

### Regional ecosystem 8.1.1

<b>Description:</b>	Closed forest to open shrubland of mangrove species forming a variety of associations, depending on their position in relation to tidal channels and the amount of freshwater input they receive. The seaward edge and fringe of waterways is often dominated by <i>Rhizophora</i> spp. Landward of the <i>Rhizophora</i> spp. zone a variety of species occur together or in a mosaic and include <i>Avicennia marina</i> , <i>Bruguiera</i> spp., <i>Rhizophora</i> spp., <i>Excoecaria agallocha</i> , <i>Xylocarpus moluccensis</i> , <i>Lumnitzera racemosa</i> , <i>Ceriops</i> spp. and <i>Osbornia octodonta</i> (pure stands of <i>Avicennia marina</i> often occur within this). Higher tide and spring tide areas adjacent to saltpans often support pure stands of <i>Ceriops</i> spp. The mistletoe <i>Lysiana maritima</i> is common throughout the mangrove associations, and occasional epiphytes include <i>Dendrobium discolor</i> , <i>Drynaria rigidula</i> , and <i>Platyserium bifurcatum</i> . A shrub layer is occasionally present consisting of species such as <i>Acanthus ilicifolius</i> , <i>Clerodendron inerme</i> , <i>Osbornia octodonta</i> and <i>Lumnitzera racemosa</i> . The ground layer may include species such as <i>Sporobolus virginicus</i> , <i>Acrostichum speciosum</i> , <i>Juncus kraussii</i> , <i>Fimbristylis ferruginea</i> , <i>Derris trifoliata</i> , <i>Salsola australis</i> and <i>Crinum pedunculatum</i> . Occurs on tidal and intertidal flats which are often dissected by tidal streams. Includes communities on the landward edge of tidal flats that are inundated only by the highest spring tides. Geologies mapped include Qhcm (Holocene mud and sandy mud), Qm (Quaternary coastal mud, silt and minor evaporites), Qhe/m (Holocene mud, sandy mud, muddy sand and minor gravel), Qhct (Holocene silt, mud and sand and minor salt) and Qpe (Pleistocene estuarine mud, sand). Intertidal. (BVG1M: 35a).
<b>Short description:</b>	Mangrove closed forest to open shrubland of marine clay plains and estuaries
<b>Supplementary descriptions:</b>	Bailey et al. (2003), CM-1; Batianoff (1995), Vegetation Unit 8; Batianoff, Dillewaard and Franks (1997), Vegetation Unit 8; Bean (1991), Vegetation type 9 (in part); Brushe et al. (in prep), Map Unit c1; Cumming (1997), Vegetation types 1, 2, 3, 4; Danaher (in prep), All mangrove units; Gunn et al. (1972), Land Units 18; Kemp (2009), Mg; Malcolm et al. (1997), all mangrove units; Nexus Environmental Studies Pty Ltd (1998), Vegetation unit 7b (in part); Pollock (1996), Mge; Ryan et al. (2003), Vegetation unit 8MA; Warrien and Lavarack (in prep), Vegetation unit 3, Queensland Herbarium (2008) Mg1
<b>Subregions:</b>	2, 5, 1, 6, (4), (3)
<b>Protected areas:</b>	Byfield NP, Cape Palmerston NP, Conway NP, Whitsunday Islands NP, Sandringham Bay CP, Bakers Creek CP, Dryander NP, West Hill NP, Skull Knob CP, Newry Islands NP, Gloucester Island NP, Reliance Creek NP, South Cumberland Islands NP, Cape Hillsborough NP, Conway CP, Percy Isles NP, Molle Islands NP, Mount Hector CP, Broad Sound Islands NP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Intertidal
<b>Special values:</b>	8.1.1: Many of the plant species defining this regional ecosystem are unique to it, or only to this and other land zone 1 regional ecosystems. Breeding site for many marine fish species and habitat for a large number of specialised fauna and flora species which are restricted to this ecosystem. Recent records of the Little Kingfisher, which is largely restricted to this ecosystem, extend its previous known range (southern limit) (Malcolm et al., 1996). This regional ecosystem is also habitat for the significant species False Water Rat (listed as "Vulnerable" in the Queensland Nature Conservation Act 1992), Rusty Monitor, Crocodile, Mongolian Plover, Sooty Oystercatcher, Great Knot, Eastern Curlew, Terek Sandpipers, Bar-tailed Godwits, Whimbrel, Pacific Golden Plover, Pied Oystercatcher, Ruddy Turnstone (Watkins 1993), and Great-billed Heron (Crouter in Low 1993).
<b>Comments:</b>	8.1.1: Readily distinguished from all other ecosystems by the clear dominance of mangrove tree or shrub species. Found along the coast of the mainland and on many islands. Common throughout the bioregion, but most extensive around the Proserpine River mouth, in the area east of Calen and near Cape Palmerston. Generally good, being a fairly resilient ecosystem. * <i>Lantana camara</i> occasionally encroaches in less saline examples.
<b>Estimated extent:<sup>1</sup></b>	Pre-clearing 41000 ha; Remnant 2021 41000 ha
<b>VM class:</b>	Least concern
<b>Biodiversity status:</b>	No concern at present
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.1.2

**Description:** Samphire open forbland to isolated clumps of forbs. Vascular plants may be absent over large areas, or may include one or several of the following succulent herbs; *Sesuvium portulacastrum*, *Tecticornia indica* subsp. *julacea*, *T. indica* subsp. *leiostachya*, *T. halocnemoides* subsp. *tenuis*, *T. pergranulata* subsp. *queenslandica*, *Salicornia quinqueflora* subsp. *Quinqueflora*, *Suaeda australis*, *S. arbusculoides*, *Tecticornia australasica*, the grass *Sporobolus virginicus*, or sedges such as *Cyperus polystachyos* var. *polystachyos*, *C. scariosus*, *Fimbristylis ferruginea* and *F. polytrichoides*. Occurs on plains adjacent to mangroves with soils consisting of marine sediments. There is salt accumulation at the soil surface from evaporation of sea water which inundates these areas during the higher tides. Geologies mapped include Qhe/m (Holocene mud, sandy mud, muddy sand and minor gravel), Qm (Quaternary coastal mud, silt and minor evaporites), Qhcm (Holocene mud and sandy mud), Qhct (Holocene silt, mud and sand) and Qhe/s (Holocene sand, muddy sand, mud and minor gravel). Intertidal. (BVG1M: 35b).

**Short description:** Samphire open forbland on salt pans and plains adjacent to mangroves

**Supplementary descriptions:** Bailey et al. (2003), CMD-1; Batianoff, Dillewaard and Franks (1997), Vegetation unit 7 (in part); Bean (1991), Vegetation type 9 - mangroves and salt pan (in part); Brushe et al. (in prep), Vegetation Unit c2; Cumming (1997), Vegetation type 32; Danaher (in prep), Salt pan units; Malcolm et al. (1997), Silica flats; Nexus Environmental Studies Pty Ltd (1998), Vegetation unit 7b (in part); Ryan et al. (2003), Vegetation unit 8HI, 8MUD; Warrien and Lavarack (in prep), Vegetation unit 2, Queensland Herbarium (2008) Sltmsh\_1

**Subregions:** 2, 6, 5, (1), (4), (3), (11.14), (11.2)

**Protected areas:** Cape Palmerston NP, West Hill NP, Byfield NP, Whitsunday Islands NP, Conway NP, Sandringham Bay CP, Skull Knob CP, Dryander NP, Bakers Creek CP, Newry Islands NP, Cape Hillsborough NP, Keppel Bay Islands NP, Reliance Creek NP, Percy Isles NP

**Extent in reserves:** High

**Wetland:** Intertidal

**Special values:** 8.1.2: Many of the plant species defining this regional ecosystem are unique to it. Habitat for *Tecticornia indica*, *Tecticornia halocnemoides* subsp. *tenuis*, *Sarcocornia quinqueflora*, *Tecticornia pergranulata* subsp. *queenslandica* which are largely restricted to this ecosystem. Habitat for the significant species Beach Thick-knee, Mongolian Plover, Sooty Oystercatcher, Great Knot, Eastern Curlew, Terek Sandpiper, Bar-tailed Godwit, Whimbrel, Pacific Golden Plover, Pied Oystercatcher, and Ruddy Turnstone. (Watkins 1993).

**Comments:** 8.1.2: Distinguished from all other regional ecosystems by the dominance of succulent saline-adapted herbaceous species and the occurrence on intertidal mud flats. Found along the mainland coast throughout the bioregion. Common to occasional in small patches. Also occurs in small areas on a few islands. An extensive area is mapped adjacent to Llewellyn Bay near Sarina. Occasionally subject to drainage changes due to adjacent agricultural activities (including ponded pastures). Vehicular damage by recreationalists has occurred in many areas.

**Estimated extent:**<sup>1</sup> Pre-clearing 11000 ha; Remnant 2021 11000 ha

**VM class:** Least concern

**Biodiversity status:** Of concern

**Biodiversity status notes:** Subject to modification by bunding and earthworks in places.

### Regional ecosystem 8.1.3

**Description:** *Sporobolus virginicus* open tussock grassland to closed tussock grassland. Occasional emergents may include mangrove spp., *Melaleuca* spp., *Acacia* spp. and *Clerodendrum inerme*. Other ground layer species which may be present include *Fimbristylis ferruginea*, *Cyperus victoriensis*, *C. scariosus*, *C. polystachyos* var. *polystachyos*, *Eleocharis spiralis*, *Diplachne fusca*, *Eriochloa procera*, *Fimbristylis polytrichoides*, *Gymnanthera oblonga*, *Ipomoea coptica*, *Epaltes australis*, *Paspalum vaginatum*, *Cyperus difformis*, *Cyperus javanicus*, *Sarcocornia* spp. and *Tecticornia* spp. Occurs on supratidal flats adjacent to mangroves and salt pans (slightly more elevated than mangroves and salt pans). Often only inundated by highest spring tides and often dissected by small tidal channels. May be extensive where there are large areas of low-lying sediments. More often forms a narrow belt between mangroves and alluvial communities. Formed from Quaternary estuarine sediments with deep grey or black and grey saline cracking clays with occasional mottling, minor gilgai occasionally present. Geologies mapped include Qhe/m (Holocene mud, sandy mud, muddy sand and minor gravel), Qm (Quaternary coastal mud, silt and minor evaporites), Qpe (Pleistocene estuarine mud, sand), Qhcm (Holocene mud and sandy mud) and Qhe/s (Holocene sand, muddy sand, mud and minor gravel). Intertidal. (BVG1M: 35b).

**Short description:** *Sporobolus virginicus* tussock grassland on marine sediments

**Supplementary descriptions:** Bailey et al. (2003), CMC-1; Batianoff, Dillewaard and Franks (1997), Vegetation Unit 7 (in part); Bean (1991), Vegetation type 9 - mangroves and saltpan (in part); Brushe et al. (in prep), Map Unit c103; Cumming (1997), Vegetation type 31; Nexus Environmental Studies Pty Ltd (1998), Vegetation unit 7b (in part); Ryan et al. (2003), Vegetation unit 8SV

**Subregions:** 2, 5, 6, (1), (4)

**Protected areas:** Byfield NP, Sandringham Bay CP, Cape Palmerston NP, West Hill NP, Whitsunday Islands NP, Percy Isles NP, Cape Hillsborough NP, Bakers Creek CP

**Extent in reserves:** Low

**Wetland:** Intertidal

**Special values:** 8.1.3: Many of the plant species defining this regional ecosystem are unique to it, or only to this and other land zone 1 regional ecosystems. Habitat for the threatened fauna species False Water Rat (*Xeromys myoides*) which is listed as "Vulnerable" in the Queensland Nature Conservation Act 1992.

**Comments:** 8.1.3: Distinguished from all other vegetation communities by the clear dominance of *Sporobolus virginicus*. Occurs in mainland coastal areas throughout the bioregion. Also mapped on Whitsunday Island and Pine Peak Island (north of Percy Island). Best developed on the Goorganga Plains, Llewellyn Bay (just north of Cape Palmerston) and Corio Bay areas. Many smaller remnants outside the Goorganga Plains area are threatened by agricultural or urban development, heavy grazing, and ponded pastures. Also vulnerable to disturbance caused by vehicular use which quickly kills off the vegetation. Although relatively resistant to weed invasion, some species are able to take a hold, particularly \**Cynodon dactylon*, and also \**Sporobolus jacquemontii*, \**Megathyrsus maximus*, \**Urena lobata*, \**Opuntia stricta* and \**Conyza* spp.

**Estimated extent:**<sup>1</sup> Pre-clearing 5000 ha; Remnant 2021 4000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.1.4

**Description:** *Schoenoplectus subulatus* and/or *Eleocharis dulcis* sparse sedgeland to closed sedgeland or *Paspalum vaginatum* sparse tussock grassland to closed tussock grassland. Often consists of areas of permanent, slightly tidally-influenced open water, often with a zoned distribution (from deepest to shallowest) of sedges and grasses (usually concentrated around the edges). Some species tend to occur in isolated clumps (e.g. *Schoenoplectus subulatus* and *Phragmites* spp.). Other species may include *Sporobolus virginicus*, *Cyperus scariosus*, *Blyxa* spp., *Nymphaea* spp., *Typha domingensis* and *Persicaria attenuata*. There may be occasional emergents of mangrove spp. or *Melaleuca* spp. Occurs on intertidal and supratidal flats, low lying drainage lines and swamps receiving a mixture of saltwater and freshwater depending on tides and seasons. May consist of large swamps, or more often smaller occurrences adjoining tidal ecosystems, or a linear channel at the more freshwater end of tidal creeks. Geologies mapped as Qhe/m (Holocene mud, sandy mud, muddy sand and minor gravel), Qm (Quaternary coastal mud, silt and minor evaporites), Qhct (Holocene silt, mud and sand), Qhcm (Holocene mud and sandy mud) and Qhe/s (Holocene sand, muddy sand, mud and minor gravel). Palustrine. (BVG1M: 34c).

**Short description:** *Schoenoplectus subulatus* and/or *Eleocharis dulcis* sedgeland or *Paspalum vaginatum* tussock grassland

**Supplementary descriptions:** Bailey et al. (2003), CW-1; Batianoff, Dillewaard and Franks (1997), Vegetation Unit 7 (in part); Brushe et al. (in prep), Map Unit c108; Cumming (1997), Vegetation type 35; Nexus Environmental Studies Pty Ltd (1998), 7a; Queensland Herbarium (2008) Wetslt\_1

**Subregions:** 2, 5, (4), (6), (11.14)

**Protected areas:** Byfield NP, Bakers Creek CP, Percy Isles NP, Sandringham Bay CP, Brampton Islands NP, Broad Sound Islands Conservation Park, Broad Sound Islands NP

**Extent in reserves:** Medium

**Wetland:** Palustrine

**Special values:** 8.1.4: This RE is the main stronghold for *Schoenoplectus subulatus*, *Phragmites* spp. and *Eleocharis dulcis*. Habitat for the threatened fauna species False Water Rat (*Xeromys myoides*) (listed as "Vulnerable" in the Queensland Nature Conservation Act 1992) and the locally rare species Swamp Rat (*Rattus lutreolus*), and Pale Field Rat (*Rattus tunneyi*). Important as habitat for *Schoenoplectus subulatus*, *Paspalum vaginatum*, *P. distichum*, *Phragmites australis* and *Eleocharis spiralis* which are largely restricted to this regional ecosystem.

**Comments:** 8.1.4: Relatively common on inland margins of marine ecosystems, however occurrences are generally small in size. Distinguished from all other regional ecosystems by the presence of permanent water (slightly saline or fluctuating between fresh and saltwater), and dominance of *Schoenoplectus subulatus* and or *Eleocharis dulcis* and/or *Paspalum vaginatum*. Mapped around the mouth of Proserpine River, on the Goorganga Plains, from Sand Bay (south of Cape Hillsborough) to Cape Palmerston and around Corio Bay. Threatening processes include draining and filling for agriculture and industrial development, weed invasion (particularly *\*Urochloa mutica*, *\*Hymenachne amplexicaulis* and *\*Arundo donax*), changes to the natural fluctuation between brackish water and freshwater due to the construction of bund walls, redirection of freshwater flows, and pig damage.

**Estimated extent:**<sup>1</sup> Pre-clearing 2000 ha; Remnant 2021 1000 ha

**VM class:** Of concern

**Biodiversity status:** Endangered

**Biodiversity status notes:** Subject to modification by bunding and earthworks in places.

## Regional ecosystem 8.1.5

**Description:** *Melaleuca* spp. and/or *Eucalyptus tereticornis* and/or *Corymbia tessellaris* low open woodland to open forest (to open shrubland) (2-20m tall). Canopy dominants are very variable, ranging from dense stands of *Melaleuca quinquenervia* or *M. leucadendra*, to more open stands of *Melaleuca* spp. and/or eucalypt species. *Acacia* spp. such as *A. leptocarpa* and *A. holosericea* may be present. Mangrove species may also occur in clumps or scattered in low numbers. Some sites have a sparse (to isolated plants) secondary tree or shrub layer consisting of one or several of *Acacia* spp., *Pandanus* spp., mangrove spp., *Melaleuca* spp. *Myoporum acuminatum*, *Clerodendrum inerme*, *Gahnia sieberiana*, *Phragmites australis*, *Banksia* spp., and sometimes pioneering rainforest spp. There is usually a mid-dense to dense ground layer (often interspersed with large bare areas of saline silts), most often dominated by *Sporobolus virginicus*, *Baumea juncea* or *Acrostichum speciosum*. Other dominants may include *Vincetoxicum carnosum*, *Baumea rubiginosa*, *Eleocharis dulcis* and *Paspalum vaginatum*. Other typical associated species are *Imperata cylindrica*, *Phragmites* spp., *Eriochloa procera*, *Gymnanthera oblonga*, *Juncus kraussii*, *Ceratopteris thalictroides* and *Cyperus javanicus*. Narrow tidal and supratidal flats landward of and adjoining tidal regional ecosystems on lowlands. Sometimes occurs over broader low-lying, tidally influenced plains. Geologies mapped include Qm (Quaternary coastal mud, silt and minor evaporites), Qhe/m (Holocene mud, sandy mud, muddy sand and minor gravel), Qhcm (Holocene mud and sandy mud), Qhct (Holocene silt, mud and sand) and Qhe/s (Holocene sand, muddy sand, mud and minor gravel). Palustrine. (BVG1M: 22b).

