), beetles (<i>Apterotheca disconvexa</i>). The relictual spider (<i>Aname kirrama</i>) also occurs in the area. Endemic vertebrates inhabiting the area include <i>Cophixalus australis</i>, <i>Litoria serrata</i>, <i>Austrochaperina pluvialis</i>, <i>A. robusta</i>, <i>Saltuarius cornutus</i>, <i>Lampropholis coggeri</i>, <i>Saproscincus czechurai</i>, <i>Colluricincla bowleri</i>, <i>Scenopoeetes dentirostris</i>, <i>Antechinus adustus</i>, <i>A. godmani</i> and <i>Pseudochirops archeri</i>. This area is also identified as part of the Wooroonooran Key Biodiversity Area (Birdlife Australia 2018).</p>	<p>la (endemic richness): H                  lb (refugia): H                  le (species richness): H                  lf (relictual taxa): H                  lk (climate change refugia): H</p>

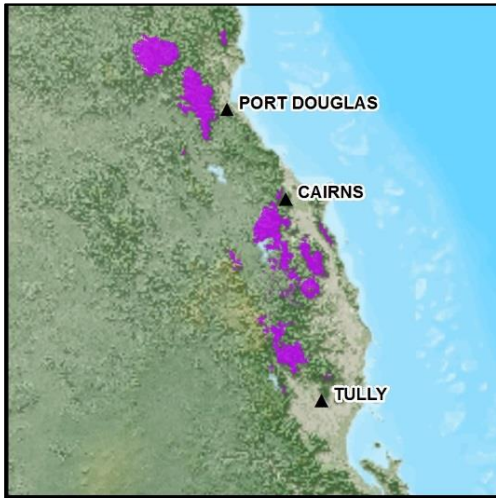
<p>wet_fa_13</p>	<p>Paluma Range uplands above 950 m</p> 	<p>Regional</p>	<p>Along with the Mt Halifax area, the Paluma Range uplands are the most southerly mountains in the Wet Tropics and consequently the edge of range for many bioregional endemics (e.g. invertebrates - <i>Fastosarion paluma</i>, <i>Lenwebbia paluma</i>, <i>Signepupina crosseii</i>, <i>Steorra jimfergusoni</i>, <i>Centrothele cardell</i>, <i>Lampona spec</i>, <i>Wabua paluma</i>, <i>Polypedilum australotropicus</i>, <i>Riekophlebia crocina</i> and <i>Zephyrogomphus longipositor</i>). It is also the edge of range for a diverse range of vertebrate species, including several threatened taxa, such as <i>Litoria nannotis</i>, <i>L. dayi</i>, <i>Austrochaperina robusta</i>, <i>Hypsilurus boydii</i>, <i>Saproscincus basiliscus</i>, <i>Oreoscopus gutturalis</i>, <i>Bolemoreus frenatus</i>, <i>Heteromyias cinereifrons</i>, <i>Colluricincla boweri</i>, <i>Scenopoetes dentirostris</i> and <i>Amblyornis newtonianus</i>).</p> <p>Several disjunct taxa which inhabit these areas include <i>Cormobates leucophaea minor</i>, <i>Sericornis citreogularis</i>, <i>Tregellasia capito</i>, <i>Ailuroedus melanotis</i> and <i>Rattus fuscipes</i>.</p> <p>Additionally, these uplands have been identified as part of the Paluma Key Biodiversity Area (Birdlife Australia 2018).</p>	<p>la (endemic richness): H                  lb (refugia): H                  le (species richness): H                  lf (relictual taxa): H                  lk (climate change refugia): H</p>
<p>wet_fa_14</p>	<p>Malbon-Thompson (MT) uplands above 450 m</p> 	<p>Regional</p>	<p>High elevation endemics which inhabit this area are mostly invertebrates (snails- <i>Danielleilona multicostata</i>, <i>Montanopoma monteithi</i>, spider - <i>Buyina yeatesi</i>, <i>Maxanapis bell</i>, beetle - <i>Cuemus monteithi</i>). Vertebrate endemics include <i>Litoria serrata</i>, <i>Austrochaperina fryi</i>, <i>Cophixalus australis</i>, <i>Hypsilurus boydii</i>, <i>Saltuarius cornutus</i>, <i>Lampropholis coggeri</i>, <i>Orthonyx spaldingii</i> and <i>Ptiloris victoriae</i>.</p> <p>Disjunct taxa in the area include <i>Tregellasia capito</i>, <i>Ailuroedus melanotis</i>, <i>Ptilinopus magnificus</i> and <i>Casuaris casuaris</i>.</p> <p>Noted refugium for flightless insects (Yeates et al. 2002).</p> <p>This area has also been identified as part of the Coastal Wet Tropics Key Biodiversity Area (Birdlife Australia 2018).</p>	<p>la (endemic richness): H                  lb (refugia): H                  lc (disjunct populations): H                  le (species richness): H                  lf (relictual taxa): H                  lk (climate change refugia): H</p>

<p>wet_fa_15</p>	<p>Large lowland patches of remnant rainforest on alluvium (area &gt;= 10ha)</p> 	<p>State</p>	<p>Historically, the fertile soils of the flat lowlands of the Wet Tropics have been targeted for agriculture resulting in substantial reduction of the original lowland rainforest extent, now considered endangered (Metcalf &amp; Lawson 2015). Parts of remaining extent are predicted to be have been relatively stable over time (VanDerWal et al. 2009), (e.g. Daintree and Cairns-Cardwell lowlands) and consequently, are considered important long-term fauna refuges and sites of speciation.</p> <p>Whilst few terrestrial vertebrates are restricted to the lowlands, this rainforest habitat is used by many wide-ranging Wet Tropics endemics, e.g. <i>Litoria rheocola</i>, <i>L. dayi</i>, <i>L. serrata</i>, <i>Cophixalus australis</i>, <i>C. infacetus</i>, <i>Carlia rubrigularis</i>, <i>Lygisaurus laevis</i>, <i>Xanthotis macleayanus</i>, <i>Orthonyx spaldingii</i>, <i>Arses kaupi</i>, <i>Ptiloris victoriae</i> and <i>Hypsiprymnodon moschatus</i>. The two tree-kangaroo species are found in this productive lowland community, with the distinction between the two taxa north (<i>Dendrolagus bennettianus</i>) and south (<i>D. lumholtzi</i>) of the Daintree River. Such areas also provide critical feeding and breeding habitat for lowland populations of <i>Casuarius casuarius</i>. Rainforest on alluvium and other substrates e.g. basalt, also provide important feeding habitat for frugivorous birds, some of which are flocking and migratory and nest on offshore islands, e.g. <i>Ducula bicolor</i>, and many areas are included in the Coastal Wet Tropics Key Biodiversity Area (Birdlife Australia 2018).</p> <p>Rich fish communities are associated exclusively with rainforest streams and rivers, including taxa at the southern edge of their range e.g. <i>Melanotaenia maccullochi</i>, <i>Pseudomugil gertrudae</i> and <i>Denarius australis</i>; endemics, e.g. <i>Cairnsichthys rhombosomoides</i>, <i>C. bitaeniatus</i>, <i>Synclidopus hogani</i>, <i>Tandanus tropicanus</i>, <i>Melanotaenia utcheensis</i>, <i>Guyu wujalwujalensis</i>, <i>Glossogobius bellendenensis</i> and <i>Hephaestus tulliensis</i>; and unique assemblages comprising the only Australian presence of taxa found elsewhere in the world, e.g. cling-goby group <i>Stipodon/Sicyopterus</i> species (Ebner et al. 2016), and <i>Bunaka gyrinoides</i>, <i>Giurus margaritacea</i>, <i>Awaous acritosus</i>, <i>Glossogobius bicirrhosus</i> and <i>Ambassis miops</i>.</p> <p>Deep incised coastal streams are present in the Daintree lowlands which contains species of fish common to the Solomon's, Melanesia and Oceania regions.</p> <p>With respect to invertebrates, lowland rainforest is known to facilitate high species diversity, with thousands of beetle species</p>	<p>la (endemic richness): H          lb (refugia): VH          lc (disjunct populations): VH          le (species richness): VH          li (hollows and habitat): H          lj (aggregation site): H</p>
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			<p>recorded per hectare. Additionally, many narrow-range endemics are known to be present (e.g. spiders (<i>Amauropelma monteithi</i>, <i>A. trueloves</i>), beetles (<i>Colasidia monteithi</i>) and mayflies (<i>Austrophlebioides riekii</i>). Similarly to tree kangaroos, two snail communities are distinctive, north and south of the Daintree River. The area also represents the biogeographic split between lowland and upland <i>Cherax</i> species.</p>	
<p>wet_fa_16</p>	<p>Large patches of lowland swamp forest</p> 	<p>State</p>	<p>Similar to lowland rainforest, lowland swamp forest within the Wet Tropics has been subject to extensive clearing, infilling and hydrological modification resulting in a diminished preclear extent, with much of the remaining extent in reduced condition. Examples of large complexes still present in moderate to good condition include those in Ella Bay, Kurramine, Woolamaroo, Edmund Kennedy NP to Hull Heads, areas on the northern side of the mouth of Bloomfield, and those situated at the mouth of the Daintree River.</p> <p>In terms of faunistic values, lowland swamp forest provides significant habitat for a number of threatened taxa including: <i>Hypochrysops apollo apollo</i>, <i>Crocodylus porosus</i>, <i>Casuarius casuarius</i> and <i>Petaurus gracilis</i>. Important community for crakes, bitterns, rails and kingfisher and a specific suite of bird fauna is present in in the dry season. Sections of the mapped extent are included in the Coastal Wet Tropics Key Biodiversity Area (Birdlife Australia 2018).</p> <p>Whilst not significant in terms of terrestrial endemic taxa (a few endemic lowland terrestrial taxa such as <i>Megacrania batesii</i> and <i>P. gracilis</i> utilise this habitat), most fish species endemic to the Wet Tropics are confined to lowland habitats and can also be found in this habitat, including: <i>Cairnsichthys rhombosomoides</i>, <i>C. bitaeniatus</i>, <i>Synclidopus hogani</i>, <i>Tandanus tropicanus</i>, <i>Melanotaenia utcheensis</i>, <i>Guyu wujalwujalensis</i>, <i>Glossogobius bellendenensis</i> and <i>Hephaestus tulliensis</i>.</p> <p>Similarities with Cape York fish assemblages occur, with populations present at the southern limit of their range often as disjunct occurrences e.g. <i>Melanotaenia maccullochi</i>, <i>Pseudomugil gertrudae</i> and <i>Denariusa australis</i>. Another distinctive feature is the only Australian presence of taxa found elsewhere in the world such as <i>Bunaka gyrinoides</i>, <i>Giurus margaritacea</i>, <i>Awaous acritosus</i>, <i>Glossogobius bicirrhosus</i> and <i>Ambassis miops</i>. These areas also acts as important nursery sites for commercial fish such as</p>	<p>lb (refugia): VH  lc (disjunct populations): VH  ld (range limits): H  le (species richness): M  lg (ecosystem variation): H  li (hollows and habitat): H  lj (aggregation site): VH</p>

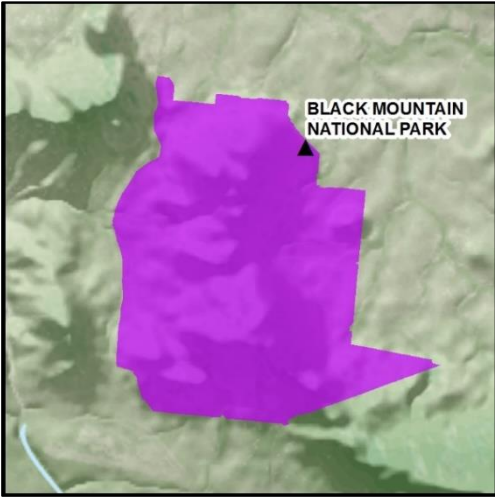
			<p>Barramundi (<i>Lates calcarifer</i>).</p> <p>A narrow range endemic invertebrate, <i>Megacrania batesii</i>, also resides in this area where stands of <i>Pandanus</i> spp. are present.</p> <p>For information on general vertebrate richness value see wet_fa_22.</p>	
17	Lowland Climate Refugia	NA	Implemented as a landscape decision. Refer to decision wet_I_03.	NA
18	Eubenangee Swamp	NA	Implemented as a landscape decision. Refer to decision wet_I_27.	NA
19	Murray Swamps	NA	Not implemented. This area was deemed heavily fragmented, and subject to impacts from adjoining land use. No values were assigned, and better representative areas captured in wet_fa_16.	NA
20	Swale wetlands	NA	Implemented as a landscape decision. Refer to wet_I_05.	NA
wet_fa_21	<p>Instream fauna - Mt Lewis, upper Mitchell creek, Mt Molloy, McLeod River riparian system</p> 	Local	<p>Upper watercourses of the Mitchell River catchment whose sources lies in the Wet Tropics are westward flowing unlike all of the other waterways in the bioregion. This area encompasses Mt Lewis which provides cold water habitat due to its higher elevation. Many of the terrestrial values for the highest part of the mountain are given in wet_fa_12. Other endemics from lower altitudes include: <i>Uperoleia altissima</i>, <i>Carlia rubrigularis</i>, <i>Glaphyromorphus mjobergi</i>, <i>Xanthotis macleayanus</i>, <i>Arses kaupi</i>, <i>Ptiloris victoriae</i>, <i>Antechinus adustus</i>, <i>Uromys hadrourus</i> and <i>Cercartetus caudatus</i>.</p> <p>Significant stream-dependent fauna include <i>Litoria lorica</i>, <i>Euastacus fleckeri</i> and <i>Cherax wasselli</i>.</p> <p>This area provides suitable habitat for unique Wet Tropics fish fauna, where these taxa are more typical of the Gulf of Carpentaria, e.g. <i>Scortum ogilbyi</i>, <i>Hephaestus carbo</i>, <i>Ambassis macleayi</i>, <i>Brachirus selheimi</i> and <i>Zenarchopterus novaeguineae</i>.</p>	<p>la (endemic richness): M</p> <p>li (hollows and habitat): H</p> <p>lk (climate change refugia): H</p>

<p>wet_fa_22</p>	<p>High 'rainforest vertebrate' taxa richness</p> 	<p>State</p>	<p>Areas of WET remnant vegetation modelled as being of either high richness for rainforest dependent/partly dependent amphibian, avian, mammalian, or reptile taxa.</p> <p>This special area representation is derived from research produced through a collaborative fauna modelling project (Williams 2006). Part of the project resulted in the construction of approximately 170 rainforest vertebrate species distribution models. Additionally, species richness, diversity and endemic richness maps were subsequently produced. Rainforest taxa were defined as those species which were obligate to periodic users of Wet Tropic rainforests.</p> <p>For the purpose of the current special area representation, the extent shown in the adjoining thumbnail captures remnant vegetation which overlapped areas modelled as being of either high amphibian, avian, mammal, or reptile richness. For each taxonomic group, the area of high rainforest taxa richness was defined as the highest modelled 10% area (limited to areas within remnant vegetation) within the WET. The resultant outputs, were then combined to provide a flattened extent area capturing the four major vertebrate taxonomic faunal groups of modelled high species richness.</p>	<p>le) (species richness): VH</p>
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<p>wet_fa_23</p>	<p>High 'rainforest vertebrate' WET endemic taxa richness</p> 	<p>State</p>	<p>Areas of WET remnant vegetation modelled as being of either high richness for rainforests dependent/partly dependent amphibian, avian, mammalian, or reptile taxa, which are endemic to the WET.</p> <p>This special area representation is based upon research produced through a collaborative fauna modelling project (Williams 2006). Distribution models were constructed for approximately 170 rainforest vertebrate species as part of this project. Additionally, species richness, diversity and endemic richness maps were also produced. Rainforest taxa were defined as those species which were obligate to periodic users of Wet Tropic rainforests.</p> <p>For the purpose of the current special area, the extent depicted in the adjoining thumbnail captures the highest modelled 10% area of remnant vegetation which overlaps areas modelled as being of high endemic taxa richness.</p>	<p>la) endemics: VH</p>
<p>24</p>	<p>Lower Bloomfield and Daintree river floodplain systems</p>	<p>NA</p>	<p>Implemented as landscape decision. Refer to wet_I_03.</p>	<p>NA</p>
<p>25</p>	<p>Mt Elliot outlier</p>	<p>NA</p>	<p>Implemented as landscape decision. Refer to wet_I_19.</p>	<p>NA</p>
<p>26</p>	<p>Black Mountain/ Trevethan Range</p>	<p>NA</p>	<p>Implemented as landscape decision. Refer to wet_I_21.</p>	<p>NA</p>
<p>27</p>	<p>Mabi Forest on Shiptons Flat</p>	<p>NA</p>	<p>This remnant patch of Mabi forest at Shiptons Flat provides important habitat for the population of threatened <i>Dendrolagus bennettianus</i> which occur there.</p> <p>Not implemented. Captured as an EVNT species as well as under Criterion B1 (EPBC listed communities).</p>	<p>NA</p>

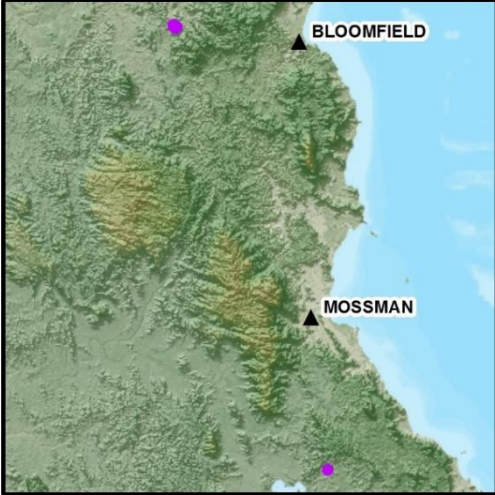

**Adjoining bioregion decisions (not reviewed by the 2018 expert panel)**

*Nb. for the following non- Wet Tropics BPA decisions, only affected Wet Tropics assessment units are depicted in the images below.*

<p>cyp_fa_01</p>	<p>Black Mountain National Park area</p>  <p>The image shows a topographic map of a mountainous region. A specific area is highlighted in a bright purple color. A label 'BLACK MOUNTAIN NATIONAL PARK' with a small black arrow points to the top edge of the purple area.</p>	<p>State</p>	<p>Supports three very narrowly endemic and threatened species: a frog (<i>Cophixalus saxatilis</i> - V), a skink (<i>Liburnascincus scirtetis</i> - V) and a gecko (<i>Nactus galgajuga</i> - V). Also a known breeding location for Australian swiftlet (<i>Aerodramus terraereginae</i> - NT). Adjacent mountains outside the NP have same values.</p>	<p>1a (centre of endemism): VH 1b (wildlife refugia): H</p>
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<p>eiu_fa_10</p>	<p>Upper Mitchell-Brooklyn</p> 	<p>State</p>	<p>Includes upper tributaries of the Mitchell River, downstream to near Hurricane Station. An extensive rain fed system draining the western margin of the WET, including numerous permanent waterholes. Supports high fish diversity, including disjunct populations of the coal grunter (<i>Hephaestus carbo</i>) and other fish species, and the sooty grunter (<i>Hephaestus fuliginosus</i>). Also supports the Mitchell river prawn (<i>Macrobrachium rosenbergii</i>). Rifle creek is the upper most permanent creek in the upper Mitchell. Includes Font Hills, the source of genetic stock of redclaw (<i>Cherax quadricarinatus</i>) aquaculture worldwide. Area includes 500m buffer from riparian zone.</p>	<p>Ib (wildlife refugia): VH Ie (high species richness): VH</p>
<p>eiu_fa_13</p>	<p>South Edge Dam</p> 	<p>Regional</p>	<p>Extensive artificial wetland with both deep and shallow environments. Supports large populations of a great diversity of water birds including black-necked stork (<i>Ephippiorhynchus asiaticus</i>), pelicans (<i>Pelecanus conspicillatus</i>), pygmy geese (<i>Nettapus</i> spp.), magpie geese (<i>Anseranas semipalmata</i>), cormorants (<i>Phalacrocorax</i> spp. and <i>Microcarbo</i> spp.), Pied Herons (<i>Egretta picata</i>), white-bellied sea eagles (<i>Haliaeetus leucogaster</i>) and ducks. Area includes 500m buffer from edge of wetland.</p>	<p>Ib (wildlife refugia): H Ie (high species richness): H Ih (artificial waterbody or manipulated wetland of ecological significance): H Ij (significant breeding or roosting sites): H</p>

<p>eiu_fa_22</p>	<p>Limestone karsts</p> 	<p>State</p>	<p>This covers limestone outcrops across the bioregion. The outcrops and the associated caves are an important refugia or breeding site for many species. The specialised habitats associated with the limestone outcrops and caves support endemic fauna, including obligate cave-dwellers such as relictual stygofauna and other troglomorphic species, as well as other invertebrate species. Numerous bat species roost and breed in the caves, including the eastern bent-wing bat (<i>Miniopterus schreibersii</i>), the little bent-wing bat (<i>Miniopterus australis</i>), the eastern cave bat (<i>Vespadelus troughtoni</i>), the common sheath-tail bat (<i>Taphozous troughtoni</i>), the eastern horseshoe-bat (<i>Rhinolophus megaphyllus</i>), the eastern dusky leaf-nosed bat (<i>Hipposideros ater aruensis</i>) and the diadem leaf-nosed bat (<i>Hipposideros diadema</i>).</p> <p>Area includes 500m buffer from the limestone outcrop.</p>	<p>la (centre of endemism): H                  lb (wildlife refugia): VH                  lc (disjunct populations): VH                  ld (taxa at the limits of their ranges): H                  le (high species richness): VH                  lj (significant breeding or roosting sites): VH</p>
<p>eiu_fa_24</p>	<p>Eastern ecotone</p> 	<p>State</p>	<p>The Eastern ecotone of the Einasleigh Uplands is a band of eucalypt forest separating the rainforest of the Wet Tropics from the dry tropical woodlands that characterize the bioregion. These better developed forests support a number of species that are endemic to the ecotone, or are isolated populations of species more widely distributed in the wet sclerophyll forest of south-east Queensland. These species include the northern bettong (<i>Bettongia tropica</i>), eastern yellow robin (<i>Eopsaltria australis</i>), yellow thornbill (<i>Acanthiza nana</i>), greater glider (<i>Petauroides volans</i>), Squirrel glider (<i>Petaurus norfolcensis</i>), crested shrike-tit (<i>Falcunculus frontatus</i>) and the yellow-faced honeyeater (<i>Lichenostomus chrysops</i>). Disjunct tree species that have the major part of their North Queensland distribution in the ecotone include <i>Eucalyptus resinifera</i>, <i>E. pellita</i>, <i>E. grandis</i>, <i>E. moluccana</i>, <i>E. reducta</i>, <i>E. cloeziana</i>, <i>E. citriodora</i> and <i>Angophora floribunda</i>.</p>	<p>la (centre of endemism): H                  lb (wildlife refugia): VH                  lc (disjunct populations): VH                  ld (taxa at the limits of their ranges): VH                  le (high species richness): VH                  li (high density of hollow-bearing trees): VH                  lj (significant breeding or roosting sites): VH</p>

### **3.3 Landscape**

Specific recommendations from the landscape panel are recorded in several tables in the following sections.