- Short description:** *Melaleuca* spp. and/or *Eucalyptus tereticornis* and/or *Corymbia tessellaris* woodland with a ground stratum of salt tolerant grasses and sedges, usually in a narrow zone adjoining tidal ecosystems
- Supplementary descriptions:** Brushe et al. (in prep), Map Unit 3(8), c3; Ryan et al. (2003), Vegetation unit 8MEa\_1
- Subregions:** 2, 5, 4, 11.14, (3)
- Protected areas:** Cape Palmerston NP, MacKenzie Island CP, Broad Sound Islands NP, West Hill NP, Causeway Lake CP, Sandringham Bay CP
- Extent in reserves:** Low
- Wetland:** Palustrine
- Special values:** 8.1.5: Habitat for the threatened fauna species False Water Rat (*Xeromys myoides*), (listed as "Vulnerable" in the Queensland Nature Conservation Act 1992) and the locally rare species Swamp Rat (*Rattus lutreolus*), and Pale Field Rat (*Rattus tunneyi*). Stronghold for the locally uncommon *Ceratopteris thalictroides*. Habitat for *Eleocharis* spp. which have a very restricted habitat range (e.g. *Eleocharis spiralis*). Habitat for some species which are poorly known from CQC including *Bacopa monnieri* and *Nymphoides exiliflora*.
- Comments:** 8.1.5: Relatively common on inland margins of marine ecosystems, however occurrences are generally small in size. Distinguished from 8.1.4 by occurring on slightly higher ground (only inundated by tidal waters at the highest tides) and by being dominated by tree and shrub species. Similar to the 8.3.13 series, but for 8.1.5 the ground layer is always dominated by saline tolerant species, and it is inundated with brackish waters at highest tides (8.3.13a is not inundated by brackish waters). Relatively common in coastal areas throughout the bioregion, from Proserpine to Cape Manifold. Generally occurs in small or narrow patches. Some areas are in good condition, however some have been dramatically altered by draining and filling for agriculture and industrial development, and the construction of bund walls (which changes the natural fluctuation between brackish water and freshwater). Weed invasion is often a problem, especially *\*Lantana camara*, *\*Leucaena leucocephala*, *\*Megathyrsus maximus*, *\*Dichanthium annulatum*, and *\*Hymenachne amplexicaulis*. Other weeds include *\*Passiflora foetida*, *\*Passiflora suberosa*, *\*P. pallida*, and *\*Mimosa pudica*.
- Estimated extent:**<sup>1</sup> Pre-clearing 1000 ha; Remnant 2021 1000 ha
- VM class:** Of concern
- Biodiversity status:** Endangered
- Biodiversity status notes:** Subject to modification by bunding and earthworks in places.

## Regional ecosystem 8.2.1

**Description:** *Casuarina equisetifolia* subsp. *incana* low woodland (to isolated clumps of trees) and/or dwarf open shrubland to open scrub and/or sparse herbland to herbland, on foredunes. The vegetation is usually zoned according to tidal inundation/exposure, with the herbaceous communities closest to the sea and the open forest to woodland communities furthest. Some foredunes have a well-defined open shrubland to open scrub component. In the *Casuarina equisetifolia* open forest to low woodlands other common species in the canopy or lower tree and shrub layers include *Thespesia populnea*, *Sophora tomentosa*, *Pandanus tectorius*, *Hibiscus tiliaceus*, *Alphitonia excelsa*, *Geijera salicifolia* and *Guilandina bonduc*. Where the ecosystem is growing on a thin layer of sand over a rocky substrate (e.g. South Percy Island), *Allocasuarina littoralis* is a common component. Shrublands (or shrub-layers under *Casuarina equisetifolia*) are frequently dominated by species such as *Vitex trifolia*, *Clerodendron inerme*, *Cupaniopsis anacardioides*, *Indigofera pratensis*, *Colubrina asiatica*, and *Argusia argentea*. Herblands along the exposed strandline (and ground layer beneath *Casuarina equisetifolia*) usually include *Ipomoea pes-caprae* subsp. *brasiliensis*, *Spinifex sericeus*, *Canavalia rosea*, and often also *Thuarea involuta*, *Cyperus pedunculatus*, *Lepturus repens*, *Eragrostis interrupta*, *Eriachne triodioides* and *Vitex rotundifolia*. Occurs on coastal foredunes and strandline. Occasionally occurs on exposed hillslopes (ranging from steep cliffs to plateaus) where the wind has blown a thin layer of beach sand over a rocky substrate. The substrate age is mostly Quaternary Holocene: Qhdf (Holocene quartzose foredune sand), Qr (Quaternary beach ridges and dunes), Qhcb (Holocene quartzose to shelly sand beach ridges and cheniers) and Qhd (Holocene high blow-out quartz dune sand). Not a Wetland. (BVG1M: 28a).

**Short description:** *Casuarina equisetifolia* low woodland and/or sparse herbland to open scrub on foredunes and beaches

**Supplementary descriptions:** Bailey et al. (2003), CCD-2, 8CQ; Batianoff, (1995a), Vegetation community 10; Batianoff, (1996), Map unit 2a,2b,2c,2d; Batianoff and Franks (1997), Vegetation unit 31 SS (in part); Batianoff, Dillewaard and Franks (1997), Vegetation Map Unit 1a, 1b and 3; Bean (1991), Vegetation type 10; Brushe et al. (in prep), c4, c5; Cumming (1997), Vegetation type 29; Kemp (2009) Ca; Nexus Environmental Studies Pty Ltd (1998), Vegetation unit 1e; Pollock and Champion IG (1994), Vegetation Unit A(i); Pollock (2007), Ceh, Ceb; Queensland Herbarium (2008), Ce\_2, Casdw\_2; Ryan et al. (2003), Vegetation unit 8CQ; Warrien and Lavarack (in prep), Vegetation unit 1b; Queensland Herbarium (2008) Casdw\_2, Ce\_2; Pollock 2007 cehs, ce.

**Subregions:** 5, 2, 4, 1, (6), (3)

**Protected areas:** Byfield NP, Whitsunday Islands NP, Broad Sound Islands NP, Keppel Bay Islands NP, Cape Palmerston NP, Percy Isles NP, West Hill NP, Broad Sound Islands Conservation Park, Dryander NP, South Cumberland Islands NP, Bakers Creek CP, Middle Percy Island CP, Gloucester Island NP, Keppel Bay Islands NP (S), Holbourne Island NP, Cape Hillsborough NP, Newry Islands NP, Skull Knob CP, Molle Islands NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.2.1: Provides nesting sites for significant species including the Flat Back Turtle (*Natator depressus*) (Pollock, 1995), and Beach Thick Knee, both are listed as "Vulnerable" in the Queensland Nature Conservation Act 1992. Habitat for the significant species Mongolian Plover, Sooty Oystercatcher, Great Knot, Eastern Curlew, Terek Sandpiper, Bar-tailed Godwit and Ruddy Turnstones (Watkins 1993). At the southern end of the bioregion (near Yeppoon) this ecosystem is possible habitat for *Paspalum batianoffii* listed as "Extinct" in the Queensland Nature Conservation Act 1992.

**Comments:** 8.2.1: Readily distinguished from all other regional ecosystems by the occurrence on foredunes and/or strand (or sand blown up onto adjacent slopes) and dominance of typical foredune species such as *Casuarina equisetifolia* subsp. *incana*, *Spinifex sericeus*, *Canavalia rosea* and *Vitex trifolia*. Occurs along the coastal margin of the entire bioregion, including many islands. Disturbance caused by vehicles, stock, and human traffic readily causes erosion and invasion by weed species, particularly \**Cenchrus echinatus*, \**Melinis repens*, \**Lantana camara*, \**Tridax procumbens*, *Salsola australis*, \**Megathyrsus maximus*, \**Catharanthus roseus*, \**Opuntia stricta*, \**Passiflora suberosa*, \**P. pallida*, \**Cenchrus ciliaris* and \**Stachytarpheta jamaicensis*.

**Estimated extent:**<sup>1</sup> Pre-clearing 1000 ha; Remnant 2021 900 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

## Regional ecosystem 8.2.2

**Description:** Semi-evergreen microphyll vine thicket to vine forest. The canopy is sometimes clumped forming an open scrub to tall shrubland with open areas of bare sand or grassland/herbland. Emergents may include *Mimusops elengi*, *Pleiogynium timorense* and occasionally *Brachychiton australis*. Common canopy species are *Mimusops elengi*, *Diospyros geminata*, *Drypetes deplanchei*, *Aglaia elaeagnoidea*, *Polyalthia nitidissima*, *Ganophyllum falcatum*, *Planchonella pohlmaniana*, *Cupaniopsis anacardioides*, *Sersalisia sericea* and *Sterculia quadrifida*. In some places *Argyrodendron polyandrum* is common in the canopy or as emergents. There is often a lower tree or shrub layer dominated by species such as *Exocarpos latifolius*, *Aidia racemosa*, *Diospyros compacta*, *Diospyros geminata*, *Miliusa brahei*, *Chionanthus ramiflorus*, *Elaeodendron melanocarpum*, *Cupaniopsis anacardioides*, *Sersalisia sericea* and *Micromelum minutum*. *Eugenia reinwardtiana* sometimes forms a lower shrub layer. The ground layer is usually very sparse but may have dense clumps of *Drynaria sparsisora*, or more scattered occurrences of *Crinum pedunculatum*, *Oplismenus aemulus*, *Dianella caerulea* and *Ancistrachne uncinulata*. Vines are common, especially *Trophis scandens*, *Jasminum simplicifolium*, *Cissus oblonga* and *Jasminum didymum*. Epiphytes such as *Dendrobium discolor* are occasionally present. Coastal sand dunes, or ridges of coral or rock formed by wave action. Geologies mapped as Qhcb (Holocene quartzose to shelly sand beach ridges), Qpd (Pleistocene high parabolic quartz sand dunes), Qhd (Holocene high blow-out quartz dune sand), Qhf (Holocene quartzose foredune sand) and Qhcd (Holocene blow-out frontal quartz dune). Not a Wetland. (BVG1M: 3a).

**Short description:** Semi-evergreen microphyll vine thicket to vine forest on coastal dunes

**Supplementary descriptions:** Bailey et al. (2003), CDS-2, 8FS; Bean (1991), Vegetation type 7; Brushe et al. (in prep), Map Unit c7, c8; Batianoff (1992b), Vegetation unit 4; Batianoff 1995, Vegetation type 3; Batianoff (1996) Vegetation type 2c; Batianoff, Dillewaard and Franks (1997), 6; Cali (2008), (entire report); Creighton (1984) CS-1, CS-2, CS-3. Cumming 1997, Vegetation Type 6; McDonald (1995), Group 4; Kemp (2009), Bs; Queensland Herbarium (2008) Abscr\_2

**Subregions:** 5, 2, 6, (3), (1), (4)

**Protected areas:** Byfield NP, Broad Sound Islands NP, Cape Palmerston NP, Percy Isles NP, Northumberland Islands NP, West Hill NP, Whitsunday Islands NP, Gloucester Island NP, Dryander NP, South Cumberland Islands NP, Holbourne Island NP, Skull Knob CP, Bloomsbury CP

**Extent in reserves:** Medium

**Wetland:** Not a Wetland

**Special values:** 8.2.2: Habitat for near threatened plant species *Xylosma ovata* and *Brachychiton compactus*. Habitat for plant species which are poorly known from the Central Queensland Coast bioregion such as *Brachychiton acerifolius*, *Brachychiton bidwillii*, *Caesalpinia crista*, and a few range-restricted species such as *Gossia pubiflora*. Habitat for endemic snails and migratory birds - particularly significant for fruit pigeons.

**Comments:** 8.2.2: Also known as "beach scrubs". Distinguished from most other regional ecosystems by occurring on sand (or sometimes coral, rocks, or boulders formed into ridges by wave action) along the foredune or hind dunes, and consisting of a closed canopy with rainforest species (or clumps of rainforest spp. with areas of open sand). The only other Central Queensland Coast ecosystem on sand (8.2.5) tends to occur in more mesic situations - usually in "sinkholes" in high parabolic dunes where water is accessible to roots, and where palms (*Archontophoenix cunninghamiana*) are usually prominent (and/or species such as *Elaeocarpus eumundi*, *Cryptocarya vulgaris* and *Melicope elleryana*). Occurs in small scattered patches and narrow linear sections, along the coastal margin of the entire bioregion. Also occurs on many islands. Ranges from good to poor. Condition reports for numerous locations are provided in Appendix 3 of Cali (2008). This ecosystem is prone to weed invasion (e.g. *\*Lantana camara*, *\*Catharanthus roseus*, *\*Cenchrus echinatus*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Tridax procumbens*, *\*Psidium guajava*) and impacts of coastal development. It receives high use by recreational vehicles and foot traffic where close to urban development, which causes fragmentation and weed invasion. Fire is a threat to this regional ecosystem.

**Estimated extent:**<sup>1</sup> Pre-clearing 2000 ha; Remnant 2021 2000 ha

**VM class:** Of concern

**Biodiversity status:** Endangered

**Biodiversity status notes:** Remnant areas degraded by weed invasion (e.g. *Catharanthus roseus*, *Cenchrus echinatus*, *Lantana camara*, *Passiflora suberosa* and *Tridax procumbens*) inappropriate fire regime, combined with the impacts of coastal development and recreational uses.

## Regional ecosystem 8.2.3

**Description:** *Allocasuarina littoralis* and/or *Leptospermum neglectum* and/or *Leptospermum polygalifolium* and/or *Baeckea frutescens* dwarf shrubland to low open forest (0.7-8m tall). Dominance and structure varies considerably according to the period of time since it was last burnt (and the intensity of the burn). Other canopy species may include *Leucopogon leptospermoides*, *Allocasuarina torulosa*, *Corymbia intermedia* and *Acacia julifera* subsp. *julifera*. The ground layer is commonly dominated by *Caustis recurvata*, with associated species often including *Schoenus ornithopodioides*, *Pimelea linifolia* subsp. *linifolia*, *Eriachne* sp. and *Trachystylis stradbokensis*. Occurs on eroded parts of parabolic dunes (predominantly Pleistocene age), and whaleback dunes. Also on low coastal parallel sand ridges. Geologies mapped include Qpd (Pleistocene high parabolic quartz sand dunes) and Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits). Not a Wetland. (BVG1M: 28b).

Vegetation communities in this regional ecosystem include:

8.2.3a: *Allocasuarina littoralis* and/or *Leptospermum polygalifolium* and/or *Leptospermum neglectum* dwarf shrubland to low open woodland (0.7-2m tall). Dominance and structure varies considerably according to the period of time since it was last burnt (and the intensity of the burn). Emergents of *Banksia integrifolia* subsp. *compar*, and/or *Corymbia* spp. and/or *Allocasuarina littoralis* may occasionally be present. The canopy is usually dominated by shrubs, but occasionally the dominant layer is a sparse to mid-dense tree layer dominated by *Allocasuarina littoralis*, with associated species sometimes including *A. torulosa*, *Leptospermum polygalifolium* and *Corymbia intermedia*. The more typical shrubby canopy is dominated by species such as *Allocasuarina littoralis*, *Leptospermum polygalifolium*, *Ricinocarpos pinifolius* and *Baeckea frutescens*, with common associated species including *Brachyloma daphnoides*, *Homoranthus virgatus*, *Leptospermum neglectum*, *Banksia integrifolia* subsp. *compar* and *Lithomyrtus obtusa*. The ground layer is commonly dominated by *Caustis recurvata*, and associated species include *Schoenus ornithopodioides*, *Pimelea linifolia* subsp. *linifolia*, *Boronia bipinnata* and *Pseudanthus orientalis*. Occurs on eroded parts of parabolic dunes (predominantly Pleistocene age), and whaleback dunes. Geologies mapped include Qpd (Pleistocene high parabolic quartz sand dunes) and Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits). Not a Wetland. (BVG1M: 28b).

8.2.3d: *Allocasuarina littoralis* and/or *Leptospermum neglectum* and/or *Leptospermum polygalifolium* and/or *Baeckea frutescens* dwarf shrubland to low open forest (1-8m tall). Dominance and structure varies considerably according to the period of time since it was last burnt (and the intensity of the burn). Other associated species in the canopy may include *Leucopogon leptospermoides*, *Acacia julifera* subsp. *curvinervia*, *Lithomyrtus obtusa*, *Phebalium woombye*, *Ricinocarpos pinifolius* and *Banksia robur*. A lower shrub layer is sometimes present, with species typically including *Sprengelia sprengelioides*, *Lithomyrtus obtusa*, *Hibbertia linearis* and *Phyllota phyllicoides*. The ground layer is commonly dominated by *Caustis recurvata*, and associated species may include *Eriachne* sp., *Trachystylis stradbokensis*, *Lithomyrtus obtusa* and *Schoenus yarrabensis*. Low coastal parallel sand ridges. The geology is mapped as Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits). Not a Wetland. (BVG1M: 28b).

**Short description:** *Allocasuarina littoralis* and/or *Leptospermum neglectum* and/or *Leptospermum polygalifolium* and/or *Baeckea frutescens* shrubland on coastal sand ridges, parabolic dunes and whaleback dunes

**Supplementary descriptions:** Brushe et al. (in prep), c11, c11b, c11a, c12a, c12, c12b; Bailey et al. (2003), S-2

**Subregions:** 5, (4)

**Protected areas:** Byfield NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.2.3: Potential habitat for NCA listed species: *Comesperma oblongatum*, *Samadera bidwillii*, *Sowerbaea subtilis*.  
8.2.3a: Habitat for the threatened plant species *Samadera bidwillii*. Potential habitat for threatened plant species *Sowerbaea subtilis*. Habitat for numerous plant species at the northern limit of their range, including *Phebalium woombye*, *Platysace linearifolia*, *Caustis recurvata*, *Brachyloma daphnoides*, *Homoranthus virgatus*, *Phyllota phyllicoides*, *Ochrosperma lineare*, *Pseudanthus orientalis*, *Persoonia virgata*, *Hibbertia vestita*, *Aotus lanigera*, *Gompholobium virgatum*, *Zieria laxiflora*, *Baloskion pallens*, *Jacksonia stackhousei*, *Cryptostylis erecta* and *Xanthorrhoea fulva*.  
8.2.3d: Habitat for the vulnerable plant species *Sowerbaea subtilis*. Habitat for numerous species at the northern limit of their range, including *Brachyloma daphnoides*, *Phebalium woombye*, *Homoranthus virgatus*, *Platysace linearifolia*, *Persoonia virgata*, *Phyllota phyllicoides*, *Pseudanthus orientalis*, *Sprengelia sprengelioides*, *Caustis recurvata*, *Baloskion pallens*, *Ochrosperma lineare* and *Xanthorrhoea fulva*.



<b>Comments:</b>	<p>8.2.3a: Frequency and intensity of burning is the main driver of structure and successional state of this dynamic vegetation community. Very similar to 8.2.8d in species composition and structure but is distinguished from this by occurring on parabolic and whaleback dunes (as opposed to low sand ridges) and by occurring in slightly better drained situations than 8.2.3d. Distinguished from 8.2.12b by occurring on parabolic (instead of low parallel) dunes. Distinguished from the 8.2.4 series by the lack of a peat layer and occurring in more elevated, drier sites (8.2.4 series are swamps). May sometimes be similar to the 8.2.14 series (especially 8.2.14c) however this occurs on Holocene age parabolic dunes (instead of Pleistocene) and tends to be less heath-like (or in the case of 8.2.14c dominated by <i>Acacia</i> spp.). Occurs in subregions 4 and 5, from Townshend Island, south to Corio Bay. It is most extensive in an area west of Cape Manifold to Stockyard Point. Subject to damage by wildfire, particularly in late spring to early summer. Over-frequent fire can adversely affect the species composition by favouring fire-tolerant species. The steep dunes are highly erodible and can be readily damaged by 4WD activities, but currently in good condition. Weed invasion is minimal but some areas have been badly damaged by 4WD tracks.</p> <p>8.2.3d: Similar in species composition and structure to 8.2.3a but occurs on low parallel sand ridges (as opposed to elevated whaleback dunes and eroded parts of parabolics) and is more poorly drained than 8.2.3a. Can be very similar to 8.2.12b which tends to be more <i>Acacia</i> dominated. Distinguished from the 8.2.4 series by the lack of a peat layer and occurring in slightly more elevated, drier sites (8.2.4 series are swamps). May sometimes be similar to the 8.2.14 series (especially 8.2.14c) however this occurs on parabolic dunes (instead of parallel dunes) and tends to be less heath-like (or in the case of 8.2.14c dominated by <i>Acacia</i> spp.). Restricted to the Clinton Low Lands, within Port Clinton in the Shoalwater Bay Military Training Area. Subject to damage by wildfire, particularly in late spring to early summer. Over-frequent fire can adversely affect the species composition by favouring fire-tolerant species. The steep dunes are highly erodible and can be readily damaged by 4WD activities, but currently in good condition. Weed invasion is minimal but some areas have been badly damaged by 4WD tracks.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 6000 ha; Remnant 2021 6000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

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## Regional ecosystem 8.2.4

**Description:** *Lepironia articulata* and/or *Machaerina* spp. and/or other Restionaceae and Cyperaceae spp. open sedgeland to closed sedgeland (0.5-1.8m tall), or dwarf shrubland to closed heath (0.5-1.8m tall). *Melaleuca quinquenervia* or *M. viridiflora* var. *viridiflora* (or *M. viridiflora* var. *attenuata*) woodland to open shrubland (to open forest) is sometimes associated (often as a narrow border on the edge of the swamp). Typical dominant and associated lower shrub and ground layers include *Machaerina teretifolia*, *B. rubiginosa*, *Empodisma minus*, *Gahnia sieberiana*, *Schoenus calostachyus*, *Blechnum indicum*, *Leptospermum polygalifolium*, *Sprengelia sprengelioides*, *Banksia robur*, *Baeckea frutescens*, *Baloskion pallens* and *Sowerbaea subtilis*. Swampy sand plains and lagoons with a shallow to deep peat layer overlying quartz sands. The geology is mapped as Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits) and Qpd (Pleistocene high parabolic quartz sand dunes). Palustrine. (BVG1M: 34c).

Vegetation communities in this regional ecosystem include:

8.2.4a: *Lepironia articulata* and/or *Machaerina* spp. and/or other Restionaceae and Cyperaceae spp. open sedgeland to closed sedgeland (0.5-1.8m tall). The dominants are usually one or several of *Lepironia articulata*, *Machaerina teretifolia*, *M. rubiginosa*, *Empodisma minus* or other Restionaceae spp. Other common species include *Gahnia sieberiana*, *Schoenus calostachyus*, *Blechnum indicum*, *Cyperus haspan*, *Drosera binata*, *Utricularia biloba*, *Xyris juncea*, *Drosera spatulata*, *Epacris microphylla*, *Philydrum lanuginosum*, *Lepidosperma longitudinale*, *Cassytha* sp., and *Ceratopteris thalictroides*. Emergents of *Melaleuca quinquenervia*, *Gahnia sieberiana* or *Banksia robur* are sometimes present (often around the drier edges of the swamps). Lagoons with a shallow to deep peat layer overlying quartz sands, on coastal sand plains or low parallel dune swales. The geology is mapped as Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits). Palustrine. (BVG1M: 34c).

8.2.4b: Dwarf shrubland to closed heath (0.5-1.8m tall). Woody species often dominate, or if sedges are dominant, woody species are a significant component. For sites with a well-defined shrub-layer, dominant species may include *Leptospermum polygalifolium*, *Sprengelia sprengelioides*, *Banksia robur* and *Baeckea frutescens* (or these may be present as emergents over a ground layer). When the ground layer is the ecologically dominant layer, dominant species may include *Schoenus calostachyus*, *Baloskion pallens*, *Sprengelia sprengelioides*, *Sowerbaea subtilis*, *Empodisma minus*, *Baumea rubiginosa*, *Blechnum indicum*, *Lithomyrtus obtusa*, *Lepironia articulata*, *Jacksonia stackhousei*, *Dapsilanthus ramosus*, *Schoenus ornithopodioides* and *Xanthorrhoea fulva*. Swamp sand plains with a shallow to deep peat layer overlying quartz sands, on coastal sand plains, or low parallel dune swales. The geology is mapped as Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits) and Qpd (Pleistocene high parabolic quartz sand dunes). Palustrine. (BVG1M: 34c).

8.2.4c: *Melaleuca quinquenervia* or *M. viridiflora* var. *viridiflora* or *M. viridiflora* var. *attenuata* woodland to open shrubland (to open forest) (1-14m tall). A tree layer is usually present (or may be present as emergents), and includes *M. quinquenervia* and/or *M. viridiflora*, with occasional to common associated species including *Eucalyptus latisinensis*, *Corymbia intermedia* and *Banksia integrifolia*. There are occasionally lower tree layers present which are commonly dominated by species such as *Melaleuca quinquenervia*, *Leptospermum polygalifolium* and *Acacia* spp. There is often a shrub layer, with common dominants including *Banksia robur*, *Leptospermum polygalifolium*, *Persoonia virgata* and *Leucopogon leptospermoides*. The ground layer is dominated by species such as *Baloskion pallens*, *Eriachne* sp., *Schoenus calostachyus* and *Baeckea frutescens*. Swampy sand plains with a shallow to deep peat layer overlying quartz sands. The geology is mapped as Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits) and Qpd (Pleistocene high parabolic quartz sand dunes). Palustrine. (BVG1M: 22a).

**Short description:** Sedgeland or closed heath or *Melaleuca* spp. open shrubland to open forest on swampy sand plains with peat

**Supplementary descriptions:** Brushe et al. (in prep), c22, c23, c24.

**Subregions:** 5, (4), (2), (11.14)

**Protected areas:** Byfield NP

**Extent in reserves:** High

**Wetland:** Palustrine

<b>Special values:</b>	<p>8.2.4: Potential habitat for NCA listed species: <i>Sowerbaea subtilis</i>.</p> <p>8.2.4a: The presence of a shallow to very deep peat layer is significant due to its rarity - particularly in the Central Queensland Coast Bioregion. Habitat for the vulnerable plant species <i>Sowerbaea subtilis</i>, which is known only from the Shoalwater area. Habitat for several species at the northern limit of their range, including <i>Empodisma minus</i>, <i>Baloskion pallens</i>, <i>Drosera binata</i>, <i>Epacris microphylla</i>, <i>Lepidosperma longitudinale</i> and <i>Utricularia biloba</i>.</p> <p>8.2.4b: The presence of a shallow to very deep peat layer is significant due to its rarity - particularly in the Central Queensland Coast Bioregion. Habitat for the vulnerable plant species <i>Sowerbaea subtilis</i> which is known only from the Shoalwater area. Habitat for a large number of species at the northern limit of their range, including <i>Baloskion pallens</i>, <i>Patersonia sericea</i>, <i>Patersonia fragilis</i>, <i>Empodisma minus</i>, <i>Sprengelia sprengelioides</i>, <i>Aotus lanigera</i>, <i>Mirbelia rubiifolia</i>, <i>Phyllota phyllicoides</i>, <i>Baumea muelleri</i>, <i>Brachyloma daphnoides</i>, <i>Caustis recurvata</i>, <i>Drosera binata</i>, <i>Epacris microphylla</i>, <i>Hibbertia salicifolia</i>, <i>Homoranthus virgatus</i>, <i>Jacksonia stackhousei</i>, <i>Patersonia fragilis</i>, <i>Platysace linearifolia</i>, <i>Persoonia virgata</i>, <i>Pseudanthus orientalis</i>, <i>Utricularia biloba</i>, <i>Zieria laxiflora</i>, <i>Cassytha glabella</i>, <i>Ochrosperma lineare</i>, <i>Patersonia sericea</i>, <i>Phebalium woombye</i>, <i>Schoenus paludosus</i>, <i>Sporadanthus interruptus</i> and <i>Xanthorrhoea fulva</i>.</p> <p>8.2.4c: The presence of a shallow to very deep peat layer is significant due to its rarity - particularly in the Central Queensland Coast Bioregion. Habitat for the vulnerable plant species <i>Sowerbaea subtilis</i> which is known only from the Shoalwater area. Habitat for a large number of species at the northern limit of their range, including <i>Baloskion pallens</i>, <i>Platysace linearifolia</i>, <i>Pseudanthus orientalis</i>, <i>Aotus lanigera</i>, <i>Caustis recurvata</i>, <i>Ochrosperma lineare</i>, <i>Phyllota phyllicoides</i>, <i>Xanthorrhoea fulva</i>, <i>Brachyloma daphnoides</i>, <i>Empodisma minus</i>, <i>Homoranthus virgatus</i>, <i>Hovea clavata</i>, <i>Marsdenia fraseri</i>, <i>Mirbelia rubiifolia</i>, <i>Sprengelia sprengelioides</i> and <i>Zieria laxiflora</i>.</p>
<b>Comments:</b>	<p>8.2.4a: The community 8.2.4b is closely related and also occurs on peat but occurs on slightly drier sites and is dominated by shrubs such as <i>Sprengelia sprengelioides</i>. Small occurrences of sedgelands within other Land Zone 2 regional ecosystems (e.g. the 8.2.7 series and 8.2.11) may be similar in species composition but are considered a part of the ecosystem which surrounds them. Other sedgeland dominated regional ecosystems in the bioregion occur on different land zones. Occurs in subregion 5 within the Shoalwater Bay Military Training Area in the Island Head Creek and Port Clinton areas. Many years of drought has possibly caused a drying out of these swamps to the point where shrub species (such as <i>Banksia robur</i>) are invading, and the peat layer is possibly being damaged though long-term drying or fire. This ecosystem is naturally resistant to weed invasion (providing it is not heavily affected by drought) and currently there are few weeds.</p> <p>8.2.4b: The community 8.2.4a is closely related and also occurs on peat but occurs on slightly wetter sites and is always dominated by sedges, with a low proportion of woody species. Small occurrences of similar vegetation within other Land Zone 2 regional ecosystems (e.g. the 8.2.7 series and 8.2.11) may be similar in species composition but are considered a part of the ecosystem which surrounds them. Occurs in subregion 5 on Townshend Island, Clinton Low Lands, and in an area from Cliff Point inland and south to Corio Bay. Many years of drought has possibly caused a drying out of these swamps to the point where shrub species (such as <i>Banksia robur</i>) are invading, and the peat layer is possibly being damaged though long-term drying or fire. This ecosystem is naturally resistant to weed invasion (providing it is not heavily affected by drought) and currently there are few weeds.</p> <p>8.2.4c: The community 8.2.4a and 8.2.4b are closely related and also occur on peat but they lack a <i>Melaleuca</i> canopy. Can generally be distinguished from most other regional ecosystems by its wet heath ground stratum on peat and its strong association with 8.2.4a and 8.2.4b (at least one of which is usually adjacent). Occurs only within subregion 5 in the Shoalwater Bay Military Training Area. Mapped in the Island Head Creek and Port Clinton areas. Also occurs in an area to the south of Port Clinton, about 10km west of Cape Manifold. Many years of drought has possibly caused a drying out of these swamps to the point where shrub species (such as <i>Banksia robur</i>) are invading, and the peat layer is possibly being damaged though long-term drying or fire. This ecosystem is naturally resistant to weed invasion (providing it is not heavily affected by drought) and currently there are few weeds.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 2000 ha; Remnant 2021 2000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.2.5

**Description:** Evergreen notophyll vine forest. Emergents of *Archontophoenix cunninghamiana* and/or *Elaeocarpus eumundi* may be present. The canopy includes species such as *Endiandra sieberi*, *Cryptocarya vulgaris*, *Elaeocarpus eumundi*, *Syzygium oleosum*, *Archontophoenix cunninghamiana*, *Livistona decora*, *Calophyllum inophyllum*, *Mischocarpus pyramidalis* and *Elaeocarpus grandis*. The sub-canopy consists of species such as *Acronychia laevis*, *Melicope elleryana*, *Polyscias australiana*, *Chionanthus ramiflorus*, *Acacia flavescens*, *Polyscias australiana* and *Scolopia braunii*. Lower tree and shrub layers often include *Syzygium oleosum*, *Carallia brachiata*, *Mackinlaya macrosiadea*, *Cyathea rebecca*, *Hibiscus heterophyllus*, *Cordyline petiolaris* and *Alyxia ruscifolia*. The ground layer is very sparse and includes *Lindsaea ensifolia*, *Schizaea dichotoma*, *Scleria terrestris* and *Dianella caerulea*. Common vines are *Freycinetia scandens*, *Piper hederaceum*, *Smilax glycyphylla* and *Flagellaria indica*. Epiphytes include *Drynaria rigidula* and *Dendrobium discolor*. Occurs on parabolic dunes, often in depressions or gullies where water accumulates or flows above or beneath the surface. (The depression formations are known as "sinkholes"). Geology mapped as Qpd (Pleistocene high parabolic quartz sand dunes). Not a Wetland. (BVG1M: 4a).

<b>Short description:</b>	Evergreen notophyll <i>Archontophoenix cunninghamiana</i> vine forest in deep depressions and narrow gullies on coastal parabolic dunes
<b>Supplementary descriptions:</b>	Bailey et al. (2003), RF-2; Brushe et al. (in prep), Map Unit c17; McDonald (1995), Group 12
<b>Subregions:</b>	5
<b>Protected areas:</b>	Byfield NP
<b>Extent in reserves:</b>	Medium
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	8.2.5: Habitat for vulnerable plant species <i>Samadera bidwillii</i> . Also habitat for death adders and fruit pigeons. A naturally restricted ecosystem.
<b>Comments:</b>	8.2.5: This regional ecosystem has close affinities with notophyll rainforest of dune sands in the Southeast Queensland bioregion. Distinguished from most other regional ecosystems in the Central Queensland Coast bioregion by occurring on sand dunes and consisting of a more or less closed canopy with rainforest species. The other (more widespread) CQC ecosystem on sand (8.2.2) occurs along foredunes or hind dunes in much harsher situations, often exposed to salt-laden winds, and where species such as <i>Mimusops elengi</i> , <i>Diospyros geminata</i> and <i>Pleiogynium timorense</i> dominate. Occurs in subregion 5 from Island Head Creek south to Stockyard Point (10km north of Corio Bay). Threatening processes include recreational four-wheel-driving in the Three Rivers area. Some examples have weeds such as <i>*Lantana camara</i> and <i>*Passiflora suberosa</i> , <i>*P. pallida</i> .
<b>Estimated extent:<sup>1</sup></b>	Pre-clearing 200 ha; Remnant 2021 200 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.2.6

**Description:** *Corymbia tessellaris* open forest to low woodland. *Acacia leptocarpa* and/or *Allocasuarina littoralis* and/or *Banksia integrifolia* are occasionally present as a codominant or subdominant canopy tree. There is sometimes a well-developed secondary tree layer of beach scrub species. Alternatively the secondary tree layer may include *Acacia leptocarpa*, *A. disparrima*, *A. flavescens* and *Banksia integrifolia* subsp. *compar*. There is occasionally a shrub layer, commonly consisting of species such as *Jasminum* spp., *Xanthorrhoea* sp., *Planchonia careya* and saplings from upper layers. The ground layer may be dominated by species such as *Jasminum didymum*, *Stephania japonica*, *Imperata cylindrica* and *Lomandra longifolia*. Occurs on parallel dunes. Geologies include: Qhcb (Holocene quartzose to shelly sand beach ridges), Qr (Quaternary beach ridges and dunes) and Qpcb (Pleistocene quartzose to Shelley sand, coquina: older coastal beach ridges, cheniers). Not a Wetland. (BVG1M: 9e).

Vegetation communities in this regional ecosystem include:

8.2.6a: *Corymbia tessellaris* open forest to low woodland. *Acacia leptocarpa* and/or *Allocasuarina littoralis* are occasionally present as a co-dominant or subdominant canopy tree. *Corymbia clarksoniana* may be a minor component of the canopy. A very sparse to mid-dense sub-canopy tree layer is often present, with typical species including *Acacia leptocarpa*, *Banksia integrifolia* subsp. *compar*, *Planchonia careya* and *Pandanus cookii*. There is often a minor to well-developed rainforest component in the sub-canopy and common species are *Cupaniopsis anacardioides*, *Alphitonia excelsa*, *Exocarpos cupressiformis*, *Terminalia muelleri*, *Chionanthus ramiflorus*, *Euroschinus falcatus*, *Millettia pinnata*, *Acronychia laevis* and *Pleiogynium timorense*. A scattered

low tree layer may also be present containing species similar to the sub-canopy. A very sparse shrub layer may be present and common species are *Xanthorrhoea* sp., *Glochidion lobocarpum*, *Lithomyrtus obtusa* and *Jasminum* spp. The very sparse ground layer may include *Lomandra longifolia*, *Imperata cylindrica*, *Heteropogon triticeus*, *Themeda triandra*, *Lithomyrtus obtusa*, *Jasminum* spp., and *Cyperus* spp. This ecosystem may include very narrow (a few m wide) minor swales dominated by *Melaleuca* spp. (well-developed examples of such swales are mapped as other ecosystems). Occurs on parallel dunes (subregions 2 and 6). Geologies include: Qhcb (Holocene quartzose to shelly sand beach ridges), Qr (Quaternary beach ridges and dunes) and Qpcb (Pleistocene quartzose to shelly sand, coquina: older coastal beach ridges, cheniers). Not a Wetland. (BVG1M: 9e).

8.2.6b: *Corymbia tessellaris* open forest to woodland (9-20m tall). There is sometimes a well-developed secondary tree layer of rainforest species (sometimes reaching the canopy) including *Jagera pseudorhus*, *Cupaniopsis anacardioides*, *Chionanthus ramiflorus*, *Ficus rubiginosa*, *Ficus virens* and *Heptapleurum actinophyllum*. Alternatively the secondary tree layer may be dominated by sclerophyllous species such as *Banksia integrifolia* subsp. *compar*, *Acacia disparrima* subsp. *disparrima*, *A. flavescens* and *Petalostigma pubescens*. *Livistona decora* is sometimes present as an emergent or associated species in any of the layers. There is occasionally a shrub layer, commonly consisting of species such as *Jasminum* spp., *Planchonia careya* and saplings from upper layers. The ground layer can be dominated by species such as *Jasminum* spp., *Pteridium esculentum*, *Stephania japonica*, *Imperata cylindrica* and *Oplismenus aemulus*. Occurs on parallel dunes (subregion 4 and 5). Geologies include: Qhcb (Holocene quartzose to shelly sand beach ridges), Qhcd (Holocene blow-out frontal quartz dune), Qpcb (Pleistocene quartzose to shelly sand, coquina: older coastal beach ridges, cheniers) and Qhf (Holocene quartzose foredune sand). Not a Wetland. (BVG1M: 9e).