#### **3.3.1 Special landscape decisions (Criterion I)**

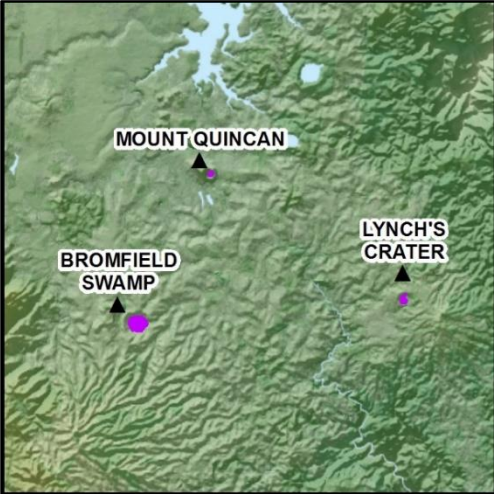
The panel identified new areas which met the eligibility criteria (section 2.3.2). Selected decisions nominated by flora and fauna panels were also reviewed and consolidated into broader landscape decisions. Panel comments and recommendations relating to these landscapes of special biodiversity value are outlined in Table 13.

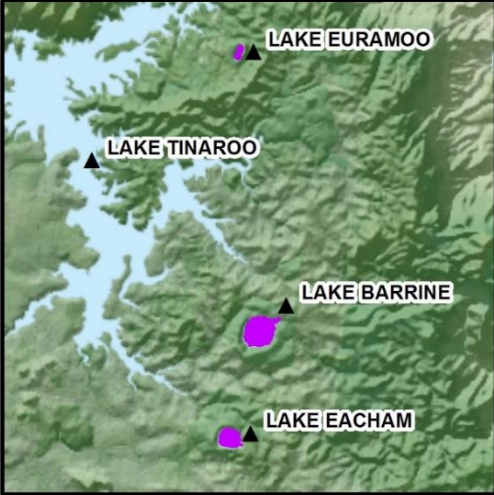

Of the 32 decisions examined 32 were implemented.

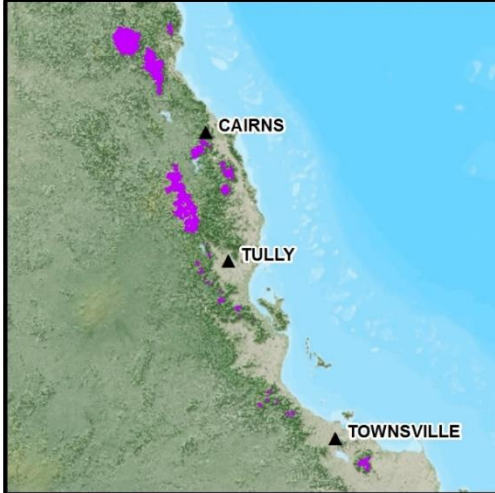
To ensure consistency and provide better integration with BPAs conducted across adjoining bioregions, special areas nominated during the course of non-WET expert panels and which impact WET remnant units, have been incorporated and are listed at the end of Table 13.


**Table 13. Areas of special landscape biodiversity value (Criterion I)**

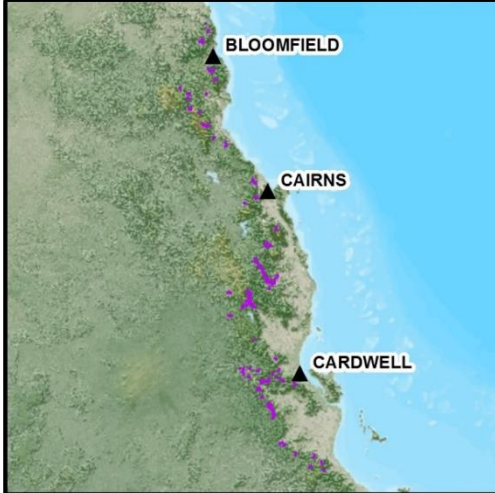
<sup>1</sup> VH = Very High, H = High and M = Medium. For more information on the criteria values, see section 2.3.2.

Decision Number	Description (including spatial extent where implemented)	Significance	Identified Values in BPA	Criteria Values <sup>1</sup>
wet_I_01	<p>Peat bogs and swamps on Atherton Tablelands</p>  <p>The map shows a topographic view of the Atherton Tablelands. Three locations are marked with black triangles and labeled: MOUNT QUINCAN at the top center, BROMFIELD SWAMP at the bottom left, and LYNCH'S CRATER at the bottom right. The terrain is depicted with green and brown shading to indicate elevation and vegetation cover.</p>	State	<p>Regional ecosystem 7.3.2, represents a unique palustrine wetland type composed of grasslands and sedgelands +/- <i>Melaleuca</i> spp. within volcanic craters on peat. A restricted ecosystem, with only three areas currently mapped in the Wet Tropics (Bromfield Swamp, Mt Quincan crater and Lynch's Crater) and only one other peat swamp known to occur in Queensland. Comparative to other palustrine wetlands, the regional ecosystem presents a very unusual vegetation occurrence within Australia. A relatively high number of species within the Cyperaceae family are present, a number of which are considered as disjunct occurrences (<i>Baumea teretifolia</i>, <i>Cyperus ohwii</i>, <i>Eleocharis tetraquetra</i>, <i>Lipocarpha chinensis</i> and <i>Rhynchospora brownie</i>). The swamps were also noted by the panel as being important roosting sites for <i>Grus antigone</i>.</p> <p>Maars such as Bromfield Swamp and Lynch's Crater are up to 200,000 years old and provide a historical resource via pollen analyses of sediments which have accumulated in the volcanic crater lakes and swamps. Bromfield Swamp and Quincan Crater, situated close to the boundary between complex mesophyll and complex notophyll vine forest, provide records of vegetation changes and fire history over the last 8,000–11,000 years. Whilst Lynch's Crater, at a similar altitude but existing under a much higher rainfall, provides evidence of a vegetation sequence from about 80,000 years before present to within the last 10,000 years. Lynch's Crater has undergone peat mining since 1985, as well as draining and burning of vegetation and peat sediments by poor land management practices (REDD, v10) (<a href="https://www.wet Tropics.gov.au/pollen-record">https://www.wet Tropics.gov.au/pollen-record</a>)</p> <p>Lakes Eacham and Barrine are captured under a different special feature, wet_I_02 (Crater lakes).</p>	<p>lb (refugia): VH                      lc (disjunct populations): M                      lf (relictual taxa): VH                      lj (aggregation site): H                      lk (climate change refugia): H</p>

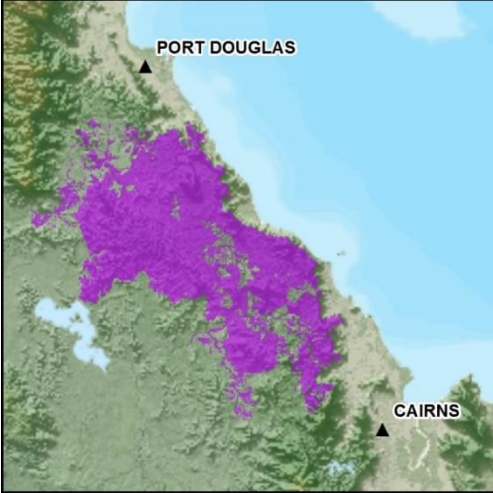
<p>wet_I_02</p>	<p>Crater Lakes</p> 	<p>State</p>	<p>The rare and unique crater Lakes' Euramo, Eacham and Barrine on the Atherton Tableland comprise this special feature. Lake Euramo and the adjoining Broomfield Swamp are up to 200,000 years old, whilst Eacham and Barrine may be as young as 10,000. Similar to the peat swamps (wet_I_01), there is the potential for pollen core studies to be undertaken.</p> <p>Attributed as being of considerable fauna value (particularly for some waterbird species) despite being under severe threat from weed and feral fish invasion. The area also supports disjunct distributions of species more typical of southern bioregions. Whilst Lake Eacham was originally prime habitat for the endangered Lake Eacham rainbow fish (<i>Melanotaenia eachamensis</i>), it is now extinct from the lake.</p>	<p>Ib (refugia): VH Ik (climate change refugia): VH</p>
<p>wet_I_03</p>	<p>Lowland rainforest climate refugia</p> 	<p>State</p>	<p>Historically, the fertile soils of the flat lowlands of the Wet Tropics have been targeted for agriculture resulting in substantial clearing of the original lowland rainforest extent, now considered endangered (Metcalf &amp; Lawson 2015). Lowland rainforest patches are important areas which serve as climate refugia over at least tens of thousands of years for a wide diversity of flora and fauna species, including many endemics (VanDerWal et al. 2009; Graham et al. 2010). The lowland rainforest areas are also critical for maintaining populations of species whose distributions may shift to refugial upland areas as a result of climate change (Reside et al. 2013).</p> <p>Key areas identified as being highly stable refugia over time and which are likely to remain so in the future include: the Daintree lowlands and the Cairns to Cardwell lowlands (specifically between Bellenden Ker and the Malbon Thompson Uplands) (VanDerWal et al. 2009; Graham et al. 2010; Reside et al. 2013). Targeting these areas for restoration and conservation (e.g. particularly in areas south of Cairns where weed loads are high) will also improve their role in acting as refugia for threatened and endemic taxa (Reside et al. 2013). These areas possess a high diversity of endemic and relictual taxa, particularly with regard to flora species.</p>	<p>Ia (endemic richness): VH Ib (refugia): VH Ic (disjunct populations): VH Ie (species richness): VH If (relictual taxa): VH Ik (climate change refugia): VH</p>

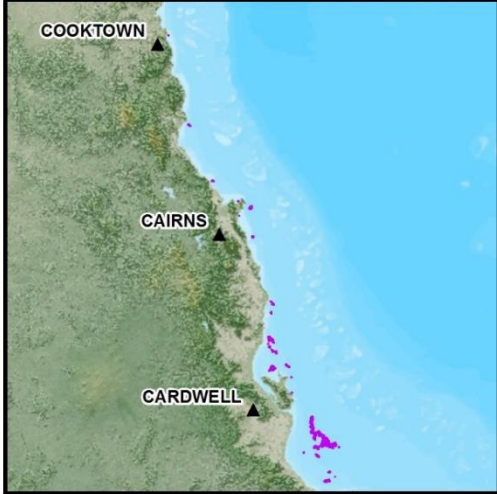
<p>wet_I_04</p>	<p>Upland climate refugia</p> 	<p>State</p>	<p>High elevation areas identified as important refugia areas, both currently and in the future (Reside et al. 2013). A comparison of different modelling techniques reveal a consistent result with respect to the upland areas being significant refugia for a high diversity of flora and fauna species (Reside et al. 2013). These high altitude areas include the Carbine, Windsor and Thornton Uplands in the north; Lamb and Herberton Ranges, and Bartle Frere/Bellenden Ker in the centre of the bioregion; and Mt Spec and Mt Elliot in the south.</p> <p>All are recognised as being biodiversity hotspots, attributed as containing a plethora of upland rainforest-restricted vertebrates and invertebrates. Of these key areas, the highest priority refugia is possibly the upland intact rainforest of the Atherton Uplands possessing high species endemism and high numbers of unique lineages. A study by Graham et al. (2010) showed models predicted that rainforest persisted south of the Black Mountain corridor and that coastal refugia areas which comprise Bellenden–Ker and Thomson Ranges, and the Thornton and Finnegan Uplands, had high historical stability relative to their current extent. Regions of greatest stability for wet sclerophyll forest were the western edge of the Atherton to Kirrama to Paluma uplands and Mt Elliot (VanDerWal et al. 2009).</p> <p>It is important to note, that whilst mountainous areas will likely provide a refugia for some species currently present at lower altitude, many species currently restricted to cool high altitude areas with narrow environmental niches, may similarly be at increased risk due either to displacement, or limited retreat options (Reside et al. 2013).</p>	<p>la (endemic richness): VH                  lb (refugia): VH                  lc (disjunct populations): VH                  ld (range limits): VH                  le (species richness): VH                  lf (relictual taxa): VH                  li (hollows and habitat): VH                  lj (aggregation site): VH                  lk (climate change refugia): VH</p>
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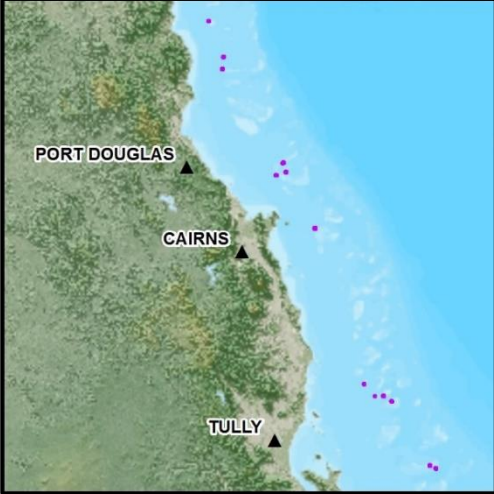

<p>wet_l_05</p>	<p>Dune Swale complexes</p>  <p>The map shows the northern Queensland coast of Australia. Three locations are marked with black triangles and labeled: BLOOMFIELD at the top, CAIRNS in the middle, and CARDWELL at the bottom. Purple shaded areas along the coast represent the Dune Swale complexes. The ocean is shown in light blue to the east of the landmass.</p>	<p>State</p>	<p>Mosaic complexes of dune swales and interspersed wetland systems. The special feature encompasses important representative areas inclusive of: Cowley Beach, Yarrabah; Wyvuri Swamp; Kurrimine Beach; southeast corner of Hinchinbrook Island; North of Bloomfield River mouth; Area from the Murray River south to Cardwell, and parts of Girramay National Park. Of note, Cowley Beach and Yarrabah are exceptional areas.</p> <p>Although vulnerable to salt incursion, due to the non-fertile soils and resultant limited anthropogenic use, such areas act as an important coastal refugia. Weed invasion is low, though storm surges can introduce invasive transformer species such as Singapore daisy. Conversely, invasion may occur from adjoining native communities which tolerate infertile soils.</p> <p>Whilst relatively young systems &lt;6,000 years old and containing few endemic species, components of these systems are species rich, in part, due to the “flow on” effect from adjoining rainforest communities. Another unique characteristic of these communities results from the “founder effect”, whereby each beach has its own dominant species communities which are not replicated beach to beach.</p> <p>A number of flora species are present, disjunct from Cape York systems, especially on dune slopes. Examples include: <i>Asteromyrtus lysicephala</i>, <i>Lomandra banksii</i>, <i>Syzygium banksii</i>, <i>Acacia legnota</i>, <i>Acacia racospermoides</i>, <i>Acacia pubirhachis</i>, <i>Nepenthes</i> spp. and <i>Endiandra glauca</i>. The panel also noted these systems as important for migratory birds.</p>	<p>la (endemic richness): M          lb (refugia): M          lc (disjunct populations): H          ld (range limits): H          le (species richness): VH          lg (ecosystem variation): VH          lj (aggregation site): H</p>
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<p>wet_I_06</p>	<p>Major waterfalls and associated large gorges</p> 	<p>Regional</p>	<p>This special feature is comprised of the larger waterfalls and gorges. For a number of amphibia and other aquatic taxa including the estuarine crocodile, large falls (especially the first major fall inland from the coast) act as a significant geographic barrier resulting in range limits and discontinuity of species distributions.</p> <p>The constant flow of water, topographic ruggedness, diversity of habitats and light shading creates localised microclimatic conditions. In conjunction with geographic isolation, these conditions result in moderate levels of endemism and restricted distributions. Bloomfield Falls for example, has a localised <i>Xanthostemon</i> species, whilst an adjoining 11km stretch of the river system houses the locally restricted (<i>Guyu wujalwujalensis</i>). Persistence of <i>Guyu wujalwujalensis</i>, may be due to the presence of waterfalls which blocked migration of more aggressive tropical freshwater fish species (i.e. <i>Hephaestus fuliginosus</i>) that presumably displaced the species from its former range. The geographic isolation may also provide a refugial role for populations of threatened amphibia from Chytridiomycosis (amphibian chytrid fungus disease).</p> <p>The topographic richness associated with these environments, also encourages richness of species and a relatively high abundance of lycophytes, ferns, figs and orchids on rocky substrates are present. The rocky environments and poor soils conditions of the gorges also permit dry rainforest plant colonies to occur in wet locations, whilst microclimatic conditions similarly facilitate higher elevation species to occur at lower elevation. With respect to fauna richness, by way of example, Barron Falls provides habitat for 36 amphibian species including five endangered and one vulnerable taxa under the NCA.</p>	<p>la (endemic richness): M lc (disjunct populations): H ld (range limits): H</p>
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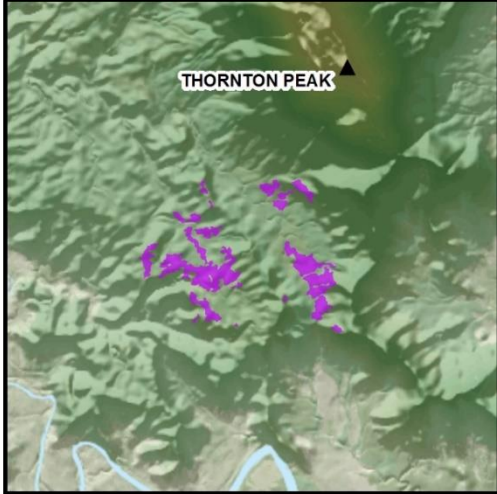
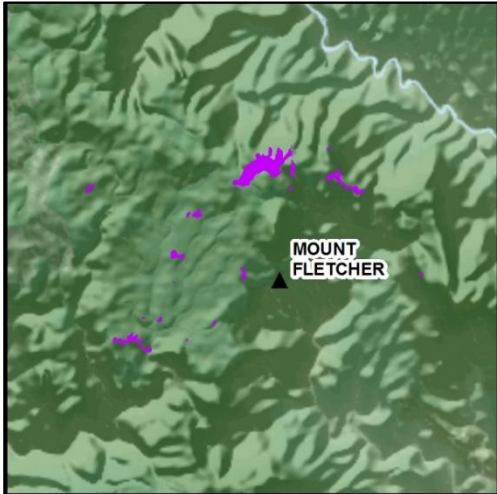