8.2.6x1a: [RE not in use]<sup>2</sup>: This vegetation community is now mapped as 8.2.6b. *Banksia integrifolia* subsp. *compar*, rainforest spp. open shrubland to open scrub and open forest. *Allocasuarina littoralis* and/or *Casuarina equisetifolia* may sometimes be codominant or prominent. Occurs in the form of a mosaic of very small groves of rainforest, *Allocasuarina littoralis*/*Banksia integrifolia* shrublands, and little stands of *Casuarina equisetifolia*, interspersed with areas of open, unstable sand. Scattered *Livistona decora* are a prominent feature. Common dominant or associated species include *Jasminum simplicifolium*, *Cupaniopsis anacardioides*, *Melaleuca leucadendra*, *Dodonaea viscosa* subsp. *viscosa* and *Exocarpos latifolius*. The ground layer is very sparse and may include *Imperata cylindrica*, *Dianella caerulea*, *Eragrostis interrupta*, *Cymbopogon refractus*, and areas of bare sand. Occurs on Holocene parabolic dunes (subregion 5). Not a Wetland. (BVG1M: 9e).

8.2.6x1b: [RE not in use]<sup>2</sup>: This vegetation community is now mapped as 8.2.6a. *Corymbia tessellaris*, *Banksia integrifolia* subsp. *compar* low open forest to low woodland. There is usually a rainforest component in the canopy, often including *Jagera pseudorhus* var. *pseudorhus* and *Euroschinus falcatus*. sub-canopy tree layers are sparse to mid-dense and usually dominated by *Banksia integrifolia* subsp. *compar*, *Corymbia tessellaris*, *Jagera pseudorhus* var. *pseudorhus*, and *Planchonia careya*. A very sparse to sparse shrub layer typically includes *Xanthorrhoea johnsonii* and juvenile rainforest species. The ground layer is very sparse and typically dominated by *Heteropogon triticeus* and *Imperata cylindrica*. Occurs on mid to upper slopes and crests of Holocene parabolic dunes (subregion 2). Geologies include Qhd (Holocene high blow-out quartz dune sand) and Qhcb (Holocene quartzose to shelly sand beach ridges). Not a Wetland. (BVG1M: 9e).

8.2.6x1c: [RE not in use]<sup>2</sup>: This vegetation community is now mapped as 8.2.6b. *Acacia disparrima* subsp. *disparrima* shrubland to closed scrub to woodland. *Leptospermum neglectum* and/or *Casuarina equisetifolia* may sometimes be codominant or prominent. Other associated canopy species may include *Acacia julifera*, *Grevillea banksii*, *Lithomyrtus obtusa*, *Alphitonia excelsa* and *Exocarpos cupressiformis*. The ground layer is very sparse, and dominants include *Imperata cylindrica*, *Eragrostis* sp., *Coronidium rupicola* and *Jasminum didymum*. Occurs on Holocene parabolic dunes. Subregion 5. Not a Wetland. (BVG1M: 9e).

**Short description:** *Corymbia tessellaris* +/- *Acacia leptocarpa* +/- *Allocasuarina littoralis* +/- *Banksia integrifolia* +/- rainforest species open forest on parallel dunes

**Supplementary descriptions:**

**Subregions:** 2, 5, 6, (4), (11.14), (3)

**Protected areas:** Cape Palmerston NP, West Hill NP, Bakers Creek CP, Broad Sound Islands NP, Keppel Bay Islands NP, Skull Knob CP, Cape Hillsborough NP, Newry Islands NP, Dryander NP, Byfield NP, Bloomsbury CP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:**

8.2.6: Potential habitat for NCA listed species: *Livistona drudei*.

8.2.6a: Potential habitat for the vulnerable species *Livistona drudei*. The only known records for this species in the Central Queensland Coast lie in the adjacent RE 8.12.13a on a sandy creekline. Habitat for the locally rare species *Acacia dietrichiana* (Pollock, 1995). Habitat for the Grey Goshawk and Beach Thick-knee.

8.2.6x1a: Habitat for *Zoysia macrantha* subsp. *macrantha* which is at the northern limit of its range here.

8.2.6x1c: The record of *Coronidium rupicola* from this ecosystem is a significant southern outlier.

**Comments:**

8.2.6a: Distinguished from the very closely related 8.2.6b by distribution (8.2.6a is in subregions 2 and 6, while 8.2.6b is in subregion 5). Similar to 8.2.14b and 8.2.8a but 8.2.6a occurs on parallel dunes, whilst 8.2.14b and 8.2.8a occur on parabolic dunes. The regional ecosystems 8.2.13a and 8.2.13b can be similar to 8.2.6a but they occur in broad, flat, low-lying swampy areas and are always codominated by *Melaleuca* spp. The RE 8.2.6a is distinguished from all other Land Zone 2 regional ecosystems by the dominance of *Corymbia tessellaris* (or *Allocasuarina littoralis*). 8.2.6x1b has been amalgamated into this vegetation community. Occurs in subregion 2 and 6 in scattered patches along coastal areas. In the north it is found from near Mount Maria (15km south-east of Bowen) to 5km east of Dingo Beach. It also occurs from Conway Beach north to Clairview Bluff and on some islands. Dune forests are naturally restricted communities which are vulnerable to erosion and weed invasion, and a large proportion of the area mapped is in moderate to poor condition due to these factors. Threatening processes include clearing for coastal residential and tourist development, and for grazing or agricultural lands, and disturbance by recreational vehicles. Fire is also a threat. Problem weeds include *\*Lantana camara*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Triumfetta rhomboidea*, *\*Digitaria didactyla*, *\*Megathyrsus maximus*, *\*Melinis repens*, *\*Stylosanthes humilis* and *\*Tridax procumbens*.

8.2.6b: Distinguished from the very closely related 8.2.6a by distribution (8.2.6a is in subregions 2 and 6, while 8.2.6b is in subregion 5). Similar to 8.2.14b and 8.2.8a but 8.2.6b occurs on parallel dunes, whilst 8.2.14b and 8.2.8a occur on parabolic dunes. The regional ecosystems 8.2.13a and 8.2.13b can be similar to 8.2.6b but they occur in broad, flat, low-lying swampy areas and are always codominated by *Melaleuca* spp. The RE 8.2.6b is distinguished from all other Land Zone 2 regional ecosystems by the dominance of *Corymbia tessellaris*. 8.2.6x1a and 8.2.6x1c has been amalgamated into this vegetation community. Occurs in subregion 5, from Reef Point south to the mouth of Island Head Creek and from Corio Bay to Rosslyn Bay (just south of Yeppoon). Also found on North Keppel Island (Subregion 4). Dune forests are naturally restricted communities which are vulnerable to erosion and weed invasion, and some of the area mapped is in moderate to poor condition due to these factors. Threatening processes include clearing for coastal residential and tourist development, and for grazing or agricultural lands, and disturbance by recreational vehicles. Fire is also a threat. Common weed species include *\*Lantana camara*, *\*Opuntia stricta*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Rivina humilis*, *\*Triumfetta rhomboidea* and *\*Solanum nodiflorum*.

8.2.6x1a: 8.2.14a is distinguished from all other regional ecosystems by a combination of its occurrence in subregion 5 only, its occurrence on unstable Holocene age parabolic dunes and the presence of a fine mosaic of vine scrubs and *Allocasuarina littoralis*/*Banksia integrifolia* shrublands. Occurs mainly in subregion 5 adjacent to the coast from Island Head Creek to Corio Bay. Also occurs on Great Keppel Island. Dune forests are naturally restricted communities which are vulnerable to erosion and weed invasion, and this ecosystem is particularly vulnerable due to its occurrence on unstable sections of parallel dunes and the naturally occurring areas of unvegetated sand. The weeds *\*Opuntia stricta* and *\*Lantana camara* are currently the most serious threat.

8.2.6x1b: 8.2.14b is distinguished from 8.2.8a by its occurrence on Holocene parabolic dunes (8.2.8a occurs on Pleistocene parabolics) and by its shorter stature and lack of other eucalypt or *Corymbia* spp. Distinguished from 8.2.6a and 8.2.6b by its occurrence on parabolic dunes (8.2.6a and 8.2.6b occur on parallel dunes). The regional ecosystems 8.2.13a and 8.2.13b differ by occurring in broad, flat, low-lying swampy areas, are always codominated by *Melaleuca* spp. and have a much taller stature. The RE 8.2.14b is distinguished from all other Land Zone 2 regional ecosystems by the dominance of *Corymbia tessellaris*. Occurs in the Slade Point area, North Mackay, subregion 2, and also on Great Keppel Island. Dune forests are naturally restricted communities which are vulnerable to erosion and weed invasion, however the current condition of this community is thought to be reasonably good. This ecosystem naturally occurs on an unstable section of the parabolic dune and is therefore especially prone to erosion. Other threatening processes include clearing for coastal residential and tourist development, and for grazing or agricultural lands, and disturbance by recreational vehicles. Fire is also a threat. The weeds *\*Lantana camara* and *\*Passiflora suberosa*, *\*P. pallida* are currently common.

8.2.6x1c: 8.2.14c is distinguished from all other regional ecosystems by a combination of its occurrence in subregion 5 only, its occurrence on unstable Holocene age parabolic dunes and the dominance of *Acacia disparrima* subsp. *disparrima*. Occurs in subregion 5, along the coast from the mouth of Island Head Creek to Corio Bay. Dune forests are naturally restricted communities which are vulnerable to erosion and weed invasion, however the current condition of this community is thought to be reasonably good. Weed species which pose a threat include *\*Lantana camara*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Passiflora foetida* and *\*Opuntia stricta*.

**Estimated extent:<sup>1</sup>**

Pre-clearing 7000 ha; Remnant 2021 5000 ha

**VM class:**

Of concern

**Biodiversity status:**

Of concern

## Regional ecosystem 8.2.7

**Description:** *Melaleuca* spp. and/or *Lophostemon suaveolens* and/or *Eucalyptus robusta* open forest to woodland to open scrub (5-25m tall). Includes pure stands of individual *Melaleuca* spp., or mixed *Melaleuca* communities, or *Eucalyptus robusta* with *M. quinquenervia*, or *Lophostemon* spp. dominated communities. Associated canopy species may include *Corymbia tessellaris*, *Nauclea orientalis*, *Banksia robur* and *Pandanus* spp. There are occasionally lower tree and shrub layers which may include species such as *Melaleuca* spp., *Banksia* spp. and *Acacia* spp. The ground layer is very variable ranging from very sparse to dense, and may be fern dominated, sedge dominated or grass/forb dominated. Occurs in low lying areas and swales, associated with parabolic dunes systems. Geologies include Qpd (Pleistocene high parabolic quartz sand dunes), Qr (Quaternary clay, silt and sand), Qr, Tw (Qr, Water Park Creek beds; Quaternary sand), Qpcb (Pleistocene quartzose to shelly sand) and Qhcb (Holocene quartzose to shelly sand beach ridges). Contains Palustrine. (BVG1M: 22b).

Vegetation communities in this regional ecosystem include:

8.2.7a: *Melaleuca leucadendra* open forest to closed forest (10-25m tall). *Nauclea orientalis* and *Corymbia tessellaris* may occur as an occasional canopy tree. There are frequently very sparse sub-canopy tree layers consisting mainly of *Melaleuca leucadendra* with occasional *Melaleuca viridiflora* var. *attenuata* and scattered rainforest pioneers. The ground layer is very variable and includes very sparse to mid-dense assemblages, sometimes dominated by ferns including *Blechnum indicum*, *Cyclosorus interruptus*, and *Lygodium microphyllum*, or dominated by grasses such as *Imperata cylindrica*, *Leersia hexandra* and *Chrysopogon filipes*, or by sedges such as *Cyperus javanicus* and other *Cyperus* and *Fimbristylis* spp. Near-coastal wetlands, usually associated with parabolic dune systems (subregion 2). Soils often have a thick humic surface layer, and are most likely a mixture of dune sands, alluvium and estuarine material. Geology mapped as Qpcb (Pleistocene quartzose to shelly sand), Qhcb (Holocene quartzose to shelly sand beach ridges) and Qhd (Holocene high blow-out quartz dune sand). Palustrine. (BVG1M: 22b).

8.2.7b: *Eucalyptus robusta*, *Melaleuca quinquenervia* open forest to open woodland (7-16m tall). Occasional associated species in the canopy may include *Banksia robur*, *Pandanus tectorius* and *Corymbia tessellaris*. There is sometimes a very sparse secondary tree layer, with dominant and associated species including *Eucalyptus robusta*, *Melaleuca quinquenervia*, *Banksia robur* and *Acacia* spp. A sparse to dense shrub layer may be present, including dense stands of *Leptospermum polygalifolium*, with associated species including *Banksia robur*, *Melastoma malabathricum* subsp. *malabathricum*, *Grevillea banksii* and *Blechnum indicum*. The ground layer is sparse to mid-dense and may be dominated by species such as *Empodisma minus*, *Blechnum indicum*, *Gahnia sieberiana*, *Lomandra longifolia* and *Pteridium esculentum*. Occurs in low lying areas associated with parabolic dunes (usually on the leeward side of large parabolic dune masses) (subregions 4 and 5). Geology is mapped as Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits), Qr, Tw (Qr, Water Park Creek beds; Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits) and Qpd (Pleistocene high parabolic quartz sand dunes). Palustrine. (BVG1M: 22b).

8.2.7c: *Lophostemon suaveolens* closed forest to woodland (11-16m tall). *Melaleuca quinquenervia* is sometimes codominant in the canopy. Other associated canopy species may include *Lophostemon confertus*, *Corymbia tessellaris* and *Melaleuca dealbata*. There are sometimes very sparse to mid-dense secondary and tertiary tree layers, with dominants including *Allocasuarina littoralis*, *Acacia disparrima* subsp. *disparrima*, *Banksia integrifolia* and *Livistona decora*. A shrub layer may be present, with dominant species including *Grevillea banksii*, *Cupaniopsis anacardioides*, *Acacia flavescens* and *Hovea* sp. The ground layer may be dominated by species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Imperata cylindrica*, *Themeda triandra*, *Stephania japonica* and *Dianella caerulea*. Low-lying areas associated with parabolic dunes (subregions 4 and 5). Geology is mapped as Qpd (Pleistocene high parabolic quartz sand dunes). Palustrine. (BVG1M: 9e).

8.2.7e: *Melaleuca quinquenervia* and/or *M. leucadendra* and/or *M. dealbata* and/or *M. viridiflora* var. *attenuata* open forest to open scrub (to closed forest) (5-18m tall). Occasional associated canopy species or emergents may include *Lophostemon suaveolens*, *Corymbia tessellaris* and *Banksia integrifolia* subsp. *compar*. A very sparse to mid-dense secondary tree layer (and rarely a tertiary tree layer) is sometimes present and may be dominated by species such as *Melaleuca* spp., *Acacia julifera*, *Banksia integrifolia* subsp. *compar*, *Planchonia careya* and *Acacia flavescens*. The shrub layer when present consists only of isolated plants such as occasional *Lithomyrtus obtusa* and *Banksia robur*. The ground layer is very variable and ranges from being fern dominated, sedge dominated or grass/forb dominated. Dominant species may include *Blechnum indicum*, *Imperata cylindrica*, *Balioskion pallens*, *Lomandra confertifolia*, *Lindsaea ensifolia*, *Pteridium esculentum* and *Cyperus enervis*. Occurs in near-coastal wetlands and swales associated with parabolic dunes (all coastal subregions). Mapped geologies include Qpd (Pleistocene high parabolic quartz sand dunes), Qr (Quaternary clay, silt and sand), Qhcb (Holocene quartzose to shelly sand beach ridges), Qpcb (Pleistocene quartzose to shelly sand ridges) and Qr (Quaternary beach ridges and coastal dunes). Palustrine. (BVG1M: 22a).



<b>Short description:</b>	Melaleuca spp. and/or Lophostemon suaveolens and/or Eucalyptus robusta open forest in wetlands associated with parabolic dunes
<b>Supplementary descriptions:</b>	
<b>Subregions:</b>	5, 2, (4), (11.14), (1)
<b>Protected areas:</b>	Byfield NP, Whitsunday Islands NP, Percy Isles NP, Byfield CP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Contains Palustrine
<b>Special values:</b>	<p>8.2.7a: A naturally rare and restricted vegetation community. Dense tall stands of Melaleuca leucadendra in large swamps is unusual, and in the Slade Point area are considered to be part of an outstanding area of conservation significance (Pollock, 1995). Potential habitat for the endangered plant species Phaius australis. Habitat for the fern Blechnum indicum which is locally rare. In the Slade Point area this vegetation community is also rich in bird and frog species (Pollock, 1995).</p> <p>8.2.7b: Habitat for a large number of species at the northern limit of their range, including Eucalyptus robusta, Hibbertia vestita, Phyllota phyllicoides, Ochrosperma lineare, Empodisma minus, Hovea clavata, Patersonia sericea, Baumea muelleri, Brachyloma daphnoides, Cyperus stradbokensis, Mirbelia rubiifolia, Sporadanthus interruptus and Xanthorrhoea fulva.</p> <p>8.2.7e: Potential habitat for the endangered plant species Phaius australis. The buried swales with Melaleuca leucadendra as found in the Shoalwater Bay area (vegetation type c18a) are somewhat unusual. Within subregions 1 to 3 Melaleuca quinquenervia is very rare, and here occurs only in this vegetation community.</p>
<b>Comments:</b>	<p>8.2.7a: The RE 8.2.7e occupies a similar niche associated with parabolic dunes but is dominated by other Melaleuca species or a combination of Melaleuca species including M. leucadendra. The RE 8.2.11 may sometimes be dominated by M. leucadendra and also occupies a similar niche but is associated with parallel (instead of parabolic) dunes. The RE 8.2.13a may include M. leucadendra but only as a subdominant with Corymbia and Eucalyptus species. Occurs in the Slade Point and Andergrove areas of North Mackay, subregion 2. Suffering minor to moderate weed invasion and substantial changes to drainage, affecting the level of the water table. Extensively cleared around the Mackay area. Overall, remnants are in moderate to poor condition.</p> <p>8.2.7b: Distinguished from all other regional ecosystems by the dominance, co-dominance or subdominance of Eucalyptus robusta. Occurs mainly in subregions 5 and 4. Mapped on the north of Townshend Island, and also in an area south of Port Clinton to Water Park Creek (north of Corio Bay). Also occurs on Great Keppel Island. Mostly in very good condition, but vulnerable to drainage changes caused by road crossings and other earthworks. Naturally fairly resilient to weed invasion.</p> <p>8.2.7c: Distinguished from all other regional ecosystems on land zone 2 by the dominance of Lophostemon suaveolens. Occurs mainly in subregion 4, from the northern tip of Townshend Island, along the eastern side of the island, also on the mainland adjacent to the coast, from the mouth of Island Head Creek to just south of Cape Manifold. Also Great Keppel Island. This ecosystem is vulnerable to weed invasion, with current condition of most sites moderate to good. Problem weed species are *Lantana camara, *Passiflora suberosa, *P. pallida and *Ipomoea cairica.</p> <p>8.2.7e: When Melaleuca leucadendra is present 8.2.7e can be similar to 8.2.7a, however 8.2.7a is clearly dominated by M. leucadendra whereas at 8.2.7e only includes M. leucadendra as a co-dominant or subdominant species. Distinguished from 8.2.11 by the association with parabolic dunes (8.2.11 is associated with parallel dunes). The RE 8.2.4c may be similar but has a much more prominent wet heath ground layer and is usually strongly associated with either 8.2.4a or 8.2.4b. Occurs in subregion 1 on Whitsunday and Haslewood Islands. Subregion 2 at Slade Point, and Notch Point (west of Ilbilbie). Subregion 4-5 has it widely scattered from the northern tip of Townshend Island along the coast to Yeppoon and on Great Keppel Island. Ranges from excellent to poor depending on the degree of disturbance and the nature of the ground layer. Threatened by changes to drainage caused by housing developments and roads. Thick sedge dominated examples tend to be less prone to weed invasion. Common problem weeds currently include *Passiflora suberosa, *P. pallida, *Lantana camara and *Passiflora foetida.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 3000 ha; Remnant 2021 3000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Endangered
<b>Biodiversity status notes:</b>	Has been extensively cleared and remnant areas degraded from weed invasion, erosion caused by recreational activities and changes in hydrology.

## Regional ecosystem 8.2.8

**Description:** *Corymbia* spp. and/or *Eucalyptus* spp. and/or *Acacia* spp. and/or *Allocasuarina littoralis* open forest to open shrubland (1-38m tall). A wide variety of *Eucalyptus* and *Corymbia* species may be dominant in the canopy, and common *Acacia* dominants are *Acacia julifera*, *A. disparrima* subsp. *disparrima* and *A. crassicarpa*. sub-canopy and shrub layers are usually sparse and dominated by heath species such as *Lithomyrtus obtusa* and *Banksia integrifolia* subsp. *compar*, and the ground layer is usually sparse and dominated by a wide range of grasses and herbs but often including *Trachystylis stradbokensis*, *Lomandra* spp., *Eriachne* spp. and *Aristida* spp. Occurs on parabolic dunes of Pleistocene age. Geologies mapped include Qpd (Pleistocene high parabolic quartz sand dunes). Soils are dune sands, mainly podzols and rudimentary podzols and Qr (Quaternary sand in beach ridges and coastal dunes). Not a Wetland. (BVG1M: 9e).

Vegetation communities in this regional ecosystem include:

8.2.8a: *Corymbia* spp. and/or *Eucalyptus* spp. open forest to low woodland (3-22m tall). Dominants usually include one or several of the following eucalypts; *Corymbia intermedia*, *Eucalyptus portuensis*, *E. exserta*, *E. drepanophylla*, *C. tessellaris*, *Syncarpia glomulifera*, *E. latisinensis* and *C. clarksoniana*, and there is sometimes a co-dominance or subdominance of other species such as *Acacia disparrima* subsp. *disparrima*, *Banksia integrifolia* subsp. *compar*, *Allocasuarina littoralis* and *Lophostemon suaveolens*. On South Percy Island the canopy dominants are usually *E. exserta* and *E. drepanophylla*, or *C. clarksoniana*, and sometimes *C. xanthope*. Lower tree layers are very sparse to absent. The shrub layers range from sparse to mid-dense and are typically dominated by heath species such as *Lithomyrtus obtusa*, *Acacia julifera* subsp. *curvinervia*, *A. flavescens*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Persoonia virgata*, *Leucopogon leptospermoides*, *Leptospermum neglectum* and *Grevillea banksii*. The ground layer is usually sparse, and dominated by species such as *Themeda triandra*, *Pteridium esculentum*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Dianella caerulea*, *Imperata cylindrica*, *Eriachne pallescens* and *Trachystylis stradbokensis*. Occurs on high parabolic dunes, mainly of Pleistocene age (subregions 4 and 5). Geology is Qpd (Pleistocene high parabolic quartz sand dunes). Soils are dune sands, mainly podzols and rudimentary podzols. Not a Wetland. (BVG1M: 9e).

8.2.8b: *Eucalyptus exserta* and *Corymbia clarksoniana* open forest to woodland (12-25 tall). *Corymbia tessellaris* is often present as a subdominant, and individuals of *Acacia crassicarpa* and *A. flavescens* often reach the canopy in places. Rainforest elements (such as *Euroschinus falcatus*) may also be present in the canopy. There is a mid-dense to dense sub-canopy tree layer dominated by *Acacia crassicarpa*, *A. flavescens* and sometimes *A. disparrima* as well as some rainforest elements. There is often a sparse to dense lower tree layer, also dominated by pioneering rainforest elements. Very sparse to mid-dense shrub-layers may be present consisting of a mixture of saplings of rainforest pioneers and heath-like sclerophyll elements such as *Ricinocarpos pinifolius*, *Exocarpos latifolius*, *Lithomyrtus obtusa*, *Anthobolus filifolius* and *Xanthorrhoea latifolia* subsp. *latifolia*. The ground stratum is dominated by sedges, grasses and low shrubs, especially *Trachystylis stradbokensis*, *Lepidosperma* sp., *Lithomyrtus obtusa*, *Fimbristylis* sp. and *Panicum* sp. Occurs on fine white coastal sands on Pleistocene age parabolic dunes (subregion 1). The sand is wind-blown, and in some places has blown a considerable distance up the side of hills. The depth of sand to rock therefore probably varies considerably. Geology is mapped as Qr (Quaternary sand in beach ridges and coastal dunes). Soils are giant podzols and giant humus podzols. Not a Wetland. (BVG1M: 9e).

8.2.8d: *Acacia julifera* and/or *A. disparrima* subsp. *disparrima* and/or *Allocasuarina littoralis* open shrubland to low woodland (1-10m tall). Common associated to codominant species include *Acacia flavescens*, *Corymbia intermedia*, *Lophostemon suaveolens* and *Leptospermum neglectum*. Other occasional species in the canopy (or as emergents) may include *Eucalyptus latisinensis*, *E. exserta* and *Banksia integrifolia* subsp. *compar*. *Corymbia xanthope* is an occasional canopy species on South Percy Island. There may be a very sparse to mid-dense secondary tree or lower shrub layer which is often *Acacia* spp. or *Allocasuarina littoralis* dominated and which may also include a variety of heath species such as *Lithomyrtus obtusa*, *Leptospermum neglectum*, *Pityrodia salviifolia*, *Ricinocarpos pinifolius*, *Phyllota phyllicoides*, *Hibbertia linearis*, *Leucopogon leptospermoides* and *Platysace linearifolia*. Some sites include pioneering rainforest species in the lower structural layers. The ground layer consists of isolated plants or clumps, with common species including *Imperata cylindrica*, *Paspalidium gausum*, *Pteridium esculentum*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Lomandra longifolia*, *Themeda triandra*, *Trachystylis stradbokensis*, *Eriachne pallescens* and *Aristida holathera* var. *holathera*. Occurs on high parabolic dunes of predominantly Pleistocene age. The sand has been windblown up slopes and over low hills, resulting in a variable depth of sand to rock. Geology mapped as Qpd (Pleistocene high parabolic quartz sand dunes), Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits). Soils are Giant podzols and giant humus podzols. Not a Wetland. (BVG1M: 9e).

8.2.8e: *Acacia crassicarpa* closed forest to open shrubland (9-28m tall). *Acacia flavescens* and *Eucalyptus exserta* are often associated species in the canopy. There are frequently mid-dense to sparse lower tree layers and shrub layers dominated by pioneering rainforest spp. and *Acacia* spp., and occasional to rare heath species such as *Lithomyrtus obtusa*, *Anthobolus filifolius* and *Leucopogon leptospermoides*, and the ground layer is often dominated by *Trachystylis stradbokensis*. Occurs on fine white coastal sands of Pleistocene parabolic dunes. The sand is wind-blown, and in some places has blown a considerable distance up the side of hills. The depth of

sand to rock therefore varies. Geology is Qr (Quaternary sand in beach ridges and coastal dunes). Soils are giant podzols and giant humus podzols. Not a Wetland. (BVG1M: 28b).

<b>Short description:</b>	Corymbia spp. and/or Eucalyptus spp. and/or Acacia spp. and/or Allocasuarina littoralis open forest on Pleistocene parabolic dunes
<b>Supplementary descriptions:</b>	Bailey et al. (2003), CW-2, CH-2p; Brushe et al. (in prep), c9a, c13a, c14, c15, c16; Queensland Herbarium (2008) Ajw_2, Cdw_2, Ehdw_2;
<b>Subregions:</b>	5, 1, 4, (11.14)
<b>Protected areas:</b>	Byfield NP, Whitsunday Islands NP, Percy Isles NP, Byfield CP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	<p>8.2.8: Potential habitat for NCA listed species: Samadera bidwillii.</p> <p>8.2.8a: Habitat for the threatened plant species Samadera bidwillii. Habitat for many plant species at the northern limit of their range, including Persoonia virgata, Hovea clavata, Phyllota phyllicoides, Homoranthus virgatus, Platysace linearifolia, Aotus lanigera, Hibbertia vestita, Macrozamia miquelii (also very restricted in distribution), Brachyloma daphnoides, Zieria laxiflora, Caustis recurvata, Zoyisia macrantha subsp. macrantha, Hovea clavata, Ochrosperma lineare, Patersonia sericea and Phebalium woombye.</p> <p>8.2.8b: Part of a unique and highly restricted landform supporting some locally restricted heath species such as Ricinocarpos pinifolius, Anthobolus filifolius and Lithomyrtus obtusa. Northern limit of Ricinocarpos pinifolius (Whitsunday Island). The low nutrient status of the sands on these islands supports a heath vegetation with species more typical of similar areas in subregion 4.</p> <p>8.2.8d: Habitat for several species at the northern limit of their range, including Phyllota phyllicoides, Brachyloma daphnoides, Homoranthus virgatus, Caustis recurvata, Persoonia virgata and Platysace linearifolia. Likely habitat for Acacia sp. (Pine Islet H.Heatwole AQ6370) which is restricted to the Percy Island Group.</p> <p>8.2.8e: Part of a unique and highly restricted landform supporting some locally restricted heath species such as Ricinocarpos pinifolius, Anthobolus filifolius and Lithomyrtus obtusa. Northern limit of Ricinocarpos pinifolius (Whitsunday Island). The low nutrient status of the sands on these islands supports a heath vegetation with species more typical of similar areas in subregion 4.</p>
<b>Comments:</b>	<p>8.2.8a: Closely related to 8.2.8b, which can be distinguished by its occurrence in subregion 1 only. The RE 8.2.8e can be similar but is dominated by Acacia crassicarpa. Other dune regional ecosystems with a eucalypt woodland or open forest structure include: 8.2.6a and 8.2.6b which occur on parallel (not parabolic dunes) and are dominated by Corymbia tessellaris; 8.2.14b which occurs on Holocene (instead of Pleistocene) parabolic dunes and is dominated by C. tessellaris; 8.2.7b which is dominated by Eucalyptus robusta and occurs in swamps; 8.2.12a which occurs on low degraded parallel dunes (not high parabolics); 8.2.7c which occurs in swamps and is dominated by Lophostemon suaveolens; 8.2.13a and 8.2.13b which occur on the interface between alluvium, marine sediments and very low degraded dunes (as opposed to high parabolics). Distinguished from all other dune regional ecosystems by the dominance of Eucalyptus spp. or Corymbia spp. in an open forest or woodland structure. Burning has potential to dramatically alter structure and composition of this highly unstable ecosystem, and though probably desirable, should not be carried out on the full extent of this vegetation community at any one time. Occurs mainly in subregion 5, from the northern tip of Townshend Island to Corio Bay. Also found on Great Keppel Island and South Percy Island (subregion 4). Inappropriate fire regimes may be a threat, and weed invasion by species such as *Lantana camara and other weeds are a threat in some places. Island occurrences are in excellent condition apart from possibly being more senescent than they should be (possibly requiring burning). Most parts of the Shoalwater occurrences (subregion 5) are in good condition except where they receive frequent vehicle use.</p> <p>8.2.8b: Closely related to 8.2.8a, which can be distinguished by its occurrence in subregion 5 and 2 only. The RE 8.2.8e is also very closely related but is dominated by Acacia crassicarpa. Other dune regional ecosystems with a eucalypt woodland or open forest structure include: 8.2.6a and 8.2.6b which occur on parallel (not parabolic dunes) and are dominated by Corymbia tessellaris; 8.2.14b which occurs on Holocene (instead of Pleistocene) parabolic dunes and is dominated by C. tessellaris; 8.2.7b which is dominated by Eucalyptus robusta and occurs in swamps; 8.2.12a which occurs on low degraded parallel dunes (not high parabolics); 8.2.7c which occurs in swamps and is dominated by Lophostemon suaveolens; 8.2.13a and 8.2.13b which occur on the interface between alluvium, marine sediments and very low degraded dunes (as opposed to high parabolics). Distinguished from all other dune regional ecosystems by the dominance of Corymbia spp. and Eucalyptus spp. in an open forest or woodland structure. Burning has potential to dramatically alter structure and composition of this highly unstable ecosystem, and though probably desirable, should not be carried out on the full extent of this</p>

vegetation community at any one time. Restricted to the area behind Whitehaven Beach on Whitsunday Island and Haslewood Island, subregion 1. The presence of heath-like sclerophyll elements and very dense, aged *Acacia* spp. at most of the sites indicates that this community has not been burnt by a hot fire for several decades. A burn is likely to kill all the *Acacias* (which will regenerate by seed) and inhibit or kill the rainforest elements, and substantially modify community structure and composition overall, probably resulting in a heath-like structure in the lower tree and shrub-layers. This may be a desirable outcome, though some areas have developed such a well-developed rainforest understorey that finding the right conditions for a burn will be more and more difficult. In some places where the rainforest understorey is not so prevalent it might be possible for heath elements to return once the *Acacias* senesce and fall, opening up gaps to the forest floor. Otherwise, condition is excellent due to the almost complete lack of recent human disturbance.

8.2.8d: The RE 8.2.8e occurs on the same landform situation and is closely related but is dominated by *Acacia crassicarpa*. The RE 8.2.3a is similar but occurs on old eroded whaleback dunes or eroded parts of parabolic dunes (soils tend to be more humic), whereas 8.2.8d occurs on more recently active parabolic dunes (soils less humic), and also tends to be less heathy. The RE 8.2.3d is also similar, but occurs on low coastal parallel dune ridges and sand plains (as opposed to parabolics). The regional ecosystems 8.2.14a and 8.2.14c are similar but are much less heathy and occur on younger (Holocene) parabolic dunes. The RE 8.2.12a and 8.2.12b differ by occurring on parallel dunes. Occurs in subregion 5 from Townshend Island south along the eastern coastal area to Corio Bay. It is most extensive around Cape Manifold. Also in subregion 4 on South Percy Island and Great Keppel Island. Mostly in very good condition due to the remoteness of the areas that it occurs. The dominance of *Acacia* spp. which are usually killed by fire is an indication of a dynamic community that will change structure dramatically after a hot fire. The examples on South Percy Island have not been burnt for a considerable time and the *acacias* are senescing, and the subcanopy and shrub layers are extremely sparse. The sparse lower layers may be a result of the dense canopy, but are also likely to have been affected by the long history of grazing by sheep and feral goats on the island. The goats have only recently been removed.

8.2.8e: The RE 8.2.8b occurs on the same landform situation as 8.2.8e and is very closely related, but is dominated by *Eucalyptus exserta* and *Corymbia clarksoniana*. Distinguished from other *Acacia* dominated dune communities by: 8.2.14c - dominated by *Acacia aulacocarpa* and occurs on Holocene age dunes; 8.2.8d - dominated by *Acacia julifera* or *A. aulacocarpa* (or non-*Acacia* spp.); 8.2.12b - occurs on parallel dunes. South-east side of Whitsunday Island behind Whitehaven Bay. The presence of heathy sclerophyll elements and very dense, aged *Acacia* spp. at most of the sites indicates that this community has not been burnt by a hot fire for several decades. A burn is likely to kill all the *Acacias* (which will regenerate by seed) and inhibit or kill the rainforest elements, and substantially modify community structure and composition overall, probably resulting in a heath-like structure. This may be a desirable outcome, though some areas have developed such a well-developed rainforest understorey that finding the right conditions for a burn will be more and more difficult. In some places where the rainforest understorey is not so prevalent it might be possible for heath elements to return once the *Acacias* senesce and fall, opening up gaps to the forest floor. Otherwise, condition is excellent due to the almost complete lack of recent human disturbance.

**Estimated extent:**<sup>1</sup> Pre-clearing 14000 ha; Remnant 2021 14000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:**

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## Regional ecosystem 8.2.9

**Description:** *Heteropogon triticeus* and/or *Imperata cylindrica* and/or *Themeda triandra* open tussock grassland to closed tussock grassland. Common subdominant or associated grasses may include *Eragrostis interrupta*, *Heteropogon contortus*, *Eriachne triodioides*, *Aristida holathera* var. *holathera*, *Cymbopogon refractus* and *Alloteropsis semialata*. Associated herbs and sedges include *Glycine tomentella*, *Cassytha filiformis*, *Aphyllodium biarticulatum*, *Boerhavia* spp, *Commelina ensifolia*, *Polycarpaea corymbosa*, *Evolvulus alsinoides*, *Xenostegia tridentata* and *Chrysocephalum apiculatum*. Other species which may be common at some sites include *Cyperus javanicus*, *Schizachyrium* spp., *Elionurus citreus*, *Desmodium rhytidophyllum*, *Cyperus pedunculatus*, *Crotalaria montana*, *Bulbostylis barbata*, *Mnesithea rottboellioides*, *Perotis rara*, *Zornia dyctiocarpa* var. *filifolia*, *Chrysocephalum apiculatum*, *Crotalaria mitchellii*, *Dianella longifolia*, *Schizachyrium fragile*, *Afrohybanthus enneaspermus*, *Cyperus scaber* and *Spermacoce brachystema*. Occurs on coastal dunes, predominantly of Holocene age. Geology mainly Qhcb (Holocene quartzose to shelly sand beach ridges). Not a Wetland. (BVG1M: 32a).