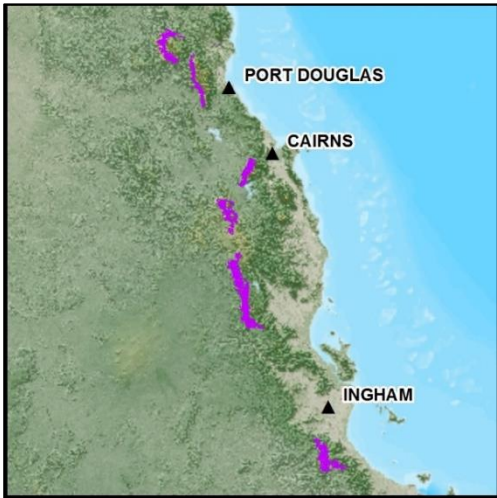
<p>wet_I_07</p>	<p>Black Mountain Corridor Biogeographic Barrier</p>  <p>The map shows a purple shaded area representing the Black Mountain Corridor Biogeographic Barrier, stretching from Port Douglas in the north to Cairns in the south along the eastern coast of Queensland, Australia.</p>	<p>Regional</p>	<p>The Black Mountain corridor is the most well studied biogeographic barrier in eastern Australia. Historical climatic oscillations have resulted in rainforest contraction and expansion repeatedly connecting and then severing the northern and southern rainforest blocks of the Wet Tropics. As a result, largely concordant patterns of genetic divergence across the barrier in a wide range of rainforest taxa has occurred. (Chapple et al. 2011)</p> <p>Furthermore, the area is considered an evolutionary hotspot or suture zone. Suture zones, which are shared regions of secondary contact between long-isolated lineages, have contributed to both hybridisation and speciation with resultant range limits for a number of taxa. Harris Peak is a notable contact point. Examples of the speciation process include: Mammals; <i>Bettongia tropica</i> (Pope et al. 2000), <i>Poecilodryas albispecularis</i>, <i>Orthonyx spaldingii</i>, <i>Sericornis citreogularis</i> (Joseph &amp; Moritz 1994; Joseph et al. 1995), Reptiles; <i>Saltuarius cornutus</i>, <i>Carphodactylus laevis</i>, <i>Gnypetoscincus queenslandiae</i>, (Moritz et al. 1993; Joseph et al. 1995; Cunningham &amp; Moritz 1998; Schneider et al. 1998; Schneider &amp; Moritz 1999), <i>Lampropholis robertsi</i>, <i>L. coggeri</i> (Bell et al. 2010), Frogs; <i>Litoria serrata</i>, <i>L. rheocola</i>, <i>L. nannotis</i> (Schneider et al. 1998), <i>Litoria jungguy</i>, <i>L. rheocola</i>, <i>L. dayi</i> and <i>L. nannotis</i> (Bell et al. 2012). Plants include; <i>Dendrobium speciosum</i> (Burke et al. 2013), <i>Elaeocarpus foveolatus</i>, <i>E. largiflorens</i> and <i>E. carolinae</i> (Rossetto et al. 2007, 2009; Mellick et al. 2014).</p>	<p>Ic (disjunct populations): VH Id (range limits): VH</p>
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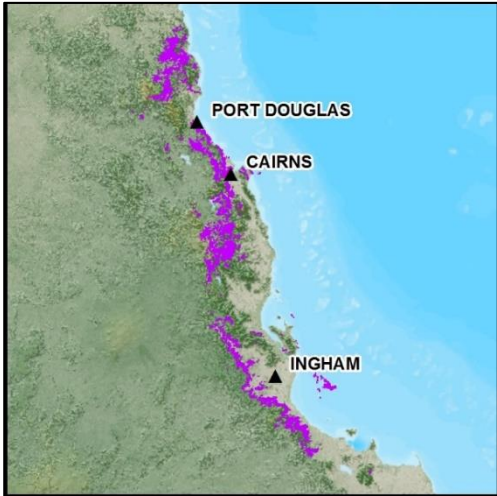
<p>wet_I_08</p>	<p>Offshore continental Islands of the Wet Tropics (excluding Hinchinbrook)</p> 	<p>Regional</p>	<p>Includes island/island groups such as Palm Islands, Dunk, Family Islands, Gould, Brooks, Fitzroy and Snapper. Hinchinbrook Island is assessed as a separate special feature (refer to wet_I_10).</p> <p>The offshore continental islands are important for migratory seabirds and rainforest aves. Species include: <i>Hydroprogne caspia</i>, <i>Tringa incana</i>; <i>Actitis hypoleucos</i>; <i>Arenaria interpres</i>; <i>Calidris ruficollis</i>; <i>Charadrius mongolus</i>; <i>Limosa lapponica bauera</i>; <i>Numenius phaeopus</i>; <i>Pluvialis fulva</i>; <i>Tringa brevipes</i>; <i>Xenus cinereus</i>; <i>Pandion cristatus</i>. The areas are also important for the vulnerable (NCA) Beach Stone-curlews. While turtles (<i>Natator depressus</i> and <i>Eretmochelys imbricata</i>) migrate through the general area, <i>Natator depressus</i> are the only ones that nest on the islands.</p> <p>Littoral rainforest (EPBC listed community) is present on some with unusual vine thicket regional ecosystems (7.2.2a: Notophyll vine forests, often with <i>Acacia</i> emergents; 7.2.1d: Swampy mesophyll vine forest with <i>Archontophoenix alexandrae</i> (feather palm) in the sub-canopy; 7.2.7b: Groved shrubland with <i>Corymbia tessellaris</i>, <i>Casuarina equisetifolia</i> and vine forest species including <i>Canarium australianum</i>, <i>Terminalia arenicola</i> and <i>Sersalisia sericea</i>).</p> <p>Compared to the mainland, these islands can be in relatively good condition due to their isolation which minimises pest/weed invasion. Threatened plant species found on some islands include: <i>Arenga australasica</i> (Arenga palm), <i>Buchanania mangoides</i> and <i>Aphyllorchis queenslandica</i>.</p>	<p>Ij (aggregation site): VH</p>
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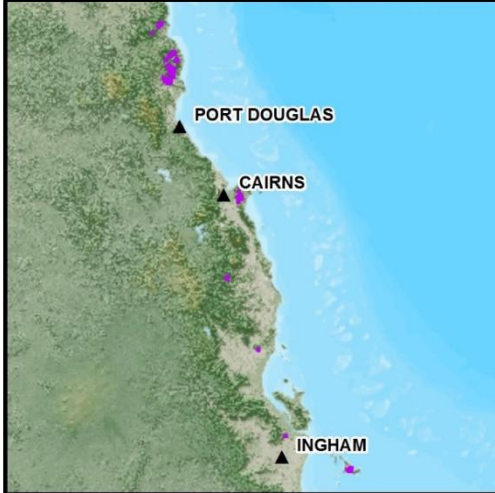
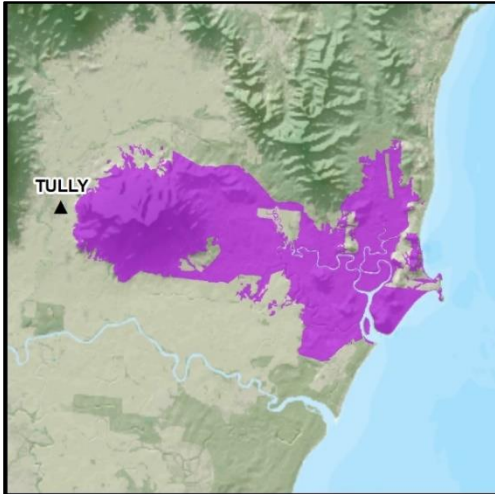
<p>wet_I_09</p>	<p>Coral cays</p> 	<p>Regional</p>	<p>Coral cays share some of the values described for offshore islands (wet_I_08) and provide habitat for a range of breeding and roosting vertebrates. Coral cays provide a unique terrestrial substrate that supports rare vegetation communities, e.g. littoral rainforest on coral rubble such as Green Island.</p> <p>In addition, <i>Pisonia grandis</i> dominated forests are present on some. These are closed-forests which have unique physiological and morphological characteristics to buffer against ecological stresses such as seawater inundation and dry conditions, and may replace rainforest species. However, they are susceptible to dieback if the freshwater lenses that sustain them become inundated by saltwater (e.g. Tryon Island) (Turner &amp; Batinoff 2007). <i>Pisonia</i> forests are common nesting sites often inhabited by large numbers of seabirds, particularly noddies, which roost in the trees each night. Faeces, food scraps, dead chicks and expired adults are a major source of nutrients on which <i>Pisonia</i> trees thrive (Turner &amp; Batinoff 2007). Some Cays are not vegetated at all and others e.g. Green island, are vegetated but do not contain <i>Pisonia</i> forest. In Australia, there is only approximately 190ha of <i>Pisonia</i> forests, and around 80% of this vegetation type grow on the Capricorn Cays within the Great Barrier Reef (eatlas.org.au).</p>	<p>lj (aggregation site): VH</p>
<p>wet_I_10</p>	<p>Hinchinbrook Island</p> 	<p>State</p>	<p>A large undeveloped island (second in size only to Fraser), containing areas of relatively high elevation, with the highest summit being Mt Bowen (1,221 m). A diversity of ecosystem types, coupled with unusual vegetation community representations, result in significant ecosystem variation. The higher elevation peaks for example, contain unique rainforest vine thicket communities, as well as unusual mosaics of heath/shrub communities, comparative to those on the mainland. Mission Bay and Hinchinbrook Channel house some of the most species rich mangrove communities within Australia. Other broad vegetation types present include eucalypt communities and freshwater melaleuca swamps. 46 of the 54 regional ecosystems on the Island are listed as endangered or of concern (DNPRSR 2017).</p> <p>The northeast corner of the island contains dune systems, large areas of mangrove and flora on rhyolite substrate (landzone 12). The southeast corner contains more dune systems whilst unusual volcanic formations occur along the coast. A very intact, unique stand of <i>Eucalyptus cloeziana</i> is also present.</p> <p>A number of threatened WET endemic flora occur inclusive of <i>Banksia plagiocarpa</i>, <i>Comesperma praecelsum</i>, <i>Tetramolopium</i> sp. (Mt Bowen D.G.Fell+ DGF1224) and <i>Drosera adela</i>e. Other endemics include:</p>	<p>la (endemic richness): VH                  lb (refugia): VH                  lc (disjunct populations): VH                  le (species richness): VH                  lg (ecosystem variation): VH                  lj (aggregation site): VH                  lk (climate change refugia): H</p>

			<p><i>Boronia jensziae</i>, <i>Cardwellia sublimis</i>, <i>Cryptocarya putida</i>, <i>Guioa montana</i>, <i>Kunzea granitica</i>, <i>Syzygium canicortex</i>. An unusual occurrence of <i>Syncarpia glomulifera</i> (turpentine) is also present on the island.</p> <p>In terms of notable fauna values, the Hinchinbrook Island nursery-frog (<i>Cophixalus hinchinbrookensis</i>) is endemic to the island. Threatened fauna include <i>Litoria rheocola</i> (common mistfrog), <i>Numenius madagascariensis</i> (eastern curlew), <i>Litoria serrata</i> (tapping green eyed treefrog), <i>Crocodylus porosus</i>, <i>Limosa lapponica baueri</i> (Bar-tailed Godwit (western Alaskan)) and <i>Pygmaeascincus sadleri</i> (Magnetic Island dwarf skink).</p>	
11	Russell River catchment	NA	Not implemented. Values captured under other decisions.	NA
wet_I_12	<p>Melaleuca wetlands at headwaters of Alexandra Creek</p> 	State	<p>This feature comprises a small group of <i>Melaleuca quinquenervia</i> wetlands northwest of Thornton Peak, in the headwaters of Alexandra Creek fed by seepage from surrounding hills. Unique and limited system in the Wet Tropics, this upland open swamp complex consists of REs - 7.11.40a-c. <i>Banksia robur</i> occurs in 7.11.40c as a disjunct (occurs also in southern Queensland).</p> <p>The area is under sampled and little is known of the specific characteristics e.g. endemics species present. Whilst not well sampled, the panel considered there is a high probability that endemics are present in conjunction with unique combinations of taxa.</p>	<p>1a (endemic richness): H                      1b (refugia): H                      1c (disjunct populations): H                      1g (ecosystem variation): VH</p>

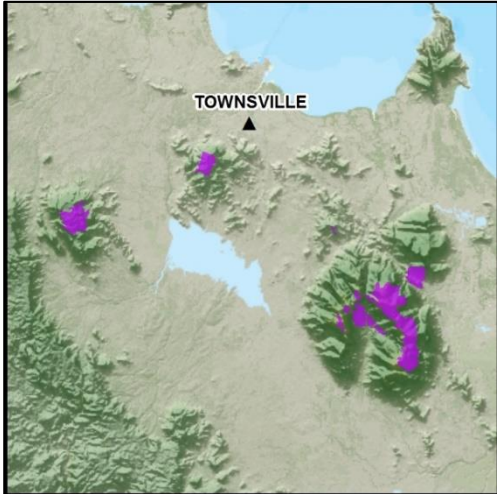
<p>wet_I_13</p>	<p>Hilda Creek Melaleuca woodlands - Southwest of Thornton's Peak</p> 	<p>Regional</p>	<p>This feature captures <i>Melaleuca</i>-dominated woodlands situated below Thornton Peak but at an elevation of 200–400m or more. The REs captured are 7.11.40a (<i>Melaleuca quinquenervia</i> woodland to open forest and shrubland) and 7.11.48a (<i>Melaleuca viridiflora</i> woodland). The ecosystems in this feature have impeded drainage. They can be dry or very wet depending on seasonal fluctuations. The ecosystems are quite unique in the Wet Tropics and accommodate some lowland species at higher elevation. Whilst relatively poorly sampled, the threatened <i>Myrmecodia beccarii</i> (ant plant) is known to occur in these woodlands, and the panel suggested there was a high probability of other endemic species and unique combinations of taxa occurring within this feature.</p>	<p>Ia (endemic richness): H Ib (refugia): H Ic (disjunct populations): H Ig (ecosystem variation): VH</p>
<p>wet_I_14</p>	<p>Towalla</p> 	<p>Regional</p>	<p>This special feature, located at the headwater divide that separates the North Johnstone and Russell rivers, encompasses a number of distinct and unique heath areas (regional ecosystem 7.11.29c) on shallow soils on quartzite surrounded by extensive rainforest. The vegetation structure ranges from semi swamp/shrubland to low forest and allows greater sunlight penetration comparative to the surrounding vegetation. Based upon the regional ecosystem description for 7.11.29c, flora species often present include <i>Allocasuarina littoralis</i>, <i>Melaleuca quinquenervia</i>, <i>Rhodomyrtus sericea</i>, <i>Melastoma malabathricum</i> subsp. <i>malabathricum</i>, <i>Gahnia sieberiana</i>, <i>Schoenus sparteus</i>, <i>Ischaemum australe</i>, <i>Dianella</i> spp. and <i>Drosera</i> spp. Two skink species, largely endemic to Bartle Frere, also occur.</p> <p>The areas were also noted by the panel as being of potentially high cultural significance and that the fire regime was historically maintained by the local rainforest aboriginal people.</p>	<p>Ig (ecosystem variation): VH</p>

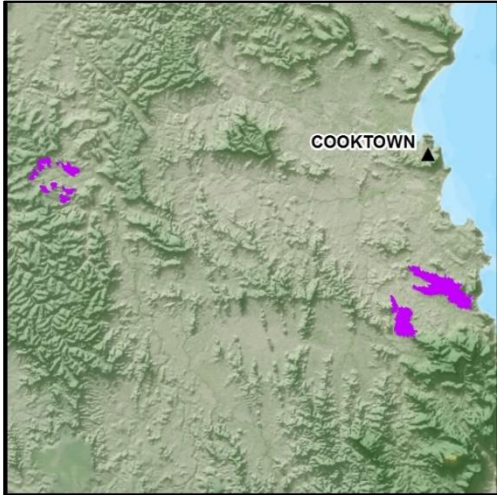
<p>wet_I_15</p>	<p>Sclerophyll forest west of rainforest - tall open forest</p> 	<p>State</p>	<p>Predominantly situated at the Western margins of the WET and extending from Mt Windsor south to Mt Zero, the feature also incorporates Einasleigh elements. The transition from dry, moist through to tall wet sclerophyll up to the rainforest margin is a highly dynamic zone influenced by climate and fire regimes (and is one of the few WET landscape systems that can carry a crown fire). The considerable environmental heterogeneity associated with the transition often incorporates the tension zone between lowland and upland species, resulting in a high diversity of vertebrate taxa, including many endemics. The largest contiguous remaining tracts of wet sclerophyll adjacent to rainforest occur along western margin of Coane, Seaview and Cardwell ranges and in upper Daintree area (Stanton et al. 2014). Reduced fire exposure is considered a significant threat to the wet sclerophyll communities from rainforest incursion (Stanton et al. 2014).</p> <p>The panel noted that the system has an adaptive capacity to climate change with potential movement of vegetation communities along an elevation gradient. This feature also acts as an important corridor along the western bioregion boundary, and areas with the greatest long-term climatic stability for wet sclerophyll forest have been identified as the sections encompassing the western edge of the Atherton, Kirrama and Paluma uplands (VanDerWal et al. 2009).</p> <p>A number of threatened fauna inhabit this ecotone including <i>Delma mitella</i>, <i>Dasyurus hallucatus</i>, <i>Dasyurus maculatus gracilis</i>, <i>Bettongia tropica</i>, <i>Petauroides volans</i> and <i>Petaurus australis</i> unnamed subsp. (NQ). Disjunct taxa also occur, e.g. <i>Cormobates leucophaea minor</i>, <i>Falcunculus frontatus</i>, <i>Antechinus flavipes</i> and <i>Isoodon obesulus peninsulae</i>.</p> <p>Presence of widespread endemics, e.g. <i>Bolemoreus frenatus</i>, <i>Xanthotis macleayanus</i> and <i>Arses kaupi</i>. The snail <i>Steorra estherlilleya</i> is narrowly restricted to this habitat west of Paluma. Other invertebrates associated with wet sclerophyll forest include <i>Temnoplectron cooki</i>, <i>Onthophagus pinaroo</i>, <i>Pamborus elegans</i> and <i>Anomalomorpha monteithi</i> (Yeates &amp; Monteith 2008). Many WET taxa also reach their western and southern limits in this community. Tall eucalypts provide hollows for gliders, possums and large cockatoos, e.g. <i>Calyptorhynchus lathamii</i>. This habitat is also important for winter feeding by <i>Pteropus conspicillatus</i>.</p> <p>With respect to flora, some of the threatened species present include: <i>Prostanthera clotteniana</i>, <i>Tylophora rupicola</i>, <i>Corymbia leptoloma</i>, <i>Corymbia rhodops</i>, <i>Parsonsia wildensis</i>, <i>Plectranthus amoenus</i>,</p>	<p>la (endemic richness): VH  lb (refugia): VH  lc (disjunct populations): VH  ld (range limits): VH  le (species richness): VH  lg (ecosystem variation): H  li (hollows and habitat): VH  lj (aggregation site): H  lk (climate change refugia): H</p>
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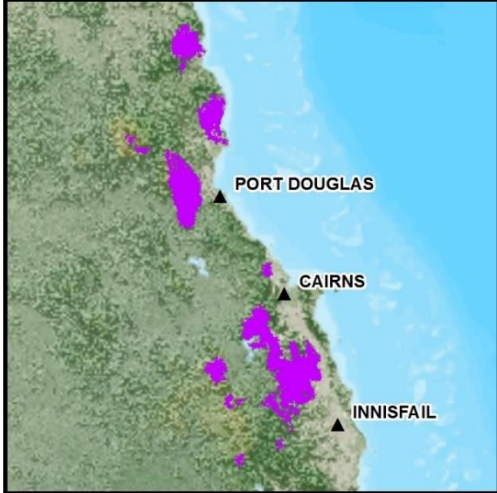
			<p><i>Calochlaena villosa</i>, and <i>Dodonaea uncinata</i>.</p> <p>Examples of Wet Tropic endemic flora include: <i>Actephila flavescens</i>, <i>Acrothamnus spathaceus</i>, <i>Alpinia arctiflora</i>, <i>Argyrodendron peralatum</i>, <i>Athertonia diversifolia</i>, <i>Brackenridgea australiana</i>, <i>Bulbophyllum gadgarrense</i>, <i>Comesperma rhyoliticum</i>, <i>Corymbia leptoloma</i>, <i>Desmos goezeanus</i>, <i>Elaeocarpus carolinae</i>, <i>Endiandra bessaphila</i>, <i>Gmelina fasciculiflora</i>, <i>Hibbertia melhanioides var. baileyana</i>, <i>Lastreopsis tinarooensis</i>, <i>Medicosma glandulosa</i>, <i>Myrsine smithii</i>, <i>Persoonia tropica</i>, <i>Sarcochilus borealis</i>, <i>Solanum magnifolium</i> and <i>Symplocos glabra</i>.</p> <p>Examples of disjunct flora include: <i>Acacia ulicifolia</i>, <i>Alectryon semicinereus</i>, <i>Archidendron hendersonii</i>, <i>Boletellus emodensis</i>, <i>Cantharellus concinnus</i>, <i>Fistulinella mollis</i>, <i>Hibiscus diversifolius</i>, <i>Knoxia sumatrensis</i>, <i>Lomandra laxa</i>, <i>Notelaea ovata</i> and <i>Platycterium superbum</i>.</p>	
<p>wet_I_16</p>	<p>Wet Tropics endemic BVGs of simple to complex upland mesophyll and notophyll vine forests.</p> 	<p>State</p>	<p>The special area encompasses the broad vegetation groups 1b and 5c (at the 1:1,000,000 scale). BVG 1b refers to - Complex mesophyll to notophyll vine forests usually on basalt tablelands whilst the BVG 5c refers to - Simple to complex notophyll vine forests, often with <i>Agathis</i> spp. on ranges and uplands of the WET.</p> <p>Both these BVGs are unique and endemic to the Wet Tropics and exhibit a unique combination of vegetation communities that only exist within the bioregion.</p>	<p>1a (endemic richness):VH</p>

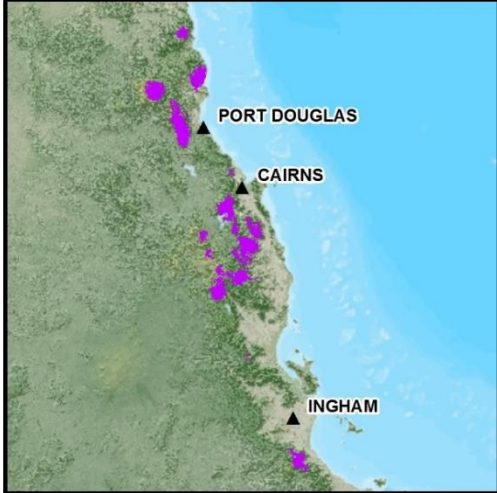
<p>wet_I_17</p>	<p>Upland palm forests (fan and feather)</p> 	<p>Regional</p>	<p>This feature is composed of the following regional ecosystems: 7.11.2a-d; 7.11.29d; 7.12.2a-d. All the listed regional ecosystems have a biodiversity status “Of Concern” and reflect vine forests (notophyll to mesophyll vine forest, simple notophyll vine forest, microphyll vine thicket) which contain either feather or fan leaf palms in the understorey. In general, palm leaf rainforests are distinctive categories of mesophyll rainforests, with a conspicuous and significant proportion of the upper strata (canopy layer) comprising either feather (<i>Archontophoenix alexandrae</i>) or fan leaf (<i>Licuala ramsayi</i> var. <i>ramsayi</i>) palms. RE 7.11.2c and 7.12.2d also contain the palm species <i>Oraniopsis appendiculata</i>.</p> <p>Whilst feather leaf and fan leaf dominated rainforests are generally recognised as two distinct communities, they may inter-mix. Palm leaf rainforests can occur across a range of geological substrates and topographic positions, however both communities rely on impeded drainage and permanent soil moisture (WETMA 2018), sometimes spring fed and generally more common at lower elevations. Communities located at higher elevations require specific soil properties to occur and act as a wet refugia as well as habitat for rare and threatened plant and fauna including <i>Casuarium casuarium johnsonii</i> and in the northern parts, <i>Macroderma gigas</i>.</p>	<p>lb (refugia): VH lg (ecosystem variation): VH</p>
<p>wet_I_18</p>	<p>Hull River, Mount Mackay</p> 	<p>State</p>	<p>Within the Wet Tropics, the area depicted represents the best example of a relatively intact landscape transitional zone that extends from the marine environment with connectivity through to freshwater systems and finally extending to a mountain top. It contains some of the most intact and complex, surviving lowland systems.</p> <p>At its marine margin it is composed of mangroves, saltwater couch grasslands, salt pans, and bulrush sedgelands. These systems have connectivity to open forests and woodlands on beaches and beach ridges including <i>Melaleuca quinquenervia</i> forests and woodlands (RE 7.2.9). The lowland portion of this special feature is composed of mesophyll / notophyll vine forests (7.3.10a-c), <i>Melaleuca leucadendra</i> vine forests (7.3.25), <i>Melaleuca quinquenervia</i> / <i>viridiflora</i> open forests (7.3.5a, 7.3.8a), eucalypt open forests (7.3.12, 7.3.19, 7.3.7). The foothills and upper portions of this feature are composed of eucalypt open forests (e.g. 7.11.18, 7.12.23), mesophyll / notophyll vine forests (e.g. 7.11.1, 7.12.1), and rock pavements and seepage areas (7.12.37).</p> <p>Threatened flora species recorded within this feature include: <i>Hedyotis novoguineensis</i>, <i>Myrmecodia beccarii</i> and <i>Barongia lophandra</i>. Endemic species include: <i>Appendicula australiensis</i>, <i>Cardwellia sublimis</i>, <i>Cleistanthus discolor</i>; <i>Ilex</i> sp. (Gadgarra B.P.Hyland RFK2011),</p>	<p>la (endemic richness): H lc (disjunct populations): H le (species richness): H lg (ecosystem variation): VH li (hollows and habitat): VH lk (climate change refugia): H</p>




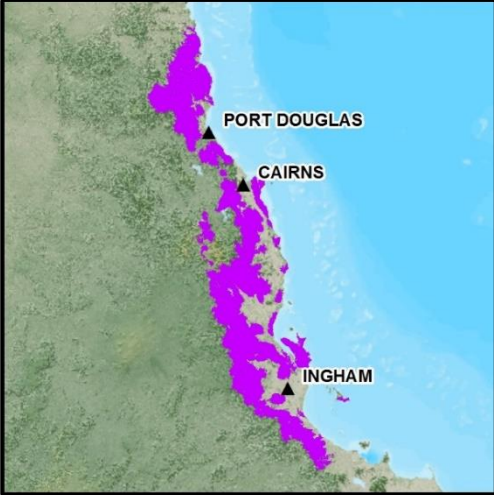
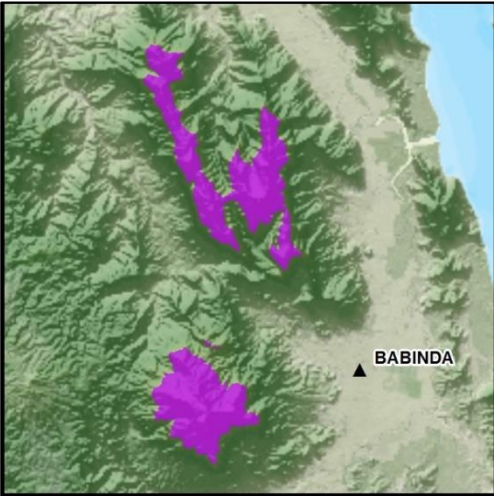
			<p><i>Myrmecodia beccarii</i> and <i>Syzygium kuranda</i>.</p> <p>With respect to fauna, the lowland portion provides habitat for the <i>Petaurus gracilis</i> - this represents part of its northern extent. Other threatened species present include: <i>Casuaris casuaris</i>, <i>Litoria dayi</i>, <i>Litoria rheocola</i>, <i>Litoria serrata</i>, <i>Pteropus conspicillatus</i> and <i>Crocodylus porosus</i>.</p>	
wet_I_19	<p>Southern mountain top outliers</p> 	State	<p>Wet Tropics outlier remnant regional ecosystems situated within the Brigalow Belt bioregion. The regional ecosystems are located on the following mountains: Elliot, Stuart, South Pinnacle and Middle Sister. Whilst housing generally lower species diversity in comparison to the rest of the WET, the isolation has resulted in considerable speciation, and as such, exhibits considerable levels of endemism for a diversity of invertebrates. Examples include: flightless ground beetles (Staunton et al. 2014), e.g. <i>Aptenocanthon wollumbin</i>, <i>Apterotheca ghislaini</i>, <i>Lissapterus ogivus</i> and <i>Philipis ellioti</i>; snails - <i>Fastosarion helenkingae</i>, <i>Steorra rawnesleyi</i> and <i>S. worsfoldi</i>; and crustaceans - <i>Euastacus bindal</i>. Other broader Wet Tropics endemics include: <i>Lampropholis coggeri</i>, <i>L. robertsi</i> and <i>Litoria jungguy</i>.</p> <p>It also provides suitable habitat for several narrow range restricted herpetofauna species which include: <i>Cophixalus mcdonaldi</i>, <i>Phyllurus amnicola</i>, <i>Glaphyromorphus clandestinus</i> and a recently described skink, <i>Lampropholis elliotensis</i> and is a noted refugium for flightless insects (Yeates et al. 2002). The disjunct reptile <i>Tropidechis carinatus</i> found in SEQ and northern/central NSW also occurs.</p> <p>With respect to flora, Wet tropics endemics include: <i>Apodytes brachystylis</i>; <i>Bulbophyllum johnsonii</i>; <i>Endiandra bessaphila</i> and <i>Cryptocarya leucophylla</i>. The threatened plant species <i>Dubouzetia saxatilis</i> is also present, as is a number of relictual taxa (e.g. <i>Phlegmariurus phlegmaria</i>).</p>	<p>1a (endemic richness): VH                  1b (refugia): VH                  1c (disjunct populations): VH                  1d (range limits): VH                  1e (species richness): H                  1f (relictual taxa): VH                  1k (climate change refugia): VH</p>
20	Broad Mission Beach area	State	<p>Decision not implemented. A number of significant values associated with the area were identified in a report produced by Terrain and Chenoweth (Terrain 2018). For the purpose of the current assessment, these were subsumed in adjoining decisions or under other criteria. Some of the key values identified in the report include:</p> <ul style="list-style-type: none"> <li>• The presence of two World Heritage Areas, Great Barrier Reef and the Wet Tropics of Queensland (captured under Criterion B1)</li> <li>• The presence of a large portion of Australia's remaining Licuala Fan Palm Forests (importance of the restricted community captured under Criterion B1)</li> </ul>	

			<ul style="list-style-type: none"> <li>• Rainforest vegetation on the basaltic headland at Clump Point (refer to wet_fl_18)</li> <li>• Large areas of lowland rainforest (refer to wet_l_03 and wet_fa_15)</li> <li>• Lowland to upland connectivity captured as part of an important landscape connection (refer to wet_l_30).</li> </ul>	
wet_l_21	<p>Battle Camp Range, Black Mountain and Dowlings Hill outliers</p> 	Regional	<p>The special area encompasses selected outlier regional ecosystems on basalt or granite to the northwest of the bioregion (Battle Camp Range), as well as regional ecosystems associated with Black Mountain and Dowling Hills at the northernmost extent of the bioregion. Whilst considered poor in species richness and habitat for threatened species, a number of species are located at the limit of range and/or occur as disjunct populations.</p> <p>Examples of disjunct taxa include: <i>Rhaphidospora cavernarum</i>, <i>Ehretia microphylla</i>, <i>Geijera salicifolia</i>, <i>Ixora timorensis</i>, <i>Marsdenia velutina</i>, <i>Memecylon pauciflorum</i>, <i>Mimusops elengi</i>, <i>Parsonsia velutina</i>, <i>Planchonella cotinifolia</i> var. <i>cotinifolia</i>, <i>Viscum ovalifolium</i>, <i>Arytera bifoliolata</i>, <i>Brucea javanica</i>, <i>Cissus adnate</i>, <i>Clerodendrum tomentosum</i>, <i>Cresponea leprieurii</i>, <i>Curcuma australasica</i>, <i>Dimorphocalyx australiensis</i>, <i>Lecanora subimmersa</i> and <i>Tabernaemontana pandacaqui</i>. Examples of taxa at their northern limit of range include: <i>Graptophyllum excelsum</i>, <i>Eucalyptus tereticornis</i> subsp. <i>tereticornis</i> and <i>Plectranthus foetidus</i>. Similarly, examples at southern limit include: <i>Remusatia vivipara</i>, <i>Tiliacora australiana</i> and <i>Dipteracanthus bracteatus</i>.</p> <p>Black Mountain contains a unique granite boulder formation whose crevices and caves provide a sheltered, cool and moist microclimate. A number of taxa found only in this rocky habitat include invertebrates (snail - <i>Georissa angulata</i> and <i>G. atramontana</i>) and vertebrates <i>Cophixalus saxatilis</i>, <i>Nactus galgajuga</i> and <i>Liburnascincus scirtetis</i>. The area is a known site for a breeding colony of <i>Aerodramus terraereginae</i>, and suspected maternity site for <i>Macroderma gigas</i>. Five threatened species of flora have also been recorded within the park (DNPRSR 2013a)</p>	Ic (disjunct populations): M Id (range limits): VH

<p>wet_I_22</p>	<p>Wet Tropics World Heritage Area Outstanding Universal Values – Relictual and important evolutionary Areas</p> 	<p>State</p>	<p>The WET contains one of the most complete and diverse living records of the major stages in the evolutionary history of land plants. This is primarily as a result of the rainforests persisting through time since Gondwana. It also provides one of the most important living records of the history of the world's marsupials and songbirds as they originated in the rainforest ecosystems of the Wet Tropics.</p> <p>The special feature depicted reflects taxa rich "hot spots" derived from known records, and for taxa considered to be of relictual or evolutionary importance (DES 2018). For the purpose of this implementation, the highest ranked 10% area of remnant vegetation within the bioregion was extracted.</p> <p><i>Nb. spatial representation not restricted to the WTWHA.</i></p>	<p>If (relictual taxa): VH</p>
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<p>wet_I_23</p>	<p>Wet Tropics World Heritage Area Outstanding Universal Values – Concentrations of endemism</p> 	<p>State</p>	<p>The Wet Tropics is regarded as a centre of endemism (second only to New Caledonia in the number of endemic genera per unit area), and provides critical insights into the evolutionary patterns both within and outside the rainforests, including the evolutionary history with the surrounding sclerophyll forests. It also provides outstanding examples of important ongoing ecological processes and biological evolution.</p> <p>The special feature depicted reflects taxa rich "hot spots" derived from known records, and for taxa considered to be endemic to the bioregion (DES 2018). For the purpose of this implementation, the highest ranked 10% area of remnant vegetation within the bioregion was extracted.</p> <p><i>Nb. spatial representation not restricted to the WTWHA.</i></p>	<p>la (endemics): VH</p>
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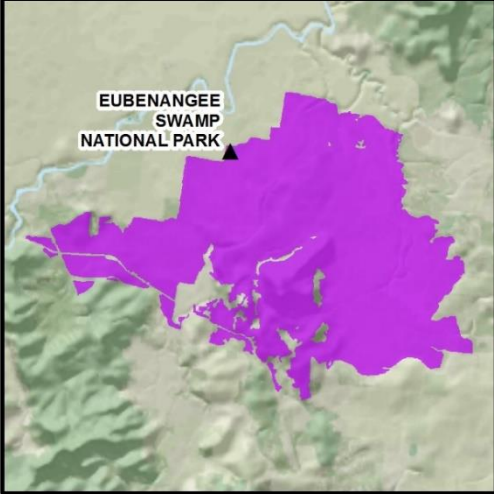
<p>wet_l_24</p>	<p>Wet Tropics World Heritage Area Outstanding Universal Values – Habitats for conserving biodiversity and rare and threatened species of flora and fauna</p> 	<p>State</p>	<p>The Wet Tropics harbours a significant amount of biological diversity and provides a plethora of habitats for many rare and threatened species of outstanding universal significance. Within Australia, it contains relatively high proportions of fern, cycad, conifer, orchid, butterfly, freshwater fish, mammal, bird and herpetofauna species. In addition, many of these species are endemic to the Wet Tropics and have restricted distributions. As a result of this, many fauna species are subsequently rare and/or threatened (e.g. one third of endemic frog species are endangered across the Wet Tropics).</p> <p>This world heritage criterion has two important features with regards to the emphasis on 'habitats' conserving populations and the importance of biodiversity in terms of the emphasis on interrelationships between individual populations and their habitats. The attributes of this OUV include habitat and plant diversity, rare and threatened flora (threatened taxa habitats), fauna diversity and, rare and threatened fauna (threatened taxa habitats).</p> <p>The special feature depicted reflects "hot spots" of areas containing a combination of high ecosystem diversity, areas rich in flora and fauna taxa and areas containing concentrations of threatened taxa (DES 2018). For the purpose of this implementation, the highest ranked 10% area of remnant vegetation within the bioregion was extracted.</p> <p><i>Nb. spatial representation not restricted to the WTWHA.</i></p>	<p>Ib (refugia): VH Ie (species richness): VH</p>
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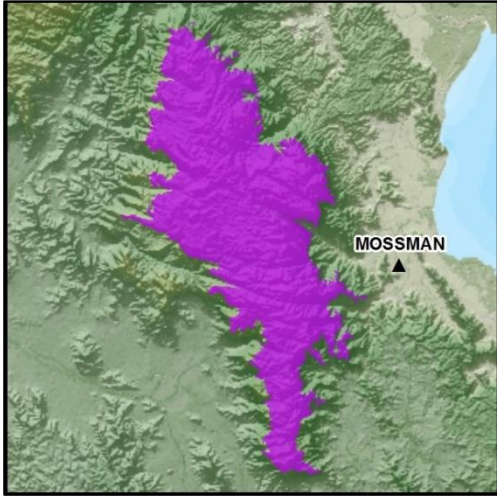
<p>wet_l_25</p>	<p>Core areas</p> 	<p>Regional</p>	<p>Tracts are defined as patches of continuous remnant vegetation. The size of any tract is a major indicator of ecological significance and is strongly correlated with the long-term viability of biodiversity values. Larger tracts are less susceptible to ecological edge effects and are more likely to sustain viable populations of native flora and fauna than smaller tracts. These areas can be considered core nodes/refugia in which a large proportion of the bioregions biodiversity is represented.</p> <p>A modified tract size analysis (Criterion C) (EHP 2014) was used to identify and delineate discrete tracts of remnant vegetation at a bioregion scale. For the purpose of the assessment, a core area was identified as a relatively contiguous area of remnant vegetation (disregarding small perforations, or linear breaks) and which was generally greater than 5km in width (based upon the minimum width of the terrestrial corridor network). Tracts of greater than 2,000ha were included.</p>	<p>Ib (refugia): H</p>
<p>wet_l_26</p>	<p>Mountain tops on Bartle Frere (BF) and Bellenden Ker (BK)</p> 	<p>State</p>	<p>The peak tops of Bartle Frere and Bellenden Ker are the highest in Queensland. Bartle Frere is Queensland's highest mountain at over 1,600m. The special feature pertains to the area on these peaks above 950m altitude. The tops are varied in structure, largely determined by exposure with the easterly aspects more wind-sheared. This results in variation in structure and floristics across a relatively small area. Notophyll vine forest and microphyll fern forest dominate, with small areas of heaths and fernlands present. Boulder fields provide for different suites of species compared to adjacent ecosystems. The peaks have the highest rainfall in Australia with an annual average of 8m, whilst epiphytic bryophytes are present which further contribute to cloud moisture capture. The area depicted forms part of a relictual rainforest block predicted to have remained stable over geological time. Consequently, it is considered that it may act as a significant refuge for fauna from climate change</p> <p><b>Flora:</b> The high rainfall is instrumental in supporting a number of fern communities with sheltered fern gullies also contained on Bellenden Ker. Considered a refugial area for microphyll rainforest, and for a comparatively high concentration of threatened flora, the environmental characteristics, including the high altitude, high rainfall topographic gradients provide climate refugial qualities.</p>	<p>Ia (endemic richness): VH                  Ib (refugia): VH                  Ic (disjunct populations): H                  Id (range limits): M                  Ie (species richness): VH                  If (relictual taxa): VH                  Ig (ecosystem variation): VH                  Ii (hollows and habitat): VH                  Ij (aggregation site): H                  Ik (climate change refugia): VH</p>