<b>Short description:</b>	Tussock grassland on coastal dunes
<b>Supplementary descriptions:</b>	Batianoff and Franks (1997), 31SS (in part); Kemp (2009) Gd; Warrien and Lavarack (in prep), Vegetation unit 1a
<b>Subregions:</b>	2, 11.2, 4, 11.14, (6), (1)
<b>Protected areas:</b>	Broad Sound Islands NP, Northumberland Islands NP, Gloucester Island NP, South Cumberland Islands NP, Holbourne Island NP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	8.2.9: The majority of this regional ecosystem occurs on large high aeolian deposits, and is very rare. The largest representation of this regional ecosystem occurs at Slade Point and is important habitat for small mammals. The dunes are a key factor affecting the hydrology of associated wetlands.
<b>Comments:</b>	8.2.9: This is the only grassland RE on sand dunes in the Central Queensland Coast bioregion. Occurs in very small patches along the coast. Found most extensively around Slade Pt, North Mackay. Mapped at Proserpine Plain, Hay Point to Three Mile Beach east of Carmila and on several islands, from Stone Is (near Bowen) to Aquila Is near Carmila. This regional ecosystem is very sensitive to erosion and threats include vehicles, horse-riding, over-grazing, weed invasion and uncontrolled pedestrian traffic. The most serious weed is <i>*Digitaria didactyla</i> , which was possibly sown as a pasture species in the Slade Point area. Other common weeds include <i>*Melinis repens</i> , <i>*Stachytarpheta jamaicensis</i> , <i>*Cenchrus echinatus</i> , <i>*Tridax procumbens</i> , <i>*Cynodon dactylon</i> , <i>*Portulaca pilosa</i> , <i>*Richardia brasiliensis</i> , <i>*Dactyloctenium aegyptium</i> , <i>*Macroptilium atropurpureum</i> and <i>*Megathyrsus maximus</i> . Also threatened by industrial and urban development. The condition of many sites is relatively poor, however some remain relatively intact.
<b>Estimated extent:<sup>1</sup></b>	Pre-clearing 400 ha; Remnant 2021 200 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Endangered
<b>Biodiversity status notes:</b>	Rare ecosystem that is subject to development pressure and is also susceptible to erosion associated with recreational uses and grazing.

## Regional ecosystem 8.2.10

**Description:** Bare sand with isolated herbaceous plants, typically dominated by species such as *Eragrostis interrupta*, *Podolepis arachnoidea*, *Evolvulus alsinoides*, *Brunonia australis*, *Bulbostylis barbata* and *Elionurus citreus*. In some places there are shrubs forming emergents (or a very sparse shrubland), and these may include *Casuarina equisetifolia* subsp. *incana*, *Allocasuarina littoralis*, *Lithomyrtus obtusa*, *Alphitonia excelsa*, *Leptospermum neglectum* and *Banksia integrifolia* subsp. *compar.* Recently active and distinct "blow-outs" (parabolic formations) in sand dunes. Dunes are Qpd (Pleistocene high parabolic quartz sand dunes), Qhf (Holocene quartzose foredune sand) and Qhcb (Holocene quartzose to shelly sand beach ridges). Not a Wetland. (BVG1M: 28d).

**Short description:** Sand blows with bare sand and areas of sparse herbland or shrubland

**Supplementary descriptions:** Bailey et al. (2003), SB-2; Brushe et al. (in prep), c25

**Subregions:** 5, 4

**Protected areas:** Byfield NP, Percy Isles NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.2.10: High values as a uniquely dynamic terrestrial ecosystem. Limited extent. Part of a natural successional series in coastal dune areas.

**Comments:** 8.2.10: Easily distinguished from all other sand dune communities by the very low area of plant cover and "sand-blow" (parabolic) shape. Occurs in subregion 5 from the mouth of Island Head Creek to Corio Bay. Also occurs on Great Keppel Island. Relatively weed free except possibly where natural disturbance has been augmented with vehicular activity in the more accessible areas.

**Estimated extent:**<sup>1</sup> Pre-clearing 500 ha; Remnant 2021 500 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.2.11

**Description:** *Melaleuca* spp. closed forest to woodland (4-18m tall). Dominants may include one or several of *M. leucadendra*, *M. quinquenervia*, *M. viridiflora* var. *attenuata* and *M. dealbata*. Occasional associated species include *Livistona decora*, and *Corymbia tessellaris*. Very sparse to sparse tall shrub or lower tree layers are sometimes present, and species include *Acacia julifera*, *A. flavescens*, *Banksia integrifolia* subsp. *compar*, *Alphitonia excelsa*, *Melaleuca* spp. and *Pandanus* spp. The ground layer commonly includes *Imperata cylindrica*, *Ischaemum* spp., *Cyclosorus interruptus* and *Cyperus* spp. Occurs in parallel dune swales. Geology is mainly Qhcb (Holocene quartzose to shelly sand beach ridges), Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits) and Qr (Quaternary sand in beach ridges and coastal dunes). Palustrine. (BVG1M: 22b).

**Short description:** *Melaleuca* spp. Open forest in parallel dune swales

**Supplementary descriptions:** Bailey et al. (2003), 8MEa\_2; Brushe et al. (in prep), c18b

**Subregions:** 2, 5, 11.14, (4), (1)

**Protected areas:** Cape Palmerston NP, West Hill NP, Conway NP, Bakers Creek CP, Cape Hillsborough NP

**Extent in reserves:** High

**Wetland:** Palustrine

**Special values:** 8.2.11: Potential habitat for the endangered plant species *Phaius australis* and the vulnerable plant species *Sowerbaea subtilis*.

**Comments:** 8.2.11: Similar to regional ecosystems 8.2.7a, 8.2.7e and 8.2.7b but these occur on parabolic (not parallel) dunes. May be similar to 8.2.4c, but this is associated with peat swamps and is usually adjacent to or surrounding 8.2.4a or 8.2.4b (and the ground layer is more similar to a wet heath). Can appear to be similar to 8.3.11 which is on alluvium instead of dune sands. Scattered across subregion 2 from the O'Connell River in the north to Clairview in the south and on Flock Pigeon Island. Also found in subregion 5 in Island Head Creek and Port Clinton areas, and between Yeppoon and the mouth of the Fitzroy River. Also on Great Keppel Island. Susceptible to weed invasion, and erosion caused by recreational activities. Common problem weeds include *\*Lantana camara*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Ipomoea cairica* and *\*Solanum seaforthianum*. Susceptible to hydrology changes caused by alteration of the surrounding terrain.

**Estimated extent:**<sup>1</sup> Pre-clearing 400 ha; Remnant 2021 400 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.2.12

**Description:** *Corymbia intermedia* and/or *Eucalyptus latisinensis* and/or *Allocasuarina littoralis* low open woodland to open forest (4-18m tall) with a heath understorey, or *Acacia julifera* subsp. *curvinervia* and/or *Leptospermum neglectum* and/or *Ricinocarpus pinifolius* and/or *Acacia flavescens* dwarf open shrubland to open scrub (to low open woodland to woodland). Parallel dunes. Not a Wetland. (BVG1M: 9d).

Vegetation communities in this regional ecosystem include:

8.2.12a: *Corymbia intermedia* and/or *Eucalyptus latisinensis* and/or *Allocasuarina littoralis* low open woodland to open forest (4-18m tall). Associated species in the canopy may include *Eucalyptus crebra*, *Corymbia clarksoniana*, *Eucalyptus exserta*, *Petalostigma triloculare*, *Acacia flavescens* and *Acacia julifera* subsp. *curvinervia*. Occasionally there are emergents such as *E. latisinensis*. There is sometimes a secondary tree layer dominated by species such as *Acacia julifera* subsp. *curvinervia*, *Leptospermum neglectum* and *Allocasuarina littoralis*. Shrub layers are sometimes present, and dominants and associated species include *Lithomyrtus obtusa*, *Pityrodia salviifolia*, *Acacia julifera*, *Planchonia careya*, *A. flavescens* and *Hibbertia linearis*. Typical species in the ground layer include *Caustis recurvata* (often dominant), *Xanthorrhoea latifolia* subsp. *latifolia*, *Dianella caerulea*, *Themeda triandra*, *Eriachne* sp., *Imperata cylindrica* and *Monotoca scoparia*. Occurs on parallel dunes (subregions 4 and 5). Dunes include Qpcb (Pleistocene quartzose to shelly sand older beach ridges), Qr (Quaternary clay, silt and sand), Qhcd (Holocene blow-out frontal quartz dune) and Qhcd? (Holocene blow-out frontal quartz dune). Not a Wetland. (BVG1M: 9e).

8.2.12b: *Acacia julifera* subsp. *curvinervia* and/or *Leptospermum neglectum* and/or *Ricinocarpus pinifolius* and/or *Acacia flavescens* dwarf open shrubland to open scrub (to low open woodland to woodland). Where a tree layer is present, dominants and associated species include *Allocasuarina littoralis*, *Acacia julifera* subsp. *curvinervia*, *Corymbia clarksoniana*, *Eucalyptus exserta*, and *Banksia integrifolia* subsp. *compar.* When the canopy is formed by shrubs, dominants may include *Leptospermum neglectum*, *Ricinocarpus pinifolius*, *Acacia julifera* subsp. *curvinervia* and *A. flavescens*. Associated shrubs include *Pityrodia salviifolia*, *Grevillea banksii*, *Platysace linearifolia* and *Lithomyrtus obtusa*. The ground layer is often dominated by *Caustis recurvata*, with other dominants or associated species including *Lithomyrtus obtusa*, *Trachystylis stradbokensis*, *Eriachne* sp., *Entolasia stricta*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Eriachne insularis* and *Platysace linearifolia*. Occurs on parallel dunes (subregions 4 and 5). Dunes include Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits), and Qpcb (Pleistocene quartzose to shelly sand, coquina: older coastal beach ridges, cheniers). Not a Wetland. (BVG1M: 28b).

<b>Short description:</b>	<i>Corymbia intermedia</i> and/or <i>Eucalyptus latisinensis</i> and/or <i>Acacia</i> spp. and/or other heath spp. Shrublands and woodlands on parallel dunes (subregions 4 and 5)
<b>Supplementary descriptions:</b>	Bailey et al. (2003), CF-2, AS-2; Brushe et al. (in prep), Map Unit 10, 13b
<b>Subregions:</b>	5, (4), (11.14)
<b>Protected areas:</b>	Byfield NP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	8.2.12a: Habitat for several species at the northern limit of their range, including <i>Brachyloma daphnoides</i> , <i>Homoranthus virgatus</i> , <i>Phebalium woombye</i> , <i>Phyllota phyllicoides</i> , <i>Platysace linearifolia</i> , <i>Caustis recurvata</i> , <i>Pseudanthus orientalis</i> , <i>Persoonia virgata</i> and <i>Zieria laxiflora</i> . 8.2.12b: Habitat for several species at the northern limit of their range, including <i>Homoranthus virgatus</i> , <i>Phyllota phyllicoides</i> , <i>Platysace linearifolia</i> , <i>Zieria laxiflora</i> , <i>Caustis recurvata</i> , <i>Phebalium woombye</i> , <i>Brachyloma daphnoides</i> and <i>Pseudanthus orientalis</i> .



<b>Comments:</b>	<p>8.2.12a: Distinguished from 8.2.12b and the 8.2.3 series by the dominance of <i>Eucalyptus</i> or <i>Corymbia</i> species (or <i>Allocasuarina</i> with <i>Corymbia</i>); distinguished from the 8.2.8 series by occurrence on parallel instead of parabolic dunes. Distinguished from the 8.2.14 series by the dominance of other species besides <i>Corymbia tessellaris</i> and the occurrence on parallel instead of parabolic dunes. Distinguished from the 8.2.6 series by the dominance of other eucalypts besides <i>Corymbia tessellaris</i>. Differs from 8.2.13a by the landscape position and substrate (definite dune ridges as opposed to swales mixed with alluvial material). Occurs in subregion 5 within Port Clinton and between Cape Clinton and The Peaks (20km north of Corio Bay). Also found between Corio Bay and Yeppoon, and Great Keppel Island. Overall the condition is good, with minimal weed invasion and human disturbance. Examples outside the Shoalwater Bay Training Area are more fragmented by roads and are more likely to suffer weed invasion.</p> <p>8.2.12b: Distinguished from 8.2.12a by the dominance of <i>Acacia</i> spp. or <i>Leptospermum</i> spp. or <i>Ricinocarpos</i> spp. (as opposed to <i>Eucalyptus</i> spp. or <i>Corymbia</i> spp. (or <i>Allocasuarina</i> with <i>Corymbia</i> spp.)). Can be very similar to 8.2.3d but tends to have a higher proportion of <i>Acacia</i> and is less heathy. Distinguished from 8.2.3a by the occurrence on parallel dunes (instead of parabolic dunes or whaleback dunes). Distinguished from the 8.2.8 series by occurrence on parallel instead of parabolic dunes. Distinguished from the 8.2.14 series by the dominance of other species besides <i>Corymbia tessellaris</i> and the occurrence on parallel instead of parabolic dunes. Distinguished from the 8.2.6 series by the dominance of other eucalypts besides <i>Corymbia tessellaris</i>. Differs from 8.2.13a by the landscape position and substrate (definite dune ridges as opposed to swales mixed with alluvial material). Occurs in subregion 5 from Pinetrees Point (just north of the mouth of Island Head Creek), to Cliff Point (just north of Cape Manifold). Also found near Corio Bay. Overall the condition is good, with minimal weed invasion and human disturbance. Examples outside the Shoalwater Bay Training Area are more fragmented by roads and are more likely to suffer weed invasion.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 3000 ha; Remnant 2021 2000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

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## Regional ecosystem 8.2.13

**Description:** *Melaleuca* spp., *Livistona decora* and/or *Acacia* spp. and/or *Lophostemon suaveolens* open to closed forest (8-30m tall). Other common to occasional canopy species may include *Eucalyptus tereticornis*, *Corymbia intermedia*, *Corymbia tessellaris* and *Livistona decora*. There are usually sparse to mid-dense lower tree layers, commonly dominated by *Livistona decora* and/or *Banksia integrifolia* subsp. *compar* and/or *Acacia* spp. The shrub layer is usually very sparse, and the ground layer is sparse to dense and dominated by species such as *Imperata cylindrica*, *Blechnum indicum*, *Pteridium esculentum* and *Oplismenus* spp. Low-lying, flat areas in near coastal situations on dune sands mixed with alluvial material and/or marine sediments. Geologies mapped include Qpcb (Pleistocene quartzose to shelly sand older beach ridges), Qhcb (Holocene quartzose to shelly sand beach ridges), Qf (Quaternary sand: flood-out sheets), Qr (Quaternary clay, silt and sand) and Qpd (Pleistocene high parabolic quartz sand dunes). Contains Palustrine. (BVG1M: 9e).

Vegetation communities in this regional ecosystem include:

8.2.13a: *Corymbia tessellaris*, *Melaleuca* spp., *Corymbia intermedia*, *Eucalyptus tereticornis* open forest. At some sites *Corymbia tessellaris* may occur as an emergent, and *Corymbia clarksoniana* may occur in the canopy or as an emergent. *Livistona decora* sometimes occurs in the canopy. At some sites there may be a mid-dense to dense canopy or sub-canopy of *Acacia disparrima* subsp. *disparrima*. Usually there are sparse to mid-dense sub-canopy and lower tree layers, with species commonly represented including *Livistona decora*, *Banksia integrifolia*, *Melaleuca dealbata*, *M. leucadendra*, *Acacia leptocarpa*, *Pandanus cookii*, *Planchonia careya* and *Alphitonia excelsa*. Shrub layers consist of saplings from the upper layers, and shrubs such as *Glochidion lobocarpum* and *Clerodendrum longiflorum* var. *glabrum*. The ground layer is very sparse and mainly consisting of tree seedlings, vines, sedges, and shade tolerant grasses such as *Oplismenus* spp. Low-lying, flat areas in near coastal situations on dune sands mixed with alluvial material and marine sediments (subregion 2). Geologies mapped include Qpcb (Pleistocene quartzose to shelly sand older coastal beach ridges), Qhcb (Holocene quartzose to shelly sand beach ridges and cheniers), Qf (Quaternary sand: flood-out sheets and small fans) and Qhd (Holocene quartz sand; high blow-out dune sand). Contains Palustrine. (BVG1M: 9e).

8.2.13b: *Melaleuca quinquenervia* and/or *Lophostemon suaveolens* open forest to woodland (8-30m tall). *Livistona decora* may sometimes be present in the canopy or as an emergent. Other common to occasional canopy species may include *Eucalyptus tereticornis*, *Corymbia intermedia*, *Corymbia tessellaris*, *Glochidion sumatranum*, *Endiandra sieberi* and *Eucalyptus portuensis*. There are often sparse secondary and tertiary tree layers dominated by species such as *Livistona decora*, *Banksia integrifolia* and *Acacia* spp. There is sometimes a shrub layer, and dominant and associated species may include *Lithomyrtus obtusa*, *Livistona decora* and *Hibiscus diversifolius*. There is a very sparse to mid-dense ground layer with species including *Imperata cylindrica*, *Blechnum indicum*, *Ottocloa nodosa*, *Pteridium esculentum* and *Gahnia sieberiana*. Low-lying, flat areas in near coastal situations on dune sands mixed with alluvial material and/or marine sediments (subregions 4 and 5). Geologies mapped include Qr (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits) and Qpd (Pleistocene high parabolic quartz sand dunes). Palustrine. (BVG1M: 22a).

<b>Short description:</b>	<i>Melaleuca</i> spp. and/or <i>Corymbia</i> spp. and/or <i>Lophostemon suaveolens</i> and/or <i>Acacia</i> spp. open forest on dune sands mixed with alluvial material +/- marine sediments
<b>Supplementary descriptions:</b>	Brushe et al. (in prep), Map Unit 19;
<b>Subregions:</b>	2, 4, 5, (11.14), (1)
<b>Protected areas:</b>	Conway NP, Bakers Creek CP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Contains Palustrine
<b>Special values:</b>	8.2.13: Potential habitat for NCA listed species: <i>Livistona drudei</i> . 8.2.13a: Habitat for the vulnerable plant species <i>Livistona drudei</i> (only known occurrence in the Central Queensland Coast bioregion).