			<p>Compared to other mountain tops within the bioregion, parts of the isolated peaks and their associated environments have resulted in the highest levels of endemism. Approximately 90% of flora species present are endemic taxa, a number of which are confined or restricted to the tops of the two peaks including: <i>Actephila foetida</i>, <i>Cinnamomum propinquum</i>, <i>Eucryphia wilkiei</i>. Some regional endemics are found on one peak, and not the other e.g. <i>Polyscias bellendenkerensis</i>, found on Bellenden Ker but not Bartle Frere and <i>Acrotriche baileyana</i> found on Bartle Frere, but not Bellenden Ker.</p> <p>Other examples of bioregional endemic taxa include: <i>Argophyllum cryptophlebium</i>, <i>Dracophyllum sayeri</i>, <i>Eidothea zoexylocarya</i>, <i>Flindersia oppositifolia</i>, <i>Hymenophyllum gracilescens</i>, <i>Lastreopsis tinarooensis</i>, <i>Parsonsia bartlensis</i>, <i>Phlegmariurus lockyeri</i>, <i>Aceratium sericoleopsis</i>, <i>Chiloglottis longiclavata</i>, <i>Linospadix palmerianus</i>, <i>Symplocos wooroonooran</i>.</p> <p>Examples of disjunct species present include: <i>Trochocarpa bellendenkerensis</i> which is found on Bartle Frere and Bellenden Ker and also on Thornton Range, Mt Sorrow and Mt Pieter Botte in the north of the bioregion. The fern <i>Lycopodium deuterodensum</i> is found in the wet tropics with other disjunct populations located in southern QLD and along eastern NSW.</p> <p>In addition to those values mentioned above (i.e. high species richness and levels of endemism), the Bartle Frere and Bellenden Ker areas and adjoining slopes (refer to wet_fl_12) encompass further OUV relating to concentrations of:</p> <ul style="list-style-type: none"> <li>• taxa considered representative of the earliest living ancestors of two main branches of land plants e.g. <i>Phlegmariurus phlegmaria</i>, <i>Phlegmariurus squarrosus</i>, <i>Tmesipteris ovata</i>, <i>Tmesipteris truncata</i></li> <li>• taxa from ancient families of true ferns as well as those with east Gondwanan origins e.g. <i>Gleichenia dicarpa</i>, <i>Lycopodium deuterodensum</i>, <i>Phlegmariurus lockyeri</i></li> <li>• Angiosperm taxa belonging to families of primitive flowering plants e.g. <i>Cinnamomum propinquum</i>, <i>Litsea bennettii</i>, <i>Steghanthera maccooraia</i>, <i>Tasmannia</i> sp. (Mt Bellenden Ker J.R.Clarkson 6571)</li> <li>• taxa from Gondwanan Angiosperm families of Cretaceous origin e.g. <i>Ackama australiensis</i>, <i>Bubbia semecarpoides</i>, <i>Dinosperma stipitatum</i>, <i>Flindersia pimenteliana</i>, <i>Gossia dallachiana</i>, <i>Lepiderema ixiocarpa</i>, <i>Steghanthera cooperorum</i>, <i>Syzygium erythrodoxum</i> and <i>Triunia montana</i>.</li> </ul>	
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			<p><b>Fauna:</b> Threatened taxa present include <i>Taudactylus rheophilus</i>, <i>Cophixalus neglectus</i>, <i>Techmarscincus jigurru</i> and <i>Concinnia frerei</i> with the last three being restricted to these mountains. Areas above 950m on these mountains are strongholds for <i>Dasyurus maculatus gracilis</i>, in the southern part of their range. <i>Dendrolagus lumholtzi</i> is known to occur up to near the summit of BF. Important area for <i>Uromys hadrourus</i>. In addition, the area is also identified as part of the Wooroonooran Key Biodiversity Area (Birdlife Australia 2018). Disjunct avian taxa such as <i>Alisterus scapularis</i>, <i>Cormobates leucophaea minor</i> and <i>Tregellasia capito</i> occur whilst cavities in boulder field habitat (=hollows) provide climate refugia, and important roosting/breeding sites for <i>Aerodramus terraereginae</i>.</p> <p>Peaks are high in richness of both total number and number of endemic low vagility invertebrates (Yeates &amp; Monteith 2008; Staunton et al. 2014). Examples of narrow range endemics include snails (<i>Altidelos bellendenker</i>, <i>Dividospiralia alba</i>, <i>Gnarosophia bellendenkerensis</i>, <i>Montanopoma bellendenker</i>), spiders (<i>Maxanapis bartle</i>, <i>Otira aquilonaria</i>, <i>O. summa</i>, <i>Spinanapis frere</i>, <i>S. ker</i>), and beetles (<i>Philipis alticola</i>, <i>P. frerei</i>, <i>P. perstriata</i>, <i>P. rufescens</i>). Broader range endemics include: <i>Euastacus balanensis</i>, <i>Cophixalus australis</i>, <i>Saltuarius cornutus</i>, <i>Gnypetoscincus queenslandiae</i>, <i>Lampropholis robertsi</i>, <i>Saproscincus czechurai</i>, <i>Oreoscopus gutturalis</i>, <i>Sericornis ker</i>, <i>Acanthiza katherina</i>, <i>Heteromyias cinereifrons</i>, <i>Colluricincla boweri</i>, <i>Scenopoeetes dentirostris</i> and <i>Amblyornis newtonianus</i>.</p> <p>The area is a noted refugia for flightless insects (Yeates et al. 2002). Example of relictual taxa present include moss bugs with Gondwanan origins, e.g. <i>Peltophysa minor</i> and beetles, e.g. <i>Dendromigadops alticola</i>.</p>	
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<p>wet_I_27</p>	<p>Eubenangee Swamp</p> 	<p>State</p>	<p>Eubenangee Swamp is considered as containing some of the best examples of riverine and non-riverine freshwater wetlands in the wet tropics region. This area also contains one of the last and most significant examples of lowland grassland in the Wet Tropics. The Eubenangee Swamp National Park is approximately 1,900ha in size and encompasses 21 different regional ecosystems including grassland, paperbark swamp, vine forest and sedgeland communities. This mosaic of ecosystems present supports high floral and faunal taxa richness.</p> <p><b>Flora:</b> The feature contains significant floristic values found within sedgeland and grassland ecosystems that contain one of the few remaining areas of intact regional ecosystem 7.3.1. This RE was once extensive in lowland Australia. Only 0.5% is considered to remain (Queensland Herbarium, 2016)</p> <p>This special feature captures grassland REs: 7.3.1, 7.3.29, .3.30, 7.3.31, 7.3.39, 7.3.3c and is the last remaining example of these REs that were previously found extensively across the floodplains. The majority of which, have since been drained and cleared for agriculture (grazing and sugar cane). The area also represents the northern limit of these grasslands. Basalt springs are present on the eastern edge.</p> <p>Parts of the swamp previously dominated by weed species, have now been controlled and the area is considered in good condition. The area has good connectivity with the Russell River and the WTWHA and provides habitat for threatened species and various fish species. The area is currently subject to threatening processes. The swamp is manageable due to its size.</p> <p>The feature is species rich in comparison to other wetlands but not when compared to other terrestrial ecosystems such as rainforests.</p> <p>The area represents the northern most limit for <i>Hemarthria uncinata</i>, and the southern limit for <i>Nepenthes mirabilis</i> and <i>Ischaemum australe</i>.</p> <p>Threatened species found within this feature include: <i>Eleocharis retroflexa</i>, <i>Musa jackeyi</i> and <i>Piper mestonii</i>.</p> <p><b>Fauna:</b> Over 200 species of birds have been recorded (DNPRSR 2013b), including <i>Casuaris casuaris</i> and several wide-ranging endemics such as <i>Orthonyx spaldingii</i>, <i>Xanthotis macleayanus</i> and <i>Arses kaupi</i>. The park also forms parts of an important cassowary corridor linking the coast to hinterland. <i>Tyto longimembris</i>, not common within the Wet Tropics, is known to nest within grasslands on the site. <i>Crocodylus porosus</i> are also known to breed in the park, and the connected wetland systems is considered an important nursery for fish</p>	<p>lb (refugia): VH  lc (disjunct populations): H  ld (range limits): H  le (species richness): VH  lg (ecosystem variation): VH  lj (aggregation site): VH</p>
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			and crustacean species. Many of the values in wet_fa_17, apart from the presence of <i>Petaurus gracilis</i> , apply to this area.	
wet_I_28	Carbine uplands including Mount Spurgeon 	State	<p>In the northern half of the WET, the Carbine uplands encompasses a substantial area of important high altitude forested habitats for a plethora of species. The uplands contain Notophyll and microphyll rainforest above 900m altitude on granite. Compared to other areas in the bioregion, the area has had less impact from cyclones and historical wood harvesting, and is relatively intact. The high rainfall area, with its eastern margins which incorporate steep slopes, facilitate species movement over relatively small distances across environmental gradients. Similarly, this mosaic of environmental gradients is thought to be a factor in driving significant changes in species turnover within regional ecosystems.</p> <p>The entire tableland forms a significant upland refugia especially towards the centre of the range. The prevalence of boulders and diversity of micro habitats within the landscape facilitate a high resilience to climate change. The area is considered to house a number of disjunct populations and there is some shared species with the western foothills of Mt Bartle Frere.</p> <p><b>Flora:</b> The area exhibits very high species richness, and includes concentrations of endemic and relictual taxa. Examples of endemic taxa include: <i>Aceratium ferrugineum</i>, <i>Acronychia chooreechillum</i>, <i>Aglaia brassii</i>, <i>Apodytes brachystylis</i>, <i>Athertonia diversifolia</i>, <i>Bubbia queenslandiana</i> subsp. <i>queenslandiana</i>, <i>Catalepidia heyana</i>, <i>Cryptocarya leucophylla</i>, <i>Elaeocarpus carolinae</i>, <i>Endiandra jonesii</i>, <i>Garcinia brassii</i>, <i>Goniothalamus australis</i>, <i>Helicia lewisensis</i>, <i>Lenbrassia australiana</i> var. <i>Australiana</i>, <i>Medicosma glandulosa</i>, <i>Motherwellia haplosciadea</i>, <i>Niemeyera</i> sp. (Mt Lewis A.K.Irvine 1402), <i>Paphia meiniana</i>, <i>Pilidiostigma sessile</i>, <i>Pittosporum trilobum</i>, <i>Polyosma rigidiuscula</i>, <i>Psychotria</i> sp. (Mt Lewis V.K.Moriarty 2445), <i>Rhododendron lochiaie</i>, <i>Sarcopteryx montana</i>, <i>Sphalmium racemosum</i>, <i>Symplocos graniticola</i>, <i>Triunia montana</i>, <i>Wilkiea angustifolia</i>. Relictual taxa examples include: <i>Phlegmariurus filiformis</i>, <i>Phlegmariurus lockyeri</i>, <i>Tmesipteris truncate</i>, <i>Podocarpus smithii</i> and <i>Prumnopitys ladei</i> (Mt Spurgeon black pine). The panel also noted the area as being rich in upland palm species including <i>Laccospadix australasicus</i> (Atherton palm), <i>Archontophoenix purpurea</i> and <i>Oraniopsis appendiculata</i>.</p> <p>Similar to its eastern face, the Carbine Tableland is globally significant for its lycophytes, epiphyte orchids and ferns and epiphytes in general, however, has the highest diversity of terrestrial ferns in Australia. Fern species include: <i>Diplazium longissimum</i> (giant scrambling fern),</p>	<p>la (endemic richness): VH  lb (refugia): VH  lc (disjunct populations): VH  ld (range limits): VH  le (species richness): VH  lf (relictual taxa): VH  lg (ecosystem variation): VH  li (hollows and habitat): VH  lj (aggregation site): VH  lk (climate change refugia): VH</p>

			<p><i>Gleichenia dicarpa</i> (pouched coral fern), <i>Phlegmariurus filiformis</i>, <i>Sticherus flabellatus</i> var. <i>compactus</i>. In addition, the area has one of the highest concentration of species with big-seeded fruit relative to elevation (Lauraceae), upon which a number of fauna are dependent, including the iconic southern cassowary.</p> <p><b>Fauna:</b> The peaks within this area are high in richness of both total number and number of endemic low vagility invertebrates (Yeates &amp; Monteith 2008; Staunton et al. 2014). Examples of invertebrates confined to the high altitude include snails (<i>Koreelahropa plowmanae</i>, <i>Hedleya montlewis</i>, <i>Montanopoma carbine</i> and <i>Nitor reisi</i>); crustaceans (<i>Euastacus fleckeri</i>); spiders (<i>Carbinea breviscapa</i>, <i>C. longiscapa</i>, <i>C. robertsi</i>, <i>Centrothele spurgeon</i>, <i>Heteropoda spurgeon</i>, <i>Megateg spurgeon</i> and <i>Maxanapis mossman</i>); odonates (<i>Lestoidea lewisiana</i>, <i>Eusynthemis barbarae</i> and <i>E. netta</i>), bug (<i>Grosshygia nigra</i>) and beetles (<i>Apterotheca astraphes</i>, <i>A. chloros</i>, <i>A. pecticrinis</i>, <i>A. trichopectoris</i>, <i>Philipis laevigata</i>, <i>P. spurgeoni</i> and <i>P. geoffreyi</i>). <i>Chlamydopsis trichonota</i> is a relictual taxon known to occur in the area.</p> <p>The area is home to narrow range endemic frogs such as <i>Mixophyes carbinensis</i> and <i>Cophixalus hosmeri</i>. Other endemic taxa, several of which are threatened, also occur in the area and these including <i>Cophixalus aenigma</i>, <i>Litoria nannotis</i>, <i>L. lorica</i>, <i>L. rheocola</i>, <i>L. serrata</i>, <i>L. nyakalensis</i>, <i>Taudactylus rheophilus</i>, <i>Lampropholis robertsi</i>, <i>Saproscincus czechurai</i>, <i>Oreoscopus gutturalis</i>, <i>Acanthiza katherina</i>, <i>Heteromyias cinereifrons</i>, <i>Amblyornis newtonianus</i>, <i>Scenopoeetes dentirostris</i>, <i>Hemibelideus lemuroides</i>, <i>Pseudochirops archeri</i> and <i>Antechinus adustus</i>.</p> <p>Disjunct taxa found in these mesic environs include <i>Tyto tenebricosa multipunctata</i>, <i>Cormobates leucophaea minor</i>, <i>Sericornis citreogularis</i>, <i>Ailuroedus melanotis</i> and <i>Concinnia frerei</i>. This area is also considered a stronghold for <i>Dasyurus maculatus gracilis</i>, particularly in the upland rainforest habitat (i.e. above 900m) around Mt Lewis and Mt Spurgeon. Various records over the past 15 or so years of the threatened <i>Bettongia tropica</i> are known from the Mt Spurgeon area.</p> <p>Threatened species known to occur include <i>Casuaris Casuaris</i> and <i>Erythrura trichroa</i>. Being relatively rich in specialist and endemic bird species, the area has been identified as part of the Daintree Key Biodiversity Area (Birdlife Australia 2018). The area is also a noted refugium for flightless insects (Yeates et al. 2002).</p>	
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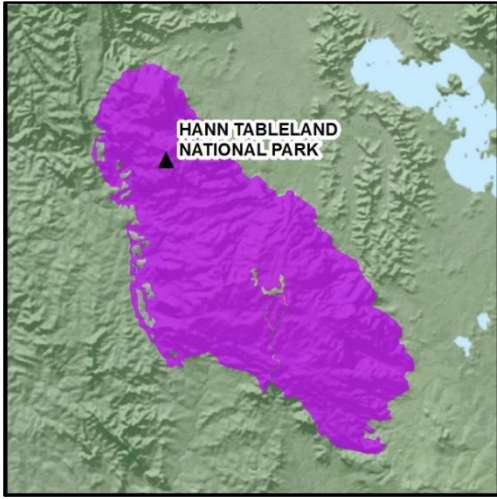
<p>wet_I_29</p>	<p>Windsor Tablelands</p> 	<p>State</p>	<p>The Windsor Tableland is an isolated granitic massif which rises steeply on all sides, occurring as a rough domed area reaching elevations of over 1300m (Burnett 2001). Whilst selected areas have been logged historically, due to a combination of limited access and minimal ongoing disturbance, large areas remain intact. The tableland has different environmental gradients in comparison to the uplands and ranges to the east, and a continental climate that is more similar to that of Brisbane. The existence of wet sclerophyll forest is considered to be dependent largely upon fire, and the transition to rainforest is the biggest threat to wet sclerophyll vegetation in its absence. The tableland area supports rainforest (notophyll/ microphyll) and wet sclerophyll forest at its margins. Situated at relatively high elevation, the tableland was considered by the panel to act as a likely refugia from climate change. Climate modelling suggests that the rainforest will contract with the wet sclerophyll forest encroaching along the western margins of rainforest. Myrtle rust is prevalent in the area, whilst flooded gum country can also be sensitive to phytophthora.</p> <p><b>Flora:</b> The tableland was identified as an area with very high species richness although not as high as some of the eastern range areas in the bioregion. Examples of threatened flora present include: <i>Rhodamnia longisepala</i>, <i>Pterostylis caligna</i>, <i>Phlegmariurus lockyeri</i>, <i>Helicia lewisensis</i>, <i>Elaeocarpus thelmae</i>, <i>Alpinia hylandii</i>, <i>Elaphoglossum callifolium</i>, <i>Glochidion pungens</i>, <i>Helicia recurva</i>, <i>Steghanthera laxiflora</i> subsp. <i>lewisensis</i>, <i>Symplocos ampulliformis</i>.</p> <p>Whilst only a few localised endemic flora occur within the area (e.g. <i>Boronia excelsa</i>, <i>Zieria insularis</i>) the area contains a number of bioregional endemic species including: <i>Acronychia aberrans</i> (acid berry), <i>Alpinia arctiflora</i>, <i>Alpinia hylandii</i>, <i>Amyema whitei</i>, <i>Argyrodendron</i> sp. (Mt Haig L.S.Smith+ 14307), <i>Arthropteris</i> sp. (Mt Carbine L.W.Jessup+ GJM1135), <i>Asplenium athertonense</i>, <i>Backhousia hughesii</i>, <i>Bertya polystigma</i>, <i>Bulbophyllum evasum</i>, <i>Bulbophyllum lewisense</i>, <i>Casearia costulata</i>, <i>Casearia</i> sp. (Mission Beach B.P.Hyland 773), <i>Cryptocarya clarksoniana</i>, <i>Dendrobium agrostophyllum</i>, <i>Doryphora aromatic</i>, <i>Elaeocarpus bancroftii/carolinae/ elliffii</i>, <i>Elaeocarpus</i> sp. (Mt Bellenden Ker L.J.Brass 18336), <i>Endiandra leptodendron</i>, <i>Ficus pleurocarpa</i>, <i>Garcinia zichii</i>, <i>Glochidion pungens</i>, <i>Gossia shepherdii</i>, <i>Helmholtzia acorifolia</i>, <i>Hypserpa smilacifolia</i>, <i>Jagera pseudorhus</i> var. <i>integerrima</i>, <i>Lastreopsis walleri</i>, <i>Litsea connorsii</i>, <i>Musgravea heterophylla</i>, <i>Parsonsia grayana</i>, <i>Phlegmariurus marsupiiiformis</i>, <i>Plectranthus amicornum</i>, <i>Polyosma hirsute/reducta</i>, <i>Psychotria</i> sp. (Daintree NP P.I.Forster+ PIF21974), <i>Psydrax laxiflorens</i>, <i>Rhodamnia blairiana</i>, <i>Sarcotoechia cuneate</i>, <i>Solanum magnifolium</i>, <i>Steghanthera</i></p>	<p>la (endemic richness): VH          lb (refugia): VH          lc (disjunct populations): VH          ld (range limits): VH          le (species richness): VH          lf (relictual taxa): VH          lg (ecosystem variation): H          li (hollows and habitat): VH          lk (climate change refugia): VH</p>
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			<p><i>laxiflora</i> subsp. <i>lewisensis</i> and <i>Syzygium kuranda</i>.</p> <p>Examples of taxa considered of relictual or evolutionary importance include: <i>Phlegmariurus marsupiiiformis</i>, <i>Tmesipteris ovata</i>, <i>Dicranopteris linearis</i> var. <i>linearis</i>, <i>Dicranopteris linearis</i> var. <i>altissima</i>, <i>Phlegmariurus lockyeri</i>, <i>Phlegmariurus marsupiiiformis</i>, <i>Ptisana oreades</i>, <i>Sticherus flabellatus</i> var. <i>flabellatus</i> and <i>Todea barbara</i> (king fern).</p> <p>The Windsor tableland is also the range limit for a number of predominantly southern Queensland species including: <i>Croton acronychioides</i>, <i>Claoxylon angustifolium</i>, <i>Mischocarpus anodontus</i> and <i>Syzygium corynanthum</i>.</p> <p><b>Fauna:</b> The tableland provides highly important upland mesic and dry forest habitat for a diverse range of threatened and endemic taxa. It is known to be a stronghold for <i>Dasyurus maculatus gracilis</i>, and for endemic taxa such as <i>Amblyornis newtonianus</i> and <i>Oreoscopus gutturalis</i>. Other endemic taxa (including several threatened species) include: frogs - <i>Mixophyes carbinensis</i>, <i>Litoria serrata</i>, <i>L. dayi</i>, <i>L. nannotis</i>, <i>L. rheocola</i>; birds - <i>Acanthiza katherina</i>, <i>Sericornis kerri</i>, <i>Heteromyias cinereifrons</i>, <i>Scenopoeetes dentirostris</i>, <i>Ptiloris victoriae</i>; and mammals - <i>Pseudochirulus herbertensis</i> and <i>Pseudochirops archeri</i>. Other threatened taxa in the area include: <i>Dendrolagus bennettianus</i>, <i>Dasyurus hallucatus</i> and <i>Petaurus australis</i> unnamed subsp. (NQ). <i>Bettongia tropica</i> has not been recorded in the area for over 15 years despite targeted surveys, and may be locally extinct. It is the northern limit of the vulnerable <i>Petauroides volans</i>, and an upland population (i.e. above 1,200m) of special least concern <i>Ornithorhynchus anatinus</i>, near its northern limit, is also present.</p>	
wet_I_30	<p>Terrestrial bioregional corridors (landscape connections)</p> <p>Refer to Figure 4, Figure 5 and Figure 6.</p>	<p>State (wet_I_30a)</p> <p>or</p> <p>Regional (wet_I_30b)</p>	<p>The broad purpose of landscape-scale connections, is to provide for ecological and evolutionary processes at a bioregional scale. Maintaining connectivity across a landscape, either through "continuous linkages" or via "stepping-stones" of remnant vegetation, is important for the long-term conservation of biodiversity.</p> <p>Corridor triggered remnant vegetation is focused upon areas between core tracts/nodes (as identified under the special area decision wet_I_25) within the bioregion. For further information regarding the broad principles and intent, as well as more specific information relating to the Wet Tropics terrestrial corridor network, refer to Section 3.3.2.1 and Table 14.</p>	<p>Criterion J (terrestrial corridor): STATE</p> <p>or</p> <p>Criterion J (terrestrial corridor): REGIONAL</p>

<p>wet_I_31</p>	<p>Riparian bioregional corridors (landscape connections) Refer to Figure 4, Figure 5 and Figure 6.</p>	<p>State (wet_I_31a) or Regional (wet_I_31b)</p>	<p>Riparian corridors encompass some of the most diverse, dynamic and complex habitats incorporating both environmental and topographic gradients. Comparatively, such areas tend to exhibit high species richness with respect to both flora and fauna, provide important resources in terms of water, food, shelter, nesting and nursery sites and act as a refugia during periods of drought, or in response to longer terms impacts associated with climatic change.</p> <p>At the landscape scale, networks of major and minor riparian linkages are a significant element of habitat continuity and provide important migratory and dispersal pathways for a substantial number of species (especially birds, insects and flora, but also for many arboreal mammals and reptiles). In some areas of fragmented landscapes, watercourses often provide the only remaining habitat connectivity due to the extensive clearing and surrounding modified landscape.</p> <p>Within the WET, the panel determined that remnant vegetation within 200m and 100m of major and minor waterways should be designated as being of State and Regional significance respectively. The significance of selected riverine systems were also modified in some instances (Table 16). Corridor triggered remnant vegetation focuses upon identifying key connections between remaining core tracts/nodes (as identified under the special area decisions wet_I_25) within the bioregion. For further information regarding the broad principles and intent, as well as more specific information relating to the Wet Tropics riparian corridor network, refer to Section 3.3.2.2.</p>	<p>Criterion J (riparian corridor): STATE or Criterion J (riparian corridor): REGIONAL</p>
<p>wet_I_32</p>	<p>WTMA ecological corridors Refer to Figure 4, Figure 5 and Figure 6.</p>	<p>Regional (wet_I_32a) or Local (wet_I_32b)</p>	<p>Fine scale, WTMA ecological corridors identified in the draft document "Making connections: Promoting ecological connectivity across the Wet Tropics landscape" (WTMA 2016b, unpublished). The corridors depicted are intended to connect coastal ecological communities such as mangroves, littoral forests, open woodlands and lowland rainforest to the montane rainforests of the nearby ranges and the upland rainforests, wet sclerophyll and savannah ecosystems to the west. Maintenance and establishment of the corridors will facilitate wildlife movements and gene flows across significant altitudinal and climatic gradients and increase the potential for adaptation to the impacts of climate change.</p>	<p>Criterion J (local corridor): REGIONAL or Criterion J (local corridor): LOCAL</p>

**Adjoining bioregion decisions (not reviewed by the 2018 expert panel)**

*Nb. for the following non- Wet Tropics BPA decisions, only affected Wet Tropics assessment units are depicted in the images below*

<p>eiu_I_12</p>	<p>Hann Tableland</p> 	<p>Regional</p>	<p>Elevated and isolated granite tableland with wide diversity of ecosystems including rainforests, eucalypt forests and woodlands, vine thickets and heath. Although the area is still poorly surveyed it is known to have some EVR species including the rare plants <i>Cartonema brachyantherum</i>, <i>Corybas abellianus</i>, <i>Eucalyptus lockyeri</i> subsp. <i>exuta</i> and <i>Plectranthus spectabilis</i>. The regional endemic skink <i>Glaphyromorphus cracens</i> is also present, and the tableland is a known centre of endemism for invertebrates, including <i>Scarabaeidae</i> and <i>Histeridae</i> spp.</p> <p>This decision combines and replaces Hann Tableland part of eiu_fl_08 and Hann Tableland part of eiu_fa_27.</p>	<p>la (centre of endemism): H                  lb (wildlife refugia): H                  lc (disjunct populations): H                  le (high species richness): VH                  lf (relictual populations): H</p>
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<p>ei_u_28</p>	<p>Desaillly Range and Mount Elephant</p> 	<p>Regional</p>	<p>This area includes two biogeographic isolates composed of high hills and tablelands on biotite granites linked by a low range. Most of the area is over 800m ASL, rising up to 400m above the surrounding low hills. While the area is characterized by granite torfields and extensive areas of sheet rock, it also includes areas of sedimentary rocks, and old sand plain areas on the northern plateau. The area is poorly known at present but includes Wet Tropics outlier ecosystems. The area is likely to include species at the limits of their ranges and disjunct populations.</p> <p>This decision consolidates and replaces ei_u_fl_16.</p>	<p>la (centre of endemism): H                  lb (wildlife refugia): H                  lc (disjunct populations): H                  le (high species richness): H</p>
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### 3.3.2 Corridors (Criterion J)

#### 3.3.2.1 Terrestrial corridors

The final terrestrial corridor network (incorporating landscape-scale connections and WTMA ecological corridors) is summarised in decisions wet\_I\_30 and wet\_I\_32 respectively in Table 13. Details relevant to each corridor are described in Table 14 and Table 15 (respectively) and displayed in Figure 4, 5 and 6.

**Table 14. Terrestrial bioregional corridors (landscape connections) identified by the landscape expert panel**

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
1	<p>Coastal Ranges Corridor</p> <p>Corridor running along the coastal ranges from Annan River (Yuku Baja-Muliku) NP at the CYP border in the North to Paluma Range NP at the EIU border in the South. Incorporates the Black Mountain corridor which provides an evolutionary link between north and south WET.</p>	State (10km)	Existing corridor modified to align with core areas to maximise vegetation connectivity. Corridor modified to incorporate the BK/BF massive
2	<p>EIU – WET Interface Terrestrial Corridor</p> <p>Corridor extending from Ngalba Bulal NP at the CYP/EIU/WET bioregion borders in the north meandering through the EIU and WET bioregion to Paluma Range NP at the EIU border in the south.</p>	State (10km)	
3	<p>Walter Hill Ranges Rainforest Corridor</p> <p>Corridor provides connectivity from the coast at Mission Beach connecting to the coastal ranges corridor near Ravenshoe then north up the Herberton range to Baldy Mountain Forest Reserve. Climate modelling shows this as a stable corridor in the future. There is carrying capacity for fauna due to basalt soils along the corridor leading to higher resource availability for fauna. It is the longest and widest east-west rainforest corridor in Australia.</p>	State (10km)	Existing corridor modified to align with core areas to maximise vegetation connectivity. Corridor modified to extend north to Ravenshoe
4	<p>Cairns to Bluewater Coastline Corridor</p> <p>Corridor extending from Yarrabah in the north to Bluewater in the south via Innisfail, Cardwell and Lucinda. Provides connection to the Mission Beach to Baldy Mountain Forest Reserve Corridor at Mission Beach.</p>	State (5km)	Corridor aligned with core areas to maximise vegetation connectivity. Extended south to the bottom of the bioregion as per TERRAIN recommendation
NA	<p>Upland endemic refugia</p> <p>Not Implemented. Links between upland endemic refugia, climate change corridor.</p>		Corridor is a set of broad linkages for endemics connectivity which have already been picked up elsewhere

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
5	Cardwell Range to Hinchinbrook Island Corridor Corridor connecting to the coastal ranges corridor at Girringun NP extending southeast across Hinchinbrook Channel then extending North-West through Hinchinbrook Island.	Regional (5km)	Corridor aligned with core areas to maximise vegetation connectivity
6	Dallachy Corridor Corridor running east to west through Girramay NP connecting the Coastal Ranges corridor at Mt Wyruna to the Cairns to Bluewater Coastline Corridor north of Cardwell.	Regional (5km)	Corridor aligned with core areas to maximise vegetation connectivity
7	Mossman to Coastline Corridor Corridor connecting to the coastal ranges corridor at Mount Spurgeon NP extending northeast to the coast along Daintree National Park. This corridor runs along the highest part of range to the coast, capturing the altitudinal climate gradient in the northern centre of endemism.	State (10km)	Corridor aligned with core areas to maximise vegetation connectivity
8	Daintree Coastal Corridor – Alexandra Range Corridor connecting to the coastal ranges corridor at Thornton Range extending south then east along Alexandra Range in the Daintree NP. Corridor consists of rainforest with an intact elevation gradient with high endemism and endemic lowland plant and upland species.	Regional (5km)	Corridor aligned with core areas to maximise vegetation connectivity
9	Daintree Coastal Corridor – Mt Sorrow Corridor connecting to the coastal ranges corridor at Mount Pieter Botte extending southeast to the coast slightly south of Cape Tribulation via Mt Sorrow in Daintree NP. This corridor contains endemic lowland species in the creek lines.	Regional (5km)	Corridor aligned with core areas to maximise vegetation connectivity
10	Seaview Range to Mt Poverty Corridor Corridor connecting to the coastal ranges corridor at Girringun NP extending east across the Stone River and across the low ranges to Mount Poverty, near Toobanna.	Regional (5km)	Corridor aligned with core areas to maximise vegetation connectivity
11	Paluma to Coastal Corridor Corridor connecting to the coastal ranges corridor at Paluma Range NP extending northeast to the coastline.	Regional (5km)	Corridor aligned with core areas to maximise vegetation connectivity

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
12	<p>Windsor Tableland to Coastal Range Corridor</p> <p>Corridor connecting to the EIU – WET Terrestrial Corridor at Mount Windsor NP extending east then southeast along the Great dividing range linking with the Coastal Ranges corridor at the Daintree Range. There is long-term evolutionary linkages between Carbine and Windsor Tablelands.</p>	Regional (5km)	Corridor aligned with core areas to maximise vegetation connectivity
13	<p>Herberton Range to Bartle Frere Corridor</p> <p>Corridor connecting the “Mission Beach to Baldy Mountain Forest Reserve Corridor” at the Herberton Range NP extending east to the “Coastal Ranges Corridor” Bartle Frere via Tarzali.</p> <p>This corridor has high species density due to the basalt substrate and is important habitat for upland ringtail possums and tree kangaroos.</p>	State (10km)	Corridor connects small patches of remnant vegetation
14	<p>Eubenangee Corridor</p> <p>This connects the tablelands to the coast, Francis range to Seymour/Graham ranges, via Wooroonooran NP and Eubenangee Swamp NP.</p>	State (10km)	Corridor aligned with core areas to maximise vegetation connectivity

**Table 15. WTMA ecological corridors confirmed by the Wet Tropics bioregion landscape panel**

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
15	<p>Trevathan Creek Inland Corridor</p> <p>Corridor running from Annan River NP to Ngalba Bulal NP. Inland link across Amos Road near Scrubby Creek, mostly vegetated and designated conservation and living areas under Eastern Kuku Yalanji ILUA.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished). Sits just outside of WET bioregion
16	<p>Trevathan Creek Coastal Corridor</p> <p>Coastal vegetation corridor running from Annan River NP to Ngalba Bulal NP. Coastal link via Bald Hill, mostly vegetated and designated conservation and living areas under Eastern Kuku Yalanji ILUA.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
17	<p>Weary Bay</p> <p>Coastal vegetation corridor running from Rattlesnake Point (Ngalba Bulal NP) via Bauer Inlet and to the World Heritage Area. Mixed coastal landscape linkage (≈8.0km) on sand dunes and beach ridges, as well as mangrove systems. Mostly vegetated Council Reserve, includes unique dune vegetation. Some private lands.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
18	<p>Diwan and Cooper Creek - Daintree lowlands</p> <p>Local rainforest corridor through private lands at Diwan and Cooper Creek in the Daintree NP. Blocks are mostly owned by conservation groups, where they have consolidated wildlife corridors and limit development. Links up sections of the World Heritage Area and is an important cassowary corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
19	<p>Cow Bay - Daintree lowlands</p> <p>Corridor running within Daintree NP. Local rainforest corridor through private lands at Cow Bay. Blocks are mostly owned by conservation groups, where they have consolidated wildlife corridors and limit development. Links up sections of the World Heritage Area and is an important cassowary corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
20	<p>Forest Creek - Daintree Lowlands</p> <p>Corridor running between sections of Daintree NP. Local rainforest corridor through private lands at Forest Creek. Blocks are mostly owned by conservation groups, where they have consolidated wildlife corridors and limit development. Links up sections of the World Heritage Area and is an important cassowary corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
21	<p>Cape Kimberley - Daintree Lowlands</p> <p>Corridor running between sections of Daintree NP. Local rainforest corridor through private lands at Forest Creek. Blocks are mostly owned by conservation groups, where they have consolidated wildlife corridors and limit development. Links up sections of the World Heritage Area and is an important cassowary corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
22	<p>Daintree South Arm connections</p> <p>Corridor running from Daintree wetlands to Daintree NP. It also provides riparian links across through private lands and Mossman – Daintree Road. Links mangroves, and significant coastal wetlands and dunes in the north to mixed eucalypt forests and rainforests in the south. Links up sections of the World Heritage Area.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
23	<p>Julatten linkages</p> <p>Corridor running from Mount Lewis NP and Mowbray NP south to Kuranda NP. Landscape linkages across ≈12km along Rifle Creek and Devil Creek and Hannah Park. Mixed riparian, wetland and rainforest corridors through private lands and across the Mossman to Mount Molloy Road. Links sections of the World Heritage Area and could provide refuge as a potential climate change corridor.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
24	<p>Kuranda Envirolink</p> <p>Corridor running from Kuranda NP to Barron Gorge NP. Landscape linkage (≈10km). Includes remnant patches of mixed rainforest with sclerophyll woodlands to the western edges. May benefit from a canopy bridge or underpass, as the Kennedy Highway is a barrier. Links sections of the World Heritage Area and could provide refuge as a climate change corridor. It is an important cassowary corridor and potential habitat for the Kuranda tree frog.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
25	<p>Fairyland Corridor</p> <p>Corridor running between sections of Kuranda NP. Local rainforest linkage (≈2km). It is an important cassowary corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
26	<p>Toohey Creek Corridor</p> <p>Corridor running from Lake Barrine, Crater Lakes NP to Gadgarra, Wooroonooran NP centred on Toohey Creek. Rainforest landscape linkage (≈2km) through farmlands. Planting began in 1998 over several years and is still maturing. Links sections of the World Heritage Area and is an important cassowary, tree-kangaroo and arboreal mammals' corridor.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
27	<p>Lake Barrine to Lake Eacham</p> <p>Corridor running from Lake Eacham to Lake Barrine (separate sections of Crater Lakes NP). Rainforest landscape linkages (≈1.5km) through private lands. Partly vegetated and protected with Nature Refuges. Links sections of the World Heritage Area, and is an important cassowary, tree-kangaroo and arboreal mammals' corridor.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
28	<p>Lake Eacham to Gadgarra</p> <p>Corridor running from Lake Eacham, Crater Lakes NP to Wooroonooran NP. Rainforest landscape linkage (<math>\approx 3.5</math>km). Rainforest corridor is partly vegetated already. This links sections of the World Heritage Area, and is an important cassowary, tree-kangaroo and arboreal mammals' corridor.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
29	<p>Peterson Creek</p> <p>Corridor running from Lake Eacham, Crater Lakes NP to Curtain Fig NP. Local riparian rainforest linkage with some open forest areas (<math>\approx 10</math> to 12km). It is composed of Mabi forest and riparian vegetation, and join sections of World Heritage Area. It is an important tree-kangaroo and arboreal mammal corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
30	<p>Topaz linkages</p> <p>Corridor running between sections of Wooroonooran NP. Local rainforest corridors across a mosaic of remnant rainforest and farmlands (<math>\approx 6</math>km in the north and <math>\approx 2</math>km to the south). Much of the remnant forest and rainforest restoration are already protected under Nature Refuges. It links sections of the World Heritage Area and acts as a corridor for cassowary, tree-kangaroo and arboreal mammals.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
31	<p>Wongabel Corridor</p> <p>Corridor running from Wongabel State Forest to Herberton Range NP. Landscape linkage of mixed forest, including riparian vegetation (<math>\approx 3.5</math>km). It links endangered Mabi forest to Herberton Range (World Heritage Area) through tall <i>Eucalyptus grandis</i> forests. Some areas are vegetated, though the Barron River section needs revegetation. There is potential to extend to Mabi forest in Curtain Fig NP. It acts as a corridor for arboreal mammals.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
32	<p>Lemuroid Leap/Dirrans End Corridor</p> <p>Corridor running from the Jaggan rainforest outlier to Herberton Range NP (World Heritage Area). Local upland rainforest linkage adjacent to Rock Road (<math>\approx 2.2</math>km). Partly planted through Caring for Our Country fund 2011–2013 and now being completed through South Endeavour Trust, which will include canopy bridge across Kenny Road. Some areas protected with Nature Refuges. It links 1,000 hectares of unprotected outlier forest to the World Heritage Area, and may act as a climate change refugia and corridor. It is important for tree-kangaroos, arboreal mammals and cassowaries.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
33	<p>Ringtail Crossing</p> <p>Corridor running from the Jaggan rainforest outlier to Herberton Range NP (World Heritage Area). Local upland rainforest linkage (&lt;1km unvegetated). Private landholders have planted much of the corridor since 2004. This continues under the Biodiversity Fund 2012–2016. Potential for neighbouring properties to widen the corridor. This links 1,000 hectares of unprotected outlier to the World Heritage Area, and may act as a climate change refugia and corridor. It is important for tree-kangaroos, arboreal mammals and cassowaries.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
34	<p>Palmerston Highway canopy bridges</p> <p>Corridor runs through Wooroonooran NP (Palmerston section), and includes several 40m cable bridges erected in 2005 as overpasses for arboreal mammals. The rainforest canopy and one of the bridges were damaged during recent cyclones and needs repair. It is an essential part of lowland to upland corridor, and maybe used as a climate change refugia.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
35	<p>East Evelyn Corridor</p> <p>Corridor running from Herberton Range NP to Maalan NP. Upland rainforest landscape linkage. Significant remnant vegetation in places, with ≈2.5km unvegetated. The corridor includes riparian vegetation. East Evelyn Highway is major barrier. Corridor was mostly completed through Caring for Our Country funding during 2011-2013. Three underpasses were built into the road upgrade in 2003. Overpasses may assist arboreal mammals and other animals. It joins sections of World Heritage Area, and maybe be used as a climate change refugia and corridor. It is important for arboreal mammals, tree-kangaroos and cassowaries.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
36	<p>Beatrice River outliers</p> <p>Corridor running from Maalan NP to Wooroonooran NP via Beatrice River and Dirren Vale. Upland rainforest landscape linkages, join World Heritage Area sections and rainforest outliers (≈1500ha) on private lands outside protected area estate. East link (≈7km, ≈3km unvegetated), West link (≈4km, mostly vegetated), South link (≈3km, mostly vegetated). It may be used as a climate change refugia and corridor (includes riparian vegetation), and is important for arboreal mammals, tree-kangaroos and cassowaries.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
37	<p>Maalan Corridor</p> <p>Corridor running from Maalan NP (Beatrice to Maalan) to Wooroonooran NP (Palmerston). Local upland rainforest linkages (<math>\approx 600\text{m}</math> west and <math>\approx 1\text{km}</math> east). Mostly vegetated already apart from <math>500\text{m}</math> of farmlands in the eastern section. This corridor links sections of World Heritage Area, and may be used as a climate refugia and corridor. It is important for arboreal mammals, tree-kangaroos and cassowaries.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
38	<p>Massey Creek</p> <p>Corridor running from Maalan NP to Tully Gorge NP to Tully Falls National Park. Upland rainforest landscape linkage (<math>\approx 1.7\text{km}</math>) which widens vegetation at narrow neck of World Heritage Area. QPWS and TREAT have already revegetated much of this corridor over many years of planting and are planting cleared areas of new NP acquisitions. It may act as a climate change refugia and corridor, and is important for tree-kangaroos, arboreal mammals and cassowaries.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
39	<p>Mount Fisher to Tumoulin</p> <p>High altitude corridor running from Mount Fisher to the EIU-WT terrestrial Corridor (Tumoulin). Landscape linkage across the Kennedy Highway at North Cedar Creek (<math>\approx 3.5\text{km}</math>, <math>2\text{km}</math> unvegetated). This joins the World Heritage Area to a large forest reserve. It may act as a climate change refugia and corridor (includes riparian vegetation), and is important for tree-kangaroos, arboreal mammals and cassowaries.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished). Corridor extended west to connect with the main inter-bioregional corridor based off panel feedback
40	<p>Mulgrave River</p> <p>Corridor from Wooroonooran NP to Malbon Thompson Forest Reserve. Riparian landscape linkage (<math>\approx 12\text{km}</math>, partly vegetated). Links Walsh's Pyramid to Malbon Thompson Range and Behana Creek downstream on the Mulgrave River. Crosses Bruce Highway and railway at Gordonvale under large bridges. Much of the planting was achieved by private landholders and Mulgrave Landcare over 20 years, including Biodiversity Fund 2012. This corridor includes riparian vegetation, helps improve water quality, and joins sections of the World Heritage Area.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)



Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
41	<p>Behana Creek</p> <p>Corridor running from Woornooran NP to Malbon Thompson Forest Reserve. Riparian landscape linkage (<math>\approx 7.511</math>km, partly vegetated) which links the Bellenden Ker Range to coastal ranges. There is some connectivity under bridges on the Bruce Highway. Much of the planting was achieved by private landholders and Mulgrave Landcare over 20 years. This corridor includes riparian vegetation, helps improve water quality, and joins sections of the World Heritage Area.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
42	<p>Fig Tree Creek</p> <p>Corridor running from Woornooran NP to Malbon Thompson Forest Reserve. Riparian landscape linkage (<math>\approx 4</math>km, partly vegetated). Links Bellenden Ker Range to Mulgrave River wetlands and coastal ranges. Small bridge at Bruce Highway. Part of Mulgrave Landcare Biodiversity Fund 2012 project. This joins sections of the World Heritage Area and includes riparian vegetation.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
43	<p>Harvey Creek</p> <p>Corridor running from Woornooran NP to Russell River NP. Riparian landscape linkage (<math>\approx 4</math>km, partly vegetated). Links Bellenden Ker Range to significant Russell River wetlands and the coastal ranges. Small bridge at Bruce Highway. Lowland refuge for ancient plant species such as <i>Idiospermum</i>, otherwise only found at Noah Creek in Daintree National Park. It is a lowland habitat for some upland plant species usually found only above 800m. This joins sections of World Heritage Area, including significant wetlands and riparian vegetation.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
44	<p>Frenchman's Creek</p> <p>Corridor running from Woornooran NP to Russell River NP. Riparian landscape linkage (<math>\approx 4</math>km). Links Bellenden Ker Range to significant Russell River wetlands and the coastal ranges. Significant access and pond apple issues. Small bridge at Bruce Highway. It joins sections of the World Heritage Area, including significant wetlands and riparian vegetation.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
45	<p>Wyvuri Swamp</p> <p>Corridor from Wyvuri Swamp to Russell River NP (World Heritage Area). Two linkages connect Wyvuri Swamp wetlands and Graham Range in the north to Graham Range Unallocated State Land and private lands south of the road within the World Heritage Area. Wildlife crossings and linkages across Bramston Beach Road (up to 1km).</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
46	<p>Bramston Beach wetlands</p> <p>Corridor running from Bramston Beach to Ella Bay NP. Significant local wetland and coastal forest linkages on private lands (≈4km in length and up to 2km wide), including alluvial plains and dunes. This provides additional link between sections of the World Heritage Area, and is an important cassowary corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
47	<p>Eubenangee Swamp - Alice River</p> <p>Corridor running from Ella Bay NP (World Heritage Area) to Eubenangee Swamp National Park. Rainforest and wetland landscape linkage (≈1.5km) within recently acquired NP. Important wetland vegetation mosaic linking to Graham Range across Alice River. Over 20,000 plants were replanted along the Alice River through Eubenangee Swamp NP during the 1980s and 1990s. It is an important cassowary corridor.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
48	<p>Eubenangee Swamp - Dinner Creek</p> <p>Corridor running from Eubenangee Swamp NP to Ella Bay NP and USL within the World Heritage Area. Rainforest and wetland landscape linkage (≈2.5km). Important wetland vegetation mosaic linking to Graham Range across farmlands, Dinner Creek (and Cartwright Road and Dinner Creek Falls Road). Some existing patches of remnant vegetation, regrowth and agroforestry. It is an important cassowary corridor.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
49	<p>Eubenangee Swamp - Canal Creek to Russell River</p> <p>Corridor running from Eubenangee Swamp NP to Wooroonooran NP. Rainforest and wetland landscape linkage (≈2km) across private lands and the Bruce Highway. Important wetland vegetation mosaic linking to Woopen Creek and the Bellenden Ker Range. The Bruce Highway traverses about 3.2km along the south-western edges of Eubenangee Swamp NP from Canal Creek north to the Russell River. Overpasses or underpasses would benefit this link across the highway. This corridor joins NP and World Heritage Areas, and an important cassowary and pademelon corridor.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
50	<p>Ninds Creek</p> <p>Corridor running from Moresby Range NP to Etty Bay Conservation Park. Local riparian, wetland and vegetation mosaic linkage (≈9km) along Ninds Creek to Bulguru Swamp. Mostly traverses private properties between Etty Bay Road and Mourilyan Harbour Road. Some pond apple infestations need control. It is an important cassowary corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
51	<p>Bombeeta Creek</p> <p>Corridor running from Basilisk Range NP to Japoon NP. Local riparian and forest linkages (<math>\approx 1.3</math>km) across the Innisfail to Japoon Road and private lands. This joins NP to World Heritage Areas, and is an important cassowary corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
52	<p>Kurrimine Beach to Maria Creek</p> <p>Corridor running from Kurrimine Beach NP to Maria Creek NP. Wetland and coastal rainforest landscape linkage (<math>\approx 2.5</math>km). Some existing remnant vegetation on Unallocated State Land and private lands. Crosses Kurrimine Beach Road. Links to Maria Creek to Bingil Bay corridor. This joins NP to the World Heritage Area, and is an important cassowary corridor.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
53	<p>Maria Creek to Bingil Bay</p> <p>Corridor running from Maria Creek NP to Djiru NP (World Heritage Area). Wetland and coastal rainforest landscape linkage (<math>\approx 4</math>km). Some existing remnant vegetation on private lands. Crosses Bingil Bay Road. Links to Kurrimine Beach to Maria Creek corridor.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
54	<p>Smiths Gap</p> <p>Corridor running from Japoon NP and Tully Gorge NP (part of World Heritage Area) to Walter Hill Range Conservation Park. This is the pinch point/bottleneck within corridor 3 and critical to the ecological integrity of corridor 3. It has long been identified as a top priority corridor restoration area in the Wet Tropics.</p> <p>Rainforest landscape linkage along the Walter Hill Range across the Bruce Highway and private lands. Smiths Gap is <math>\approx 3.5</math>km long from Big Maria Creek in the north to Banyan Creek in the south. Big Maria Creek bridges offer some connectivity under the Bruce Highway. Width varies from <math>\approx 1.5</math>km in the north to 0.5km in the south. Potential to enhance linkages through private lands in Granadilla and Feluga to Djiru NP and the World Heritage Area (<math>\approx 5</math> to 9km). It may act as a climate change corridor from coast to uplands, and is important for cassowaries. Fauna crossing infrastructure e.g. land bridge, would benefit this link across the highway.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
55	<p>Double Barrel Creek</p> <p>Corridor running from east to west sections of Girramay NP. Landscape linkage of mixed wetland, riparian and open forest (<math>\approx 8</math>km and mostly with existing remnant vegetation). From Bluff Landing along Double Barrel Creek, through the Warringah property and across the Bruce Highway to the Cardwell Range. Also links to wetlands in Edmund Kennedy NP. Joins sections of the World Heritage Area, and is an important corridor for mahogany gliders and cassowaries.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
56	<p>Dallachy Creek</p> <p>Corridor running from east to west sections of Girramay National Park, along Dallachy Creek. Landscape riparian linkage (<math>\approx 6.5</math>km) comprising rainforest and open woodland. Some fire management required for mahogany glider habitat. Joins sections of the World Heritage Area, and is an important corridor for cassowaries and mahogany gliders.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
57	<p>Whitfield Creek</p> <p>Corridor running from Girramay NP to Cardwell Forest Reserve. Landscape riparian linkage (<math>\approx 7</math>km) comprising rainforest and open woodland. Some fire management required for mahogany glider habitat. Also traverses Cardwell State Forest, private pine plantations and farmlands. Joins sections of the World Heritage Area (east and west Girramay NP), and is an important corridor for cassowaries and mahogany gliders.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
58	<p>Baird Creek</p> <p>Corridor running from Whitfield Creek to Meunga Creek. Local linkage (<math>\approx 2</math>km) between Whitfield Creek corridor south to Baird Creek and the bull paddock (mahogany glider habitat and corridor on private lands).</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
59	<p>Meunga and Camp Creeks</p> <p>Corridor running between east and west sections of Girringun NP, through Cardwell State Forest. Riparian landscape linkages through open forest and wetlands (11 to 14km). Joins Cardwell Range to Edmund Kennedy within Girringun NP, which is also part of the World Heritage Area. It is an important corridor for mahogany gliders, and provides links within the metapopulation.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
60	<p>Cardwell Golf Course</p> <p>Corridor running from Cardwell Golf Course to Girringun NP. Connection from the west edge of the Cardwell Golf Course through Cardwell State Forest to Girringun NP. It is an important mahogany glider corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
61	<p>Bruce Highway canopy bridges</p> <p>Corridor running from east of Bruce Highway near Conn to Cardwell State Forest in the west. Canopy bridges and glider poles at creek crossings within mahogany glider habitat at Conn Creek, Mullers Creek, Porters Creek and Scrubby Creek. It is an important corridor for mahogany gliders as an overpass.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
62	<p>Wigwam and Canoe Creeks</p> <p>Corridor running from Girringun NP to Abergowrie Forest Reserve. Local riparian linkages (5 to 7km), mostly vegetated. Links World Heritage Area and NP to Mount Slopeaway outlier through Abergowrie State Forest. It is an important mahogany glider corridor, linking metapopulation through bloodwood, Moreton Bay ash and ironbark forests.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
63	<p>Bullock Creek</p> <p>Corridor running from north to south sections of Girringun NP (World Heritage Area) across the Herbert River valley. Local riparian linkage across Herbert River valley upstream of Abergowrie (≈3.5km). Mostly vegetated and links across Abergowrie Road to vegetated hill adjacent to Herbert River. Herbert River is usually too wide to allow mahogany glider movement south, this corridor links metapopulation.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
64	<p>Lannercost, Ashton and Breakaway Creeks</p> <p>Corridor running from Venables Crossing to Girringun NP. Local riparian linkage from Stone River (Venables Crossing) through cleared farmlands (≈6.6km), remnant vegetation (≈7.5km), and Lannercost State Forest (≈5km) to Girringun NP and the World Heritage Area (a further 2km). It is an important mahogany glider corridor, providing links within the metapopulation. It also links to Stone River corridor.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
65	<p>Stone River</p> <p>Corridor running from Venable Crossing to Sandy Creek, Stone River West and Giringun NP. Landscape riparian linkages from Stone River (Venables Crossing) upstream through farmlands to Upper Stone (<math>\approx 13\text{km}</math>), via Sandy Creek to remnant vegetation on grazing lease (<math>\approx 5\text{km}</math>) and via Stone West branch and Messmate Creek to a Nature Refuge and National Parks within the World Heritage Area (<math>\approx 8\text{km}</math>). It is an important mahogany glider corridor, providing links within metapopulation. It also links to the Lannercost, Ashton and Breakaway, Creeks corridor.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
66	<p>Easter Creek, Leichhardt Creek and Helens Hill</p> <p>Corridor running from Paluma Range NP (Jourama Falls) to Halifax Bay wetlands. Riparian landscape linkage through private lands with some remnant vegetation. Links Seaview Range and Halifax Bay wetlands (<math>\approx 14\text{km}</math>) and a link north to remnant vegetation on Helens Hill (<math>\approx 6\text{km}</math>). Fire management required at Jourama Falls, end of Easter Creek and Waterfall Creek. Crosses Bruce Highway on Easter Creek. It is an important mahogany glider corridor and provides links to National Parks and World Heritage Areas.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
67	<p>Fig Tree and Byabra Creeks</p> <p>Corridor running from Paluma Range NP to Halifax Bay wetlands. Local riparian linkages to isolated mahogany glider habitat. Corridors through farmland with some remnant vegetation on the east side of the Bruce Highway (<math>\approx 3.5\text{km}</math>) and bush areas on private lands to the west (<math>\approx 1.2\text{km}</math>). It is an important mahogany glider corridor and provide links within metapopulation, joining habitat to National Parks and World Heritage Areas.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
68	<p>Big Crystal Creek</p> <p>Corridor running from Paluma Range NP to Halifax Bay wetlands. Local riparian and landscape linkage (<math>\approx 7\text{km}</math>) to coastal mahogany glider habitat on private lands. It is an important mahogany glider corridor and provide links within metapopulation, joining habitat to National Parks and World Heritage Areas.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
69	<p>Ollera Creek coastal area</p> <p>Corridor running from Paluma Range NP to Halifax Bay. Local riparian and landscape linkages (<math>\approx 7\text{km}</math>) from foothills to the coast. Large areas of important coastal mahogany glider habitat on private lands. It is a mahogany glider corridor and provide links within metapopulation, joining habitat to National Parks and World Heritage Areas.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)

Corridor Number	Corridor description	Significance (width)	Comments/ Alterations
70	<p>Garrett Corridor</p> <p>Local cassowary corridor running from Djiru NP to Wongaling Beach and links World Heritage Area and the coast through urban areas. Lot 66 was bought by Queensland Trust for Nature and C4 in 2014. Links with Cassowary Coast Regional Council lands and lands of the Djiru Warrangburra Aboriginal Corporation.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
71	<p>Kaban Corridor</p> <p>Corridor running from Tumoulin State Forest to The Bluff Forest Reserve. Mostly vegetated open forest corridors through private lands linking important yellow-bellied glider habitat (<math>\approx 2.5</math>km). Some protection of existing vegetation under Queensland MSES mapping.</p>	Regional (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
72	<p>South Cedar Creek Corridors</p> <p>Local corridor from Tumoulin State Forest to Ravenshoe Forest Reserve, Millstream NP and Tully Falls NP. Partly vegetated open forest corridor through private lands east of Ravenshoe (<math>\approx 6</math>km to 8km). There is some protection of existing vegetation under Queensland MSES mapping. It is an important corridor for yellow-bellied glider and numerous other wet sclerophyll species, and provides additional connectivity from the World Heritage Area (north) to Tumoulin Forest Reserve.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
73	<p>Douglas and Stewart Creeks</p> <p>Local corridor running between sections of Daintree NP (World Heritage Area). Restoration of creek banks and riparian vegetation has occurred to improve the quality of freshwater and prevent erosion.</p>	Local (100m)	Derived from draft WTMA Corridor mapping (WTMA 2016b, unpublished)
74	<p>Barron River Mabi Corridor</p> <p>Corridor running from Curtain Fig World Heritage Area to Wongabel (Corridor 31) centred on the Barron River. Provides essential connectivity from World Heritage Area (Wooroonooran NP) to the high-altitude western forests (Herberton State Forest) that also connect large fragments (Curtain Fig NP to Wongabel State Forest). This corridor is critical for allowing for the movement of native fauna and the continuation of viable populations from east-west, as well as low to high altitude.</p>	Local (100m)	Suggested by TERRAIN. Corridor extended through Wongabel State Forest connecting to the Wongabel Corridor (Corridor 31) based off panel feedback

### 3.3.2.2 Riparian corridors

Major watercourses are important landscape elements which act as significant migratory and dispersal pathways for many species of fauna and flora, and contain important habitat resources (including food, water, sheltering, roosting and nesting sites).

In addition to these riparian corridors, selected watercourses with a stream order greater than or equal to 3 were mapped at a scale of 1:250,000 to provide connections to upland/headwater areas.

**Table 16. Riparian bioregional corridors**

<b>Watercourses to Include</b>	<b>Significance</b>
North Johnstone River	State
South Johnstone River	State
Herbert River / Wild River	State
Bloomfield River	State
Daintree River	State
Mossman River	State
Mowbray River	State
The headwaters of the Mitchell River (McLeod River, Rifle Creek, Spencer)	State
Barron River	Regional
Mulgrave River	State
Russell River	State
Tully River / Koombuloomba	Regional
Liverpool Creek	Regional
Maria Creek	Regional
Murray River	Regional
Hull River	State
Crystal Creek	Regional
Headwaters of the Burdekin River – Star River / Running River / Oaky Creek	Regional
Bluewater Creek	Regional
Annan River	State
Normanby River	Regional
Headwaters of Palmer River (Windsor tableland) - Prospect, Boggy, Banana	Regional
Moresby River	Regional
Whyanbeel Creek	Regional

Nb. The panel also suggested that riparian systems in the small catchments directly north of the Daintree were in good condition. However,



subsequent review found the scale of mapping was too small for implementation.