<b>Comments:</b>	<p>8.2.13a: Similar to 8.2.13b but this occurs in subregions 4 and 5 only. The regional ecosystems 8.2.7a through to 8.2.7e and 8.2.11 occur in a similar landform situation though tend to be surrounded by land zone 2 (as opposed to at the interface of LZ2 and LZ3) and are dominated by either <i>Melaleuca</i> spp., <i>Lophostemon suaveolens</i> or <i>Eucalyptus robusta</i> (as opposed to spp. mix described above). The RE 8.2.4c is dominated by <i>Melaleuca</i> spp. rather than <i>Eucalyptus</i> spp. or <i>Corymbia</i> spp. and is associated with peaty sedge swamps, and is in subregion 5 only. The regional ecosystems 8.2.6a, 8.2.6b and 8.2.12a are associated with parallel dune crests (minimal mixing with alluvium or marine sediments) and are dominated by <i>C. tessellaris</i> or <i>E. latisinensis</i>, with a lower proportion (or absence) of <i>Melaleuca</i> spp. and <i>E. tereticornis</i>. The regional ecosystems 8.2.14b, 8.2.14c, 8.2.8a and 8.2.8b can be distinguished by their occurrence on high parabolic dunes as opposed to low swampy soils of mixed dune/alluvial/marine origin. Scattered across subregion 2 from Rocky Point near Conway in the north to Kelly Creek, south-east of Ilbilbie. Extensively cleared for housing developments. Many of the remaining areas are susceptible to hydrological changes caused by alteration of the surrounding terrain. Weed invasion is a problem in many of the remnants.</p> <p>8.2.13b: Similar to 8.2.13a but this occurs in subregion 2 only. The regional ecosystems 8.2.7a through to 8.2.7e and 8.2.11 occur in a similar landform situation though tend to be surrounded by Land Zone 2 (as opposed to at the interface of LZ2 and LZ3). The RE 8.2.4c can sometimes be similar but is strictly associated with peaty sedge swamps. The regional ecosystems 8.2.6a, 8.2.6b and 8.2.12a are associated with parallel dune crests (minimal mixing with alluvium or marine sediments) and are dominated by <i>C. tessellaris</i> or <i>E. latisinensis</i>, with a lower proportion (or absence) of <i>Melaleuca</i> spp. and <i>E. tereticornis</i>. The regional ecosystems 8.2.14b, 8.2.14c, 8.2.8a and 8.2.8b can be distinguished by their occurrence on high parabolic dunes as opposed to low swampy soils of mixed dune/alluvial/marine origin. Occurs in the Shoalwater Bay Military Training Area on Townshend Island, to the west of Island Head Creek and west of Port Clinton. Also found on the northern side of the Manifold Hills (west of Cliff Point). Moderate to good, but susceptible to weed invasion, with current problem species including *<i>Lantana camara</i>, *<i>Passiflora suberosa</i>, *<i>P. pallida</i>, *<i>Macropodium atropurpureum</i>, *<i>Melinis minutiflora</i>, *<i>Megathyrsus maximus</i>, *<i>Sporobolus pyramidalis</i>, *<i>Triumfetta rhomboidea</i> and *<i>Urena lobata</i>.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 2000 ha; Remnant 2021 600 ha
<b>VM class:</b>	Endangered
<b>Biodiversity status:</b>	Endangered
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.2.14

**Description:** *Banksia integrifolia* subsp. *compar* and/or *Corymbia tessellaris* and/or *Acacia disparrima* subsp. *disparrima* shrubland to open forest. Includes small areas of rainforest, and often occurs as a very fine mosaic with patches of *Banksia integrifolia*/*Allocasuarina littoralis*, *Casuarina equisetifolia* and bare sand. Common to occasional associated species may include *Livistona decora*, *Jasminum simplicifolium*, *Cupaniopsis anacardioides*, *Leptospermum neglectum*, *Acacia julifera* and *Jagera pseudorhus* var. *pseudorhus*. The sparse ground layer may include *Imperata cylindrica*, *Heteropogon triticeus*, *Eragrostis interrupta* and *Dianella caerulea*. Occurs on Holocene parabolic dunes. Not a Wetland. (BVG1M: 9e).

**Short description:** *Banksia integrifolia* and/or *Corymbia tessellaris* and/or *Acacia disparrima* +/- rainforest spp. tall shrubland, on Holocene parabolic dunes

### Supplementary descriptions:

**Subregions:** 5, (4), (2)  
**Protected areas:** Byfield NP, Byfield CP  
**Extent in reserves:** High  
**Wetland:** Not a Wetland  
**Special values:**

### Comments:

**Estimated extent:**<sup>1</sup> Pre-clearing 2000 ha; Remnant 2021 2000 ha  
**VM class:** Of concern  
**Biodiversity status:** Of concern  
**Biodiversity status notes:**

## Regional ecosystem 8.3.1

**Description:** Semi-deciduous to evergreen notophyll to mesophyll vine forest. Emergents may include *Terminalia sericocarpa*, *Nauclea orientalis*, *Lophostemon suaveolens* and *Melaleuca leucadendra*. Canopy composition is variable but may include *Beilschmiedia obtusifolia*, *Cordia dichotoma*, *Argyrodendron polyandrum*, *Acmenosperma claviflorum*, *Cryptocarya hypospodia*, *Archontophoenix cunninghamiana*, *Elaeocarpus eumundi*, *Acmena smithii* and *Commersonia bartramia*. Lower tree layers might include *Acmenosperma claviflorum*, *Aphananthe philippinensis*, *Cleistanthus dallachyanus*, *Diospyros hebecarpa*, *Mallotus philippensis*, *Archontophoenix cunninghamiana* and *Polyscias australiana*. Occasional shrubs are *Cyclophyllum coprosmoides*, *Ixora beckleri*, *Memecylon pauciflorum*, *Scolopia braunii* and *Alyxia ruscifolia*. The ground layer is very sparse and may include *Oplismenus* spp., *Aneilema acuminatum*, *Ottochloa nodosa* and *Alpinia caerulea*. Common vines are *Cissus oblonga*, *Austrosteenisia blackii* and *Flagellaria indica*. Epiphytes include *Platyserium bifurcatum* and *Cymbidium madidum*. Occurs stream banks, gullies, levees, plains and terrace flats (fringing or in vicinity of watercourses) on level plains to rolling hills of lowlands and foothills. Geologies mapped as Qa, Qf, Qha and Qr (Quaternary clay, silt, sand, gravel, rubble and soil, semi-consolidated in places; mainly alluvium, some colluvium and residual soil, flood-out sheets, small fans, active stream channels and low terraces). Riverine. (BVG1M: 4b).

Vegetation communities in this regional ecosystem include:

8.3.1a: Semi-deciduous notophyll to mesophyll vine forest. Emergents are occasionally present and may include *Terminalia sericocarpa*, *Alstonia scholaris*, *Argyrodendron polyandrum*, *Nauclea orientalis* and *Melaleuca leucadendra*. The canopy composition is very variable, with the species most commonly present being *Beilschmiedia obtusifolia*, *Cordia dichotoma*, *Argyrodendron polyandrum*, *Acmenosperma claviflorum*, *Cryptocarya hypospodia*, *Diospyros hebecarpa*, *Ficus virens* and *Litsea fawcettiana*. *Archontophoenix alexandrae* may be locally abundant in seasonally waterlogged depressions. The most common vines in the canopy are *Cissus oblonga*, *Austrosteenisia blackii* and *Flagellaria indica*. There are usually lower tree layers, frequently dominated by *Acmenosperma claviflorum*, *Aphananthe philippinensis*, *Cleistanthus dallachyanus*, *Diospyros hebecarpa*, *Diploglottis obovata*, *Mallotus philippensis*, *Cryptocarya triplinervis*, *Melicope elleryana*, *Arytera divaricata*, *Aglaia brownii* and *Gossia bidwillii*. There may be a shrub layer with typical species including *Cyclophyllum coprosmoides*, *Ixora beckleri*, *Memecylon pauciflorum*, *Scolopia braunii* and *Tapeinosperma pseudojambosa*. The ground layer is usually very sparse and typical species are *Oplismenus* spp., *Aneilema acuminatum*, *Cordyline murchisoniae*, *Geophila repens* and *Pseuderanthemum variabile*. Plains and levees (fringing or in vicinity of watercourses) on level alluvial plains to undulating hills of lowlands and foothills. Geology mapped variously as Qa, Qf, Qha and Qf>Pc/v (Quaternary clay, silt, sand, gravel, rubble and soil, semi-consolidated in places; mainly alluvium, some colluvium and residual soil, active stream channels, low terraces, flood-out sheets and small fans). Riverine. (BVG1M: 4b).

8.3.1b: Evergreen notophyll feather palm vine forest. Emergents may include *Lophostemon suaveolens*, *Corymbia intermedia*, *Eucalyptus tereticornis*, *Melaleuca leucadendra* and *Ficus rubiginosa*. The canopy is dominated by species such as *Archontophoenix cunninghamiana*, *Elaeocarpus eumundi*, *Acmena smithii*, *Commersonia bartramia*, *Cryptocarya vulgaris*, *Endiandra discolor*, *Pleioluma queenslandica* and *Mischarytera lautereriana*. Lower tree layers may include *Archontophoenix cunninghamiana*, *Polyscias australiana*, *Acmena smithii*, *Chionanthus ramiflorus*, *Elaeodendron melanocarpum*, *Litsea fawcettiana* and *Melicope elleryana*. A shrub layer includes species such as *Scolopia braunii*, *Alyxia ruscifolia*, *Myrsine porosa*, *Psychotria loniceroides*, *Cordyline manners-suttoniae* and *Cordyline murchisoniae*. The ground layer is usually very sparse and may include *Ottochloa nodosa*, *Alpinia caerulea*, *Blechnum cartilagineum* and *Lomandra longifolia*. Common vines are *Flagellaria indica*, *Freycinetia scandens*, *Piper hederaceum* and *Smilax australis*. Epiphytes include *Platyserium bifurcatum* and *Cymbidium madidum*. Stream banks, gullies, levees, plains and terrace flats (fringing or in vicinity of watercourses) of level plains to rolling hills of lowlands and foothills. Geologies mapped as Qr, Qr>PKg, Qr,Tw and Qr>Ccs (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits). Riverine. (BVG1M: 4b).

**Short description:** Semi-deciduous to evergreen notophyll to mesophyll vine forest, +/- sclerophyll emergents, fringing or in the vicinity of watercourses

### Supplementary descriptions:

**Subregions:** 2, 5, 4, 11.14, 6, 3, (1)

**Protected areas:** Byfield NP, Dryander NP, Reliance Creek NP, Dryander FR, Bluff Hill NP, South Cumberland Islands NP, Eungella NP, Sandringham Bay CP, Crediton FR, Mount Martin NP, Pioneer Peaks NP

**Extent in reserves:** Low

**Wetland:** Riverine

<b>Special values:</b>	<p>8.3.1: Potential habitat for NCA listed species: <i>Medicosma obovata</i>, <i>Neisosperma kilneri</i>, <i>Phaius australis</i>, <i>Ristantia waterhousei</i>, <i>Solanum sporadotrichum</i>.</p> <p>8.3.1a: Habitat for threatened plant species <i>Medicosma obovata</i>, <i>Neisosperma kilneri</i> and <i>Trigonostemon inopinatus</i>, and the near threatened species <i>Rhodamnia glabrescens</i>, <i>Sarcotoechia heterophylla</i> and <i>Solanum sporadotrichum</i>. Also habitat for a plant species of restricted range such as <i>Arytera</i> sp. (Dryander Creek P.R.Sharpe 4184), and species poorly known in the Central Queensland Coast bioregion such as <i>Geophila repens</i> and <i>Ventilago pubiflora</i>. Critical habitat for fruit pigeons and the Rufous Owl. In cleared farmlands, remnant rainforests on creek lines helps to slow their degradation and maintain water quality, which assists a variety of wildlife including fish, birds and invertebrates.</p> <p>8.3.1b: Habitat for restricted plant species such as <i>Macrozamia miquelii</i>, and plant species at their southern range limits such as <i>Exallage lapeyrousei</i>.</p>
<b>Comments:</b>	<p>8.3.1a: Distinguished from most other rainforest regional ecosystems and vegetation communities by its occurrence on Quaternary alluvium, closely associated with creeks. Distinguished from 8.3.1b by occurring in subregions 1-3 and 6 (8.3.1b occurs in subregion 4 and 5 only) and there are a suite of species occurring in 8.3.1b which are at the northern limit of their range and therefore do not occur in 8.3.1a (such as <i>Macrozamia miquelii</i>). Also closely related to 8.3.10 which occurs away from creek lines, and 8.3.9 which occurs on perched alluvials in valleys of undulating mountain ranges. Widely distributed along watercourses throughout subregions 1 to 3 and 6, from Cape Gloucester to St Lawrence. Major lowland rainforest regional ecosystem now mostly cleared for sugar cane. Threatened by fire, pesticide run-off, weed invasion, and machinery damage to edges. Significant weeds include mango (*<i>Mangifera indica</i>), guava (*<i>Psidium guajava</i>) and cats claw (*<i>Macfadyena unguis-cati</i>). Others include *<i>Rivina humilis</i>, *<i>Passiflora suberosa</i>, *<i>P. pallida</i> and *<i>Lantana camara</i>.</p> <p>8.3.1b: Distinguished from most other rainforest regional ecosystems and vegetation communities by its occurrence on Quaternary alluvium, closely associated with creeks. Distinguished from 8.3.1a by occurring in subregion 4 and 5 only (8.3.1b occurs in subregions 1-3 and 6) and there are a suite of species occurring in 8.3.1b which are at the northern limit of their range and therefore do not occur in 8.3.1a (such as <i>Macrozamia miquelii</i>). Also closely related to 8.3.10 which occurs away from creek lines, and 8.3.9 which occurs on perched alluvials in valleys of undulating mountain ranges. Widely distributed along watercourses throughout subregions 4 and 5, from Georges Creek in the southern most part of Shoalwater Bay, south to Alligator Creek (20km north of Camoo Caves and east to the Corio Bay area). Much of the extent of this vegetation community lies in fairly undisturbed areas and therefore it remains in good condition compared to other fringing communities in the bioregion. Despite this, the fertile soils and regular flooding disturbance enable weed establishment. The most common weeds are *<i>Lantana camara</i>, *<i>Passiflora suberosa</i>, *<i>P. pallida</i>, *<i>Triumfetta rhomboidea</i>, *<i>Solanum seforthianum</i> and *<i>Rivina humilis</i>.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 14000 ha; Remnant 2021 7000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	Under review

## Regional ecosystem 8.3.2

**Description:** *Melaleuca viridiflora* var. *viridiflora* open forest to woodland (to low open forest to low open woodland) (5-14m tall). Occasional associated canopy species or emergents include *Corymbia clarksoniana*, *Eucalyptus platyphylla*, *Lophostemon suaveolens*, *C. dallachiana*, *C. intermedia*, *E. exserta*, *Pandanus cookii* and *E. drepanophylla*. There is frequently a very sparse lower tree or shrub layer which may include juvenile *Melaleuca* spp., *Acacia leptocarpa*, *Planchonia careya*, juvenile eucalypts and *Allocasuarina* spp. The ground layer is often mid-dense and varies according to the duration of inundation in the wet season. Wetter sites are frequently dominated by *Ischaemum australe* and/or *I. fragile*. Less frequently inundated areas are commonly dominated by species such as *Eremochloa bimaculata*, *Themeda triandra* and *Chrysopogon fallax*. Other associated species include *Imperata cylindrica*, *Fimbristylis dichotoma*, *Heteropogon triticeus*, *Alloteropsis semialata*, *Abildgaardia* spp., *Sorghum nitidum* forma *aristatum*, *Flemingia parviflora*, *Murdannia graminea* and *M. gigantea*. Some sites are sandy, and dominant species may include *Xanthorrhoea johnsonii*, *Ischaemum* spp., *Schoenus sparteus*, *Chrysopogon fallax* and *Scleria novae-hollandiae*. At the height of the wet season, in any of these ground layer variations, a variety of ephemeral species may dominate. Seasonally inundated, level to sloping alluvial plains of lowlands and foothills. Geology is primarily Qf, Qa, Qf>Pc/v and Qr (Quaternary sand, gravel, clay, rubble and silt; flood-out sheets, small fans, some colluvial and residual deposits). Soils are duplex, with surface ranging from clays to sands. Often has a debil-debil surface soil formation. Palustrine. (BVG1M: 21a).

<b>Short description:</b>	<i>Melaleuca viridiflora</i> woodland on seasonally inundated alluvial plains with impeded drainage
<b>Supplementary descriptions:</b>	Batianoff, Dillewaard and Franks (1997), Vegetation unit 11; Brushe et al. (in prep), c48-3, c48-3c, c111; Cumming (1997), Vegetation type 18; Nexus Environmental Studies Pty Ltd (1998), Vegetation mapping unit 3d; Pollock and Champion (1994), Vegetation Unit E; Warrien and Lavarack (in prep), Vegetation unit 7a, 7b
<b>Subregions:</b>	2, 4, (6), (3), (5), (1)
<b>Protected areas:</b>	Cape Palmerston NP, Sandringham Bay CP, Newry Islands NP, Skull Knob CP, Lindeman Islands NP, West Hill NP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Palustrine
<b>Special values:</b>	8.3.2: Habitat for the near threatened species <i>Habenaria xanthantha</i> and <i>Eulophia bicallosa</i> . Habitat for a number of poorly known species, or species at the edge of their range, including <i>Pheidochloa gracilis</i> , <i>Cartonema brachyantherum</i> , <i>Platostoma longicorne</i> , <i>Cyperus sanguinolentus</i> , <i>Hibbertia</i> sp. (Barakula V.Hando 122), <i>Eleocharis setifolia</i> , <i>Fimbristylis aestivalis</i> , <i>Fimbristylis depauperata</i> , <i>Fimbristylis tristachya</i> , <i>Haloragis heterophylla</i> , <i>Murdannia gigantea</i> , <i>Phyllanthus simplex</i> , <i>Scleria caricina</i> , <i>Salomonina ciliata</i> , <i>Mitrasacme paludosa</i> , <i>Byblis liniflora</i> , <i>Fimbristylis furva</i> and <i>Drosera burmanni</i> .
<b>Comments:</b>	8.3.2: Distinguished from all other land zone 3 <i>Melaleuca</i> spp. dominated communities by the clear dominance of <i>M. viridiflora</i> var. <i>viridiflora</i> . If any confusion exists between the identification of this and <i>M. viridiflora</i> var. <i>attenuata</i> (8.3.11), these regional ecosystems can be distinguished by 8.3.11 always occurring in swamps which are inundated for several months of the year and have a much more aquatic species dominated ground stratum (8.3.2 is usually only inundated from a few days to up to a few weeks at a time). Mainly across subregions 2 and 3 from east of Ben Lomond in the north to Mosquito Creek (south of Elalie). Also found in Subregion 4 within the Shoalwater Bay Military Training Area. Extensively cleared for sugar cane. Most remnants are south of Sarina, but these are currently subject to clearing for coastal development and expansion of sugar. Intense grazing pressure causes soil compaction, damages natural debil-debil formations and increases the fertility of the soil, encouraging weed establishment. Weeds that threaten this RE include <i>*Sporobolus jacquemontii</i> , <i>*Sporobolus fertilis</i> , <i>*Sporobolus pyramidalis</i> , <i>*Stachytarpheta jamaicensis</i> and <i>*Stylosanthes scabra</i> .
<b>Estimated extent:<sup>1</sup></b>	Pre-clearing 45000 ha; Remnant 2021 8000 ha
<b>VM class:</b>	Endangered
<b>Biodiversity status:</b>	Endangered
<b>Biodiversity status notes:</b>	

### Regional ecosystem 8.3.3

**Description:** *Melaleuca leucadendra* and/or *M. fluviatilis* and/or *Casuarina cunninghamiana* open forest to woodland (to low open forest to low-woodland) (8-30m tall). Associated species may include *Lophostemon suaveolens*, *Corymbia intermedia*, *Nauclea orientalis*, *Terminalia sericocarpa*, *Syncarpia glomulifera* subsp. *glomulifera*, *Corymbia intermedia*, *Ficus racemosa* and *Eucalyptus tereticornis*. There are sometimes very sparse to mid-dense lower tree and shrub layers which include rainforest pioneering or riparian species such as *Carallia brachiata*, *Glochidion sumatranum*, *Melaleuca viminalis*, *Nauclea orientalis*, *Syzygium australe*, *Allocasuarina* spp., *Syzygium oleosum*, *Cryptocarya vulgaris*, *Mallotus philippensis*, *Acacia flavescens*, *Scolopia braunii*, *Millettia pinnata*, *Timonius timon* var. *timon*, *Lophostemon grandiflorus* and *Grevillea venusta*. The ground layer is typically very sparse, and dominant species may include *Lomandra longifolia*, *Lomandra hystrix*, *Pteridium esculentum*, *Gahnia aspera*, *Scleria sphacelata*, *Ottochloa nodosa*, *Oplismenus* spp., *Adiantum aethiopicum* and *Chrysopogon filipes*. Stream banks and levees (sandy or rocky) on level plains to rolling hills of lowlands and foothills. Geology is Qf, Qa, Qha and Qr (Quaternary sand, gravel, clay, silt, gravel, rubble and soil, semi-consolidated in places; flood-out sheets, small fans, floodplain alluvium, active stream channels, low terraces, some colluvium and residual soil). Riverine. (BVG1M: 22c).