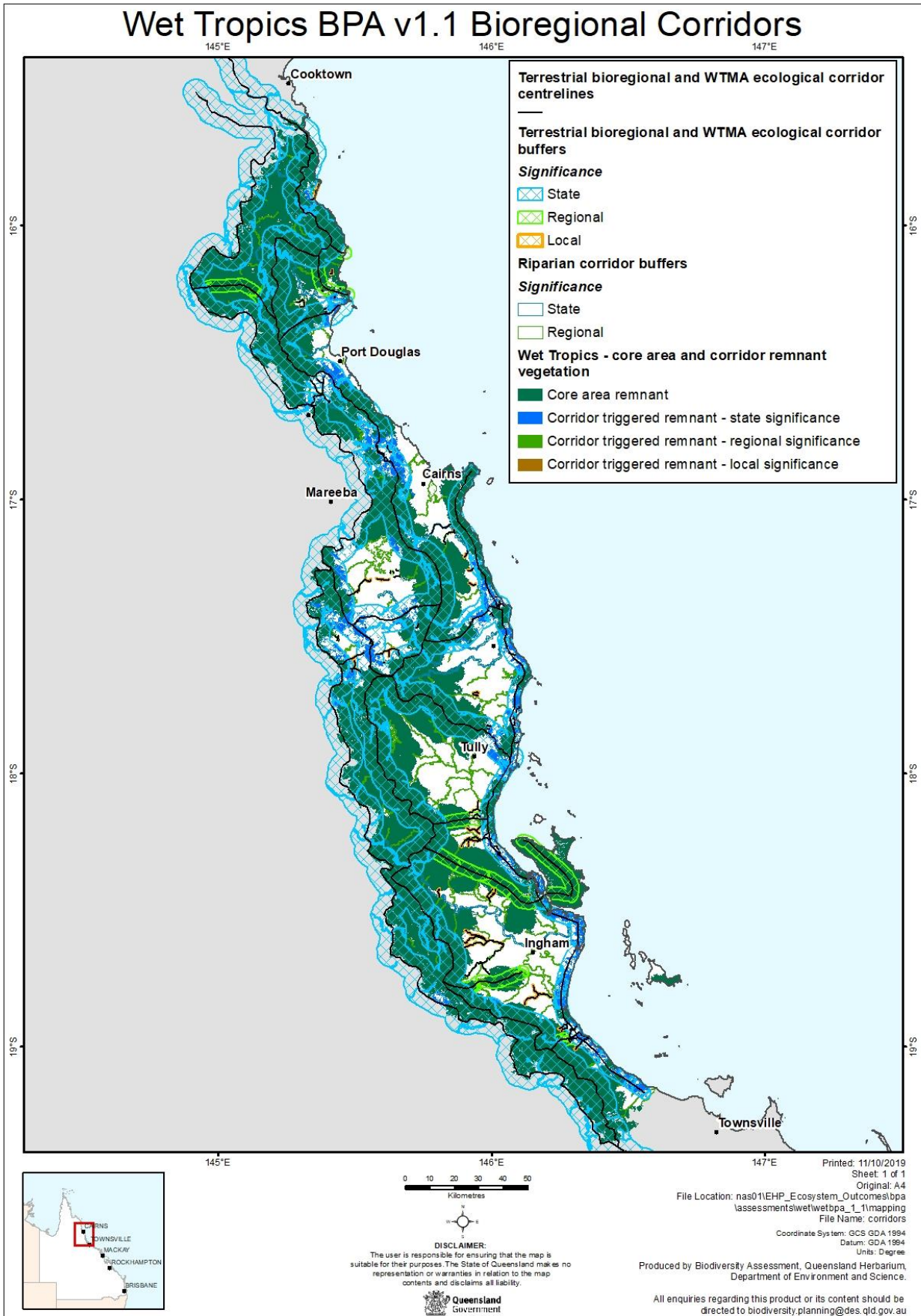


Figure 4. WET terrestrial and riparian bioregional corridors

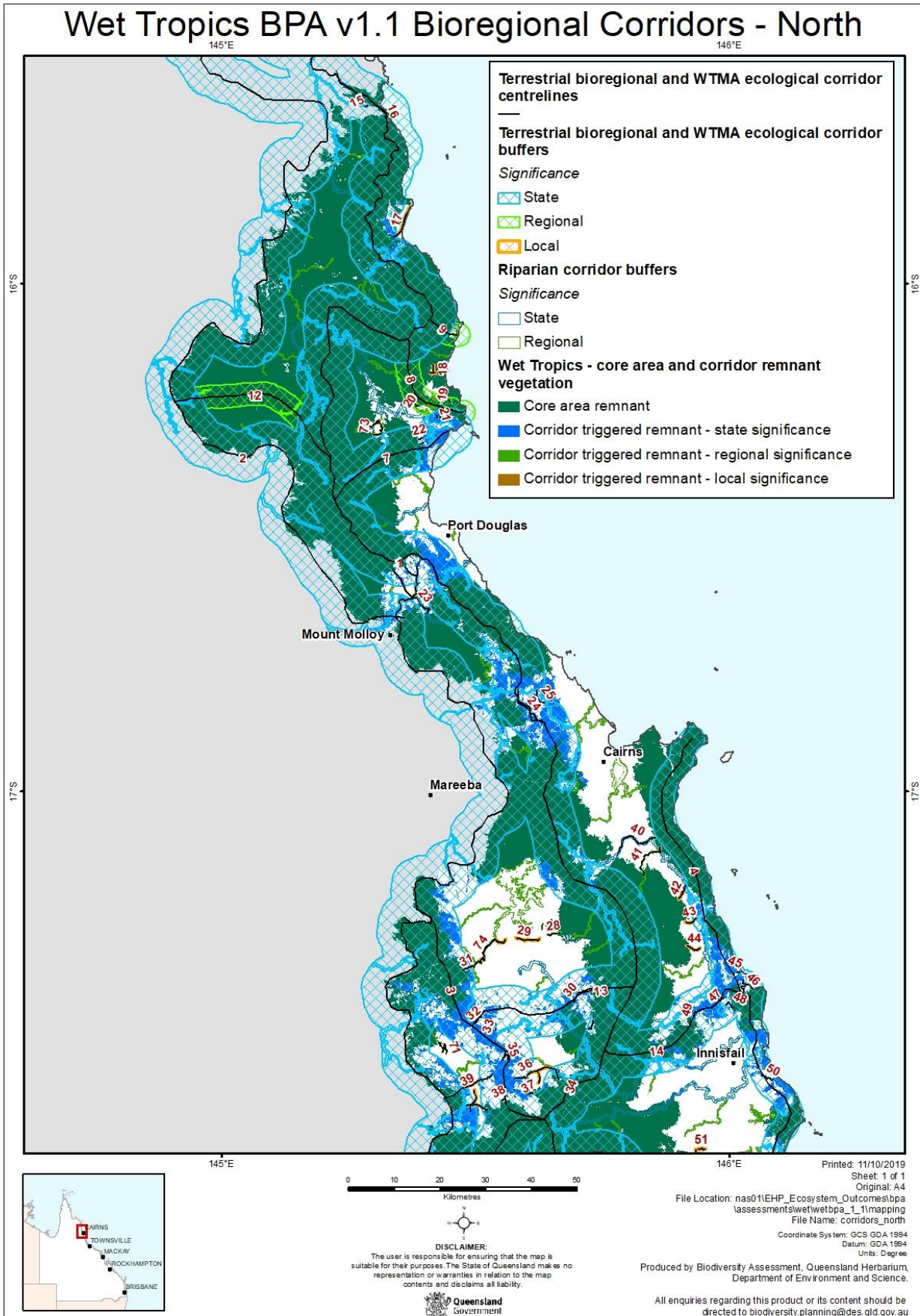


Figure 5. WET terrestrial and riparian bioregional corridors - North

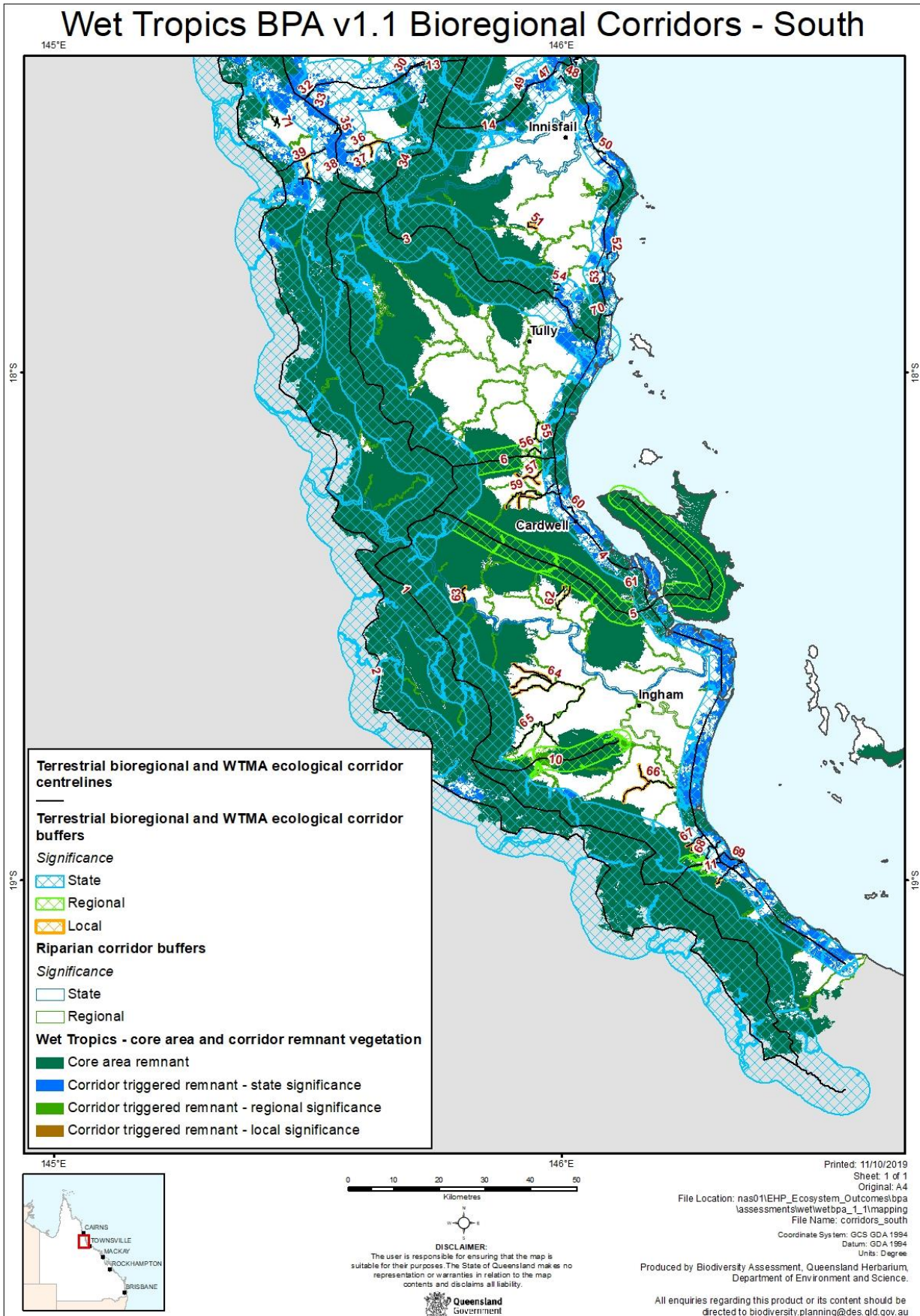


Figure 6. WET terrestrial and riparian bioregional corridors - South

## 4 Discussion

### 4.1 General

The WET has a number of unique characteristics that distinguish it from all other bioregions of Queensland. The expert panels identified these characteristics which are discussed in more detail below.

A recurring pattern with respect to the fauna, flora and landscape panels was the selection of high altitude peaks, often reflective of historically stable locations which have acted as refugia in times past. Subsequently, such areas have given rise to an exceptional diversity of narrow range endemic plants and animals, particularly those with relatively low dispersal capacity (Graham et al. 2010; Staunton et al. 2014). With almost 20 per cent of the flora and more than 10 per cent of the terrestrial vertebrate fauna largely endemic to the bioregion, at a global scale, the Wet topics is second only to New Caledonia in terms of number of endemic taxa per unit area (WTMA 2017).

The WET is internationally significant due to the number of primitive plant taxa present, relicts of the Gondwana era of 100 million years ago. Floristic diversity is very high, with over 4,300 known vascular plant species present within the bioregion, of which, more than 320 are listed as endangered, vulnerable, or near threatened under state and/or federal legislation. A corresponding diversity in ecosystems occurs, with 727 vegetation communities (185 base regional ecosystems) described in the Regional Ecosystem Description Database v10 (Queensland Herbarium 2016) for the Wet Tropics (out of approximately 4,040 for the state), which in area, occupies less than 1.3 per cent of the Queensland land mass.

The panel noted several patterns influencing faunal distributions, relating to latitude, altitude and habitat. Among the endemic vertebrates, most are found throughout the bioregion although a few are restricted to either the north (e.g. *Cairnsichthys bitaeniatus*, *Pseudochirulus cinereus* and *Dendrolagus bennettianus*) or south (e.g. *C. rhombosomoides*, *Antechinus godmani*, *P. herbertensis* and *D. lumholtzi*). A relatively small number of frogs and reptiles, such as *Cophixalus hosmeri*, *C. neglectus*, *Techmarscincus jigurru* and *Calyptotis thornntonensis*, are confined to single upland areas. Invertebrates exhibit a far greater level of narrow range endemism, particularly among those groups of low vagility, e.g. snails (Stanisic et al. 2010), crustaceans, spiders and flightless insects. Nearly every peak or range likely has a suite of taxa restricted to that locality which would account for the high turnover in invertebrate species between regions (Yeates & Monteith 2008).

Attitudinally, invertebrate and vertebrate diversity is often highest at mid-elevations (400–800m ASL), with an overlap of assemblages from lower and higher zones (Yek et al. 2009; Williams et al. 2010; Nowrouzi et al. 2016). Numbers of relictual taxa derived from Gondwanan stock appear to be highest towards the summits. Whilst few endemic fish occur in the wet tropics, the lowlands have numerous disjunct populations of taxa found elsewhere in Queensland (e.g. *Denarius australis* and *Schismatogobius insignis*) but more significantly, the only Australian populations of taxa also found overseas, e.g. *Gymnothorax polyuranodon*, *Neopomacentrus taeniurus* and *Glossogobius bicirrhosus*, as well as the cling goby *Stiphodon* spp. assemblage (Ebner et al. 2016).

The topographic ruggedness of the bioregion, coupled with recognition of its world heritage values and accompanying declaration of protected area estate, imbues a greater level of protection comparative to the majority of bioregions in Queensland, as well as Australia (DEE 2017b). Conversely, clearing has been focused in the restricted lowland areas and Atherton plateau. Thus, a higher proportion of the extant remnant vegetation remaining within these areas is considered threatened under state or federal legislation. The importance of the remaining lowland rainforest, melaleuca wetlands, and system interconnectivity to upland areas was emphasised throughout the panel.

Anticipated threats resulting from climate change were highlighted in part, through the nomination of priority taxa, many of which are endemic mountain top taxa with limited potential for retreat. The lifting of the orographic cloud layer from 600–900m by 2050 (WTMA 2013) is likely to result in drier conditions which, in conjunction with rising temperature and altered fire regimes, may also have severe impacts on zones of high fauna diversity, such as the large bands of wet sclerophyll located at the bioregion's western margins. An increased frequency of natural catastrophic events such as Cyclone Larry, may result in more regular and widespread ecosystem disturbance. Other consequences include climate-induced changes in frugivore abundances, potentially leading to a reduction in seed dispersal and the ability of rainforest plants to colonise spatially shifting suitable habitat (Mokany et al. 2014a). In lieu of such impacts, the panel emphasised the importance of maintaining perceived historically (geological time) stable upland and lowland areas which may act as refugia in the future.

Other threats to the WET biodiversity raised by the panel relate to introduced plants, animals and disease outbreaks. Both foreign (e.g. yellow crazy ants, tilapia, pigs) and translocated non-indigenous native taxa (fish - mouth almighty) can pose a significant threat to elements of the WET biodiversity. Impacts arising from climate change may also exacerbate weed, feral animal and disease invasion.

## 4.2 Expert panel recommendations

The expert panel raised a number of specific issues and made recommendations for future consideration when updating the WET BPA. The following list provides a summary of key comments and recommendations:

1. A key issue was in regards to the BAMB and its assignment of overall biodiversity significance rating. Whilst it was emphasised that individual criteria should be used to address specific questions, the panel considered the risk for misinterpretation or mis-use of the overall biodiversity significance ratings as high.
2. The panel noted that the comprehensiveness of many criteria is largely reliant upon available information. Even in bioregions subject to comparatively high levels of survey effort significant knowledge gaps can occur. The expert panel process is designed, in part, to fill such knowledge gaps. However, the expert panel process is only as comprehensive as the range of experts who contribute and to the extent their knowledge of the bioregion extends. Thus, for criteria where adequate and compressive data is not uniformly available across the study area, the ratings, in many instances, reflect data availability rather than an accurate ranked and uniform relative assessment of values. In such instances the use of the product to prioritise one area over another may be incorrect. Notwithstanding, the panel did not suggest that a lack of uniform information was a reason to exclude assessment of certain criteria, rather a need for end-users to be aware of the products limitations to enable its determination as "fit for purpose".
3. The BAMB does not currently address the interdependencies between ecosystems that form complex ecosystem mosaics. Individual ecosystems within such mosaics may be reliant on others in terms of their viability and system functioning, and are therefore highly susceptible to changes in land use and fragmentation. In such cases interference with one system can have drastic impacts on others. Within the WET the remaining diversity of ecosystems and biodiversity in lowlands ecosystems depends upon retaining the complete mosaic of ecosystems and interactions between them. The panel recommended that future reviews of the BAMB consider expanding the methodology to address this issue.
4. During the course of the panel a number of recommendations were made with respect to Criterion I:
  - The panel considered the sub-criteria should be expanded to allow for an additional sub-criterion that captured the uniqueness and irreplaceability of ecosystems. Specific areas were discussed, whilst not considered to be of significant value given the current sub-criteria, were unique ecosystems with high irreplaceability. Whilst such areas are usually captured through Criterion B (ecosystem value), and/or sub-criterion Ig (regional ecosystem variation), there are instances where this may not be the case.
  - The panel recommended that the formal BAMB definition associated with sub-criterion Ii (hollow bearing trees) needs to be expanded to capture all habitat types considered to be important, not simply those containing densities of hollow bearing trees. Future assessments should capture areas of habitat and microhabitat structural complexity with high relative densities of habitat shelters (i.e. nesting or resting shelters - hollow-bearing trees, caves, rock outcrops etc.). In practice, the above expanded definition has been used for a number of completed BPAs, however, to reduce confusion, this should be updated in the next methodology release.
5. As per recommendations from previously completed BPA panels, experts advocated for the expansion of the method to incorporate regrowth mapping within all criteria. Effectively, once a supported and endorsed statewide layer becomes available, investigation as to how regrowth can be integrated with the BAMB will be undertaken. It is envisaged that a supported and stable state-wide layer will be available in the next few years.
6. The current approach of identifying bioregional terrestrial scale corridors is largely focused at the landscape level with the aim of highlighting remaining vegetated connections in fragmented bioregions and subregions. In more intact landscapes, the general approach has been to maintain landscape/ecosystems processes associated with geological, environmental, altitudinal and climatic gradients and which may facilitate ecosystem and species complex shifts over time. Panel members raised the concern that the current approach in itself is too broad and does not address population connectivity for significant taxa. The panel suggested a better approach would be to focus on habitat connectivity for taxonomically important species. In part, the main issue related to identifying and labelling both large and small scale linkages corridors. It was recommended that the broader implementation be referred to as "landscape linkages" rather than corridors. Generally, the panel agreed that there are multiple potential applications and that different approaches are needed for each. For the majority of existing BPAs small scale linkages have not been mapped due to time and resource constraints. For the WET, work to identify local linkages had already been completed and at the panel's recommendation, these were incorporated into the assessment.

Notwithstanding the issues outlined above, the panel attendees endorsed the workshops and supported application of the BAMB and its end product, the BPA. It was acknowledged that this product continues to play an important role as an information source for the broad biodiversity values present across a bioregion.

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## 6 Appendices

### Appendix 1: Datasets/themes available to the expert panel during the workshop

#### GIS

##### Geographic data

Catchment boundaries

Contours (10m interval)

Topographic maps (1:100 000)

##### Cadastral, government and locational data

Cadastral data (DCDB) for WET study area local government areas

Local government boundaries

Places

Towns

State Digital Road Network (SDRN)

Stock routes

##### Vegetation

Regional Ecosystem Description Database (REDD)

Pre-clearing (RE10) RE mapping

Remnant (RE10) RE mapping

##### Species

All fauna species records were obtained from Queensland Historical Fauna database. Flora species records were obtained from HerbreCs, WildNet and Corveg databases

BriMapper (HerbreCs species records viewer)

##### Wetlands

Queensland Wetland Mapping

Directory of Important Wetlands

Ramsar

Drainage network - rivers

Drainage network - creeks

##### Biodiversity Planning Assessment data

Queensland bioregion and subregion boundaries

Terrestrial and riparian state bioregional corridors

##### Protected areas

Protected areas

Nature refuges

##### Imagery

Landsat mosaic of the WET bioregion

SPOT imagery (10 metres)

## **Documents available electronically**

EHP 2014, *Biodiversity Assessment and Mapping Methodology. Version 2.2*, Department of Environment and Heritage Protection, Brisbane

## **Hard copy maps**

WET bioregions and subregions (Queensland)

Broad vegetation groups (1:5M)

Statewide corridors

## Appendix 2: Candidate flora and fauna taxa considered but not implemented as WET threatened species

Taxon Group	Species	Panel reason for not implementing
FL	<i>Aglaia argentea</i>	Possible misidentification of taxon - only one record. This is typically a Cape York species
FL	<i>Alloxylon pinnatum</i>	Spurious single record. Species is found in southern QLD and NSW
FL	<i>Cajanus mareebensis</i>	Spurious record as species is Einasleigh Upland endemic
FL	<i>Commersonia reticulata</i>	Located in a non wet tropics regional ecosystem. Brigalow Belt species
FL	<i>Croton magneticus</i>	Brigalow Belt species
FL	<i>Donella lanceolata</i>	Cape York species
FL	<i>Euphorbia carissoides</i>	Spurious record from Herberton area. Low precision record
FL	<i>Gardenia psidioides</i>	Cape York species
FL	<i>Goodenia stirlingii</i>	Spurious record from Herberton area
FL	<i>Lasjia claudiensis</i>	Cultivated specimen in Atherton – Cape York endemic
FL	<i>Phlegmariurus filiformis</i>	Should be <i>P. creber</i> . There was a taxonomic split in 2018 - <i>P. filiformis</i> does not occur in Australia
FL	<i>Sannantha tozerensis</i>	Cape York species
FL	<i>Senegalia pennata</i> subsp. <i>kerrii</i>	Cultivated record
FL	<i>Spathoglottis plicata</i>	Cape York species
FL	<i>Syzygium aqueum</i>	Likely cultivated
FA	<i>Bidyanus bidyanus</i>	Endemic to Murray Darling system. Translocated population in WET
FA	<i>Erythrura gouldiae</i>	Non bioregional species (grassland spp.). Mareeba wetland management has released number of birds for decades
FA	<i>Falco hypoleucos</i>	Vagrants. Eruptions in population numbers that spill over into adjoining bioregions - didn't occur during last breeding season. Core habitat is the Channel country
FA	<i>Grantiella picta</i>	Non-bioregional species - possible misidentification. Range is South-mallee region
FA	<i>Phaethon rubricauda</i>	Not typically found in Wet Tropics
FA	<i>Poephila cincta cincta</i>	Mostly BRB and EIU bioregions. Unlikely the habitat the species occurs in is represented in Wet Tropics. Prefers dry grasslands
FA	<i>Pristis pristis</i>	Very few records from the WTs historically. Considered extinct in the Wet Tropics. Has been collected in Cairns Harbour - long time

		ago. Gulf Rivers - sleepy rivers - presume extinct up the east coast of the CYP
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