Vegetation communities in this regional ecosystem include:

8.3.3a: *Melaleuca leucadendra* or *M. fluviatilis* and/or *Casuarina cunninghamiana* open forest to woodland (to low open forest to low-woodland) (8-30m tall). Occasional associated species include *Lophostemon suaveolens*, *Corymbia intermedia*, *Nauclea orientalis*, *Terminalia sericocarpa*, *Ficus racemosa*, *Eucalyptus tereticornis*, *Corymbia trachyphloia* and *Pandanus cookii*. There are sometimes very sparse to mid-dense lower tree and shrub layers which may consist of rainforest pioneering or riparian species such as *Carallia brachiata*, *Glochidion sumatranum*, *Nauclea orientalis*, *Syzygium australe*, *Mallotus philippensis*, *Scolopia braunii*, *Cryptocarya vulgaris*, *Millettia pinnata*, *Timonius timon* var. *timon*, *Lophostemon grandiflorus*, *Livistona decora* and *Ficus congesta* var. *congesta*. Sclerophyllous species may include *Melaleuca viminalis*, *Casuarina cunninghamiana*, *Lophostemon suaveolens*, *Acacia aulacocarpa*, *A. flavescens* and *Grevillea banksii*. The ground layer is typically very sparse, and dominant species may include *Oplismenus* spp., *Lomandra longifolia*, *Lomandra hystrix*, *Scleria sphacelata*, *Pteridium esculentum*, *Ottochloa nodosa*, *Adiantum aethiopicum*, *Gahnia aspera*, *Chrysopogon filipes* and *Imperata cylindrica*. Stream banks and levees (sandy or rocky) on level plains to rolling hills of lowlands and foothills. Geology is mapped as Qf, Qa, Qha and Qr (Quaternary sand, gravel, clay, silt, gravel, rubble and soil, semi-consolidated in places; flood-out sheets, small fans, floodplain alluvium, active stream channels, low terraces, some colluvium and residual soil). Riverine. (BVG1M: 22c).

8.3.3b: *Melaleuca leucadendra* open forest to woodland (to low open forest to low-woodland) (9-25m tall). Associated species in the canopy may include *Syncarpia glomulifera* subsp. *glomulifera*, *Corymbia intermedia*, *Lophostemon suaveolens*, *Cryptocarya vulgaris*, *Eucalyptus portuensis*, *E. tereticornis*, *Allocasuarina littoralis* and *Polyalthia nitidissima*. Emergents such as *E. portuensis* and *S. glomulifera* subsp. *glomulifera* may be present. There is often a mid-dense to very sparse secondary tree layer dominated by species such as *Allocasuarina* spp., *Syzygium oleosum*, *Cryptocarya vulgaris*, *Acacia flavescens* and *Sersalisia sericea*. A shrub layer is sometimes present, and may include *Grevillea venusta*, *Acacia flavescens*, *Scolopia braunii*, *Hibbertia vestita*, and *Glochidion ferdinandi*. The ground layer is very sparse to sparse consisting of species such as *Lomandra longifolia*, *Gahnia aspera*, *Macrozamia miquelii*, *Scleria sphacelata*, *Dianella caerulea*, *Bowenia serrulata* and *Pteridium esculentum*. Stream banks (often rocky) and terrace flats on undulating low hills to steep hills of foothills. Geology is Qa (Quaternary clay, silt, sand, gravel and soil; floodplain alluvium, colluvial and residual deposits). Riverine. (BVG1M: 22c).

<b>Short description:</b>	<i>Melaleuca leucadendra</i> and/or <i>M. fluviatilis</i> and/or <i>Casuarina cunninghamiana</i> +/- <i>Syncarpia glomulifera</i> open forest on creek banks
<b>Supplementary descriptions:</b>	Bailey et al. (2003), CRPml-3, RP-3; Batianoff, Dillewaard and Franks (1997), 16, 17, 18; Bean (1992b ), Vegetation type Cc: Riverine forest; Brushe et al.: Map Unit c29, c30; c54-11, c54-12, c77; Cumming (1997), Vegetation type: 22
<b>Subregions:</b>	2, 3, 4, 6, (5), (11.14), (1), (11.2), (11.12)
<b>Protected areas:</b>	Byfield NP, Cape Palmerston NP, West Hill NP, Bluff Hill NP, Dryander NP, Eungella NP, Kelvin NP, Kelvin FR, Pioneer Peaks NP, Conway NP, Mount Martin NP, Sandringham Bay CP, Andromache CP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Riverine

<b>Special values:</b>	<p>8.3.3: Potential habitat for NCA listed species: <i>Grevillea venusta</i>, <i>Lobelia membranacea</i>, <i>Sowerbaea subtilis</i>.</p> <p>8.3.3a: Habitat for near threatened plant species <i>Eulophia bicallosa</i> and <i>Lobelia membranacea</i>. The combination of the fairly high diversity of canopy or subcanopy species, species not found in the surrounding landscape, and humid micro-environment makes this vegetation community an important food resource and refuge for a variety of fauna which are then often able to utilise the surrounding ecosystems. Habitat for the Rufous Owl and Grey Goshawk.</p> <p>8.3.3b: Habitat for vulnerable plant species <i>Grevillea venusta</i>. Habitat for species that are poorly known in the Central Queensland Coast bioregion including <i>Dodonaea triquetra</i>, <i>Daviesia umbellulata</i>, <i>Melaleuca hemisticta</i>, <i>Zieria minutiflora</i> subsp. <i>trichocarpa</i>, <i>Hibbertia velutina</i>, <i>Hovea longipes</i> and species at the northern limit of their range such as <i>Hibbertia vestita</i>, <i>Pomaderris ferruginea</i>, <i>Sannantha bidwillii</i>, <i>Philotheca difformis</i> subsp. <i>smithiana</i>, <i>Macrozamia miquelii</i>, <i>Lepidosperma elatius</i> and <i>Hovea clavata</i>. Also habitat for <i>Bowenia serrulata</i> which is restricted to the Shoalwater area. The combination of the fairly high diversity of canopy or subcanopy species, species not found in the surrounding landscape, and humid micro-environment makes this vegetation community an important food resource and refuge for a variety of fauna which are then often able to utilise the surrounding ecosystems.</p>
<b>Comments:</b>	<p>8.3.3a: Similar to 8.3.3b but lacks the prominent presence of <i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>, as well as species such as <i>Grevillea venusta</i>, <i>Macrozamia miquelii</i> and <i>Bowenia serrulata</i>. Distinguished from all other regional ecosystems and vegetation communities by the occurrence on stream banks and dominance of <i>Melaleuca leucadendra</i> or <i>M. fluviatilis</i> and/or <i>Casuarina cunninghamiana</i>. Widely spread throughout the lowland areas of the bioregion, from east of Dingo Beach in the north to St Lawrence. Also occurs in subregions 4 and 5 from Townshend Island in the north to Yeppoon. Ranges from excellent to very poor, usually depending on how disturbed the surrounding land is and whether water flow has been interrupted by weirs and dams. Many streams have become severely eroded due to clearing or gradual vegetation loss through burning (usually for surrounding cane harvesting). Cattle frequent the banks for water and shade, and this, in combination with the naturally high fertility of this vegetation community, makes severe weed invasion a common problem. Problem weed species include *<i>Lantana camara</i>, *<i>Passiflora suberosa</i>, *<i>P. pallida</i>, *<i>Solanum seafortianum</i>, *<i>Triumfetta rhomboidea</i>, *<i>Megathyrsus maximus</i> and *<i>Ageratum</i> spp.</p> <p>8.3.3b: Similar to 8.3.3b but is distinguished by the prominent presence of <i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>, as well as the presence of species such as <i>Grevillea venusta</i>, <i>Macrozamia miquelii</i> and <i>Bowenia serrulata</i>. Distinguished from all other regional ecosystems by a combination of occurring strictly on stream banks and being dominated by <i>Melaleuca leucadendra</i>. Occurs only fringing water courses around the Coast Range area west of Corio Bay, subregion 5. Most examples within the Shoalwater Bay Military Training Area (SWBTA) and Byfield National Park are in good condition despite being vulnerable to weed invasion. Weed species recorded include *<i>Lantana camara</i>, *<i>Passiflora suberosa</i>, *<i>P. pallida</i> and *<i>Melinis minutiflora</i>.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 27000 ha; Remnant 2021 16000 ha
<b>VM class:</b>	Least concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b> The linear nature of the RE makes it prone to disturbance from cane fires and earthworks associated with river drainage enhancement. This has resulted in invasion by aggressive introduced grasses and other weeds including vines.	



## Regional ecosystem 8.3.4

**Description:** Freshwater wetlands with permanent or semi-permanent water and aquatic vegetation. Includes sedgelands, grasslands and forblands with areas of open water in the deepest sections. Dominant and associated species may include *Leersia hexandra*, *Nymphoides indica*, *Eleocharis dulcis*, *Nymphaea gigantea*, *Nymphaea violacea*, *Eleocharis sphacelata*, *Panicum paludosum*, *Pseudoraphis spinescens*, *Azolla pinnata*, *Phragmites australis*, *Utricularia aurea*, *Utricularia gibba*, and *Persicaria decipiens*. Species which may grow in shallower water on the edges of the swamp include *Ludwigia peploides* subsp. *montevidensis*, *Eleocharis philippinensis*, *Eleocharis dietrichiana*, *Hygrophila angustifolia*, *Nymphoides crenata*, *Cyperus alopecuroides*, *Cyperus gunnii* subsp. *novae-hollandiae*, *Marsilea hirsuta*, *Marsilea crenata*, *Marsilea mutica* and *Utricularia aurea*. Swamps (near coastal) on level plains of lowlands. Geology mapped as Qa, Qw and Qf>Pc/v (Quaternary clay, silt, sand and gravel; mainly alluvium, some colluvium, residual soil, swamp deposits, flood-out sheets and small fans). Palustrine. (BVG1M: 34a).

**Short description:** Freshwater wetlands with permanent water and aquatic vegetation

**Supplementary descriptions:** Bailey et al. (2003) CW-1\_3; Cumming (1997), Vegetation types 33, 34; Nexus Environmental Studies Pty Ltd (1998) Vegetation units 6a, 6b, 6c

**Subregions:** 2, 5, (1), (3), (11.14), (4)

**Protected areas:** Cape Palmerston NP, Northumberland Islands NP, Conway NP

**Extent in reserves:** Low

**Wetland:** Palustrine

**Special values:** 8.3.4: Intact (non-weedy) examples of this regional ecosystem are now very rare and those remaining are under severe threat. Habitat for a number of species with a narrow habitat range and poorly known, including *Eleocharis philippinensis*, *Eleocharis dietrichiana*, *Nymphaea* spp., *Nymphoides* spp., *Marsilea* spp., and *Utricularia aurea*. Important habitat for a large variety of water birds and other fauna. Important habitat for barramundi.

**Comments:** 8.3.4: Distinguished from all other regional ecosystems by the dominance of aquatic vegetation and fresh standing water. Mainly occurs on the Goorganga Plains south-east of Proserpine. It is also mapped behind Blacks Beach, north Mackay, Cape Palmerston area, and between Corio Bay and Yeppoon. This regional ecosystem has been extensively drained and cultivated for sugar cane. Most of the remaining areas of this regional ecosystem are suffering severe infestations of para grass (*\*Urochloa mutica*) and hymenachne (*\*Hymenachne amplexicaulis*) with associated major reduction in species diversity comparative to the impact caused by the clearing of a woodland community. Other weeds include *\*Mecardonia procumbens*, *\*Nymphaea caerulea* subsp. *caerulea* and various pasture grasses. Areas dominated by exotic species may be included within areas mapped as remnant. Some areas (e.g. Goorganga Plains) have been established since pre-clearing times by the building of bund walls to prevent saltwater encroachment.

**Estimated extent:**<sup>1</sup> Pre-clearing 2000 ha; Remnant 2021 1000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:** Invasion by aggressive introduced grasses that form monocultures which exclude native species.

## Regional ecosystem 8.3.5

**Description:** *Eucalyptus platyphylla* and/or *Lophostemon suaveolens* and/or *Corymbia clarksoniana* open forest to low woodland (7-24m tall). Includes areas with almost pure stands of *E. platyphylla*, and a few areas which are pure stands of *L. suaveolens*. More commonly these three species occur together. Occasional associated canopy species are *Eucalyptus drepanophylla* (or *E. crebra*), *Corymbia dallachiana*, *C. intermedia* and *C. tessellaris*. There are frequently very sparse lower tree layers, and dominants may include *Melaleuca viridiflora* var. *viridiflora*, *Allocasuarina torulosa*, *Lophostemon suaveolens*, *Planchonia careya*, *Acacia leiocalyx* and *A. leptocarpa*. There is frequently a shrub layer consisting of scattered individuals of *Acacia leptocarpa* and other saplings from upper layers, as well as *Glochidion lobocarpum*, *Coelospermum reticulatum*, *Glochidion apodogynum*, and sometimes pioneering rainforest elements. The ground layer is commonly dominated by species such as *Imperata cylindrica*, *Themeda triandra*, *Heteropogon triticeus*, *Eragrostis brownii* and *Sorghum nitidum* forma *aristatum*. Associated species may include *Flemingia parviflora*, *Eremochloa bimaculata*, *Scleria brownii*, *Fimbristylis dichotoma* and *Mnesithea rottboellioides*. Plains, fans, terrace flats and terrace plains, and slopes, on gently undulating alluvial plains of lowlands and foothills. Geology mainly mapped as Qf, Qa and Qha (Quaternary sand, gravel, clay, rubble and silt: flood-out sheets, small fans, some colluvium, active stream channels and low terraces). Not a Wetland. (BVG1M: 9e).

**Short description:** *Eucalyptus platyphylla* and/or *Lophostemon suaveolens* and/or *Corymbia clarksoniana* woodland on alluvial plains

**Supplementary descriptions:** Batianoff, Dillewaard and Franks (1997), Vegetation unit 14; Bean (1991), Vegetation type 4 and 17; Brushe et al. c34-3; Cumming (1997), Vegetation type 8 (in part), 9; Kemp (2009) C; Nexus Environmental Studies Pty Ltd (1998), 3c; Pollock and Champion (1994), Unit D

**Subregions:** 2, 6, 4, 3, 1, (11.14), (5)

**Protected areas:** Dryander NP, Cape Palmerston NP, Conway NP, West Hill NP, Gloucester Island NP, Cape Hillsborough NP, Pioneer Peaks NP, Skull Knob CP, Sandringham Bay CP, Eungella NP, Kelvin NP, South Cumberland Islands NP, Andromache CP, Mount Ossa NP, Bluff Hill NP, Mount Kinchant CP

**Extent in reserves:** Low

**Wetland:** Not a Wetland

**Special values:** 8.3.5: The regional ecosystem has a very diverse ground layer, which has been poorly surveyed for flora and fauna. Likely to be habitat for the Red-cheeked Dunnart (*Sminthopsis virginiae*) which has been recorded south of Mount Blackwood, and otherwise rarely recorded in the bioregion. Habitat for many plant species which are poorly known in the Central Queensland Coast bioregion (and/or at the limits of their known range), including *Jacksonia scoparia*, *Murdannia gigantea*, *Aristida acuta*, *Cyperus zollingeri*, *Hibbertia vestita*, *Goodenia pilosa*, *Panicum seminudum* var. *cairnsianum*, *Polygala wightiana*, *Schizachyrium pseudeulalia* and *Vigna* sp. (Station Creek R.J.Lawn CQ3284).

**Comments:** 8.3.5: Distinguished from all other land zone 3 ecosystems and vegetation communities by the dominance of *Eucalyptus platyphylla* and/or *Lophostemon suaveolens* and/or *Corymbia clarksoniana*. Occurs throughout all of the northern subregions, from Gloucester Island south to St Lawrence. Also mapped within the Shoalwater Bay Military Training Area, and some islands, in subregion 4. Extensively cleared for sugar cane. Highly fragmented in the northern subregions where most remnants are very small and the largest remnants are mainly south of Sarina where they are currently subject to clearing for coastal development and expansion of sugar. Readily subject to weed invasion, and the most problematic species are *\*Lantana camara*, *\*Hyparrhenia rufa*, *\*Sporobolus jacquemontii*, *\*Sida rhombifolia*, *\*Triumfetta rhomboidea*, *\*Mimosa pudica*, *\*Stachytarpheta jamaicensis*, *\*Bothriochloa pertusa*, *\*Sporobolus fertilis*, *\*Themeda quadrivalvis*, *\*Urochloa subquadripa* and *\*Passiflora suberosa*, *\*P. pallida*. The condition of remnants in subregions 1-3 is generally poor, whilst those in subregion 4 are good. A low fire frequency causes invasion by pioneering rainforest spp.

**Estimated extent:**<sup>1</sup> Pre-clearing 155000 ha; Remnant 2021 21000 ha

**VM class:** Of concern

**Biodiversity status:** Endangered

**Biodiversity status notes:** Fragmented nature of remnants and their susceptibility to weeds, and, in the absence of fire, rainforest pioneer species.

## Regional ecosystem 8.3.6

**Description:** *Eucalyptus tereticornis*, *Corymbia intermedia* (or *C. clarksoniana*) and *Lophostemon suaveolens* open forest to woodland, or *C. tessellaris* open forest to woodland. Sometimes *C. tessellaris* or *C. intermedia* may be dominant. Other, less common species in the canopy may include *E. platyphylla*, *Melaleuca dealbata* and *M. leucadendra*. A very sparse to sparse secondary tree layer is often present and may include *Lophostemon suaveolens*, *Albizia procera*, *Planchonia careya* and *Melaleuca viridiflora* var. *viridiflora*. Rainforest species are often present, and sometimes form a mid-dense secondary tree layer. There is sometimes a very sparse to sparse shrub layer, typically including *Planchonia careya*, *Glochidion lobocarpum*, *Acacia leiocalyx* subsp. *leiocalyx* and *Acacia leptocarpa*. The ground layer is commonly composed of species such as *Imperata cylindrica*, *Themeda triandra*, *Sorghum nitidum* forma *aristatum*, *Heteropogon triticeus*, *H. contortus* and *Eremochloa bimaclata*. Occurs on plains, terrace flats, slopes, levees and drainage depressions on level alluvial plains of lowlands. Geologies include Qa, Qf, Qr and Qha (Quaternary sand, gravel, clay, rubble, silt and soil, semi-consolidated in places: mainly alluvium, some colluvium and residual soil, flood-out sheets, small fans, active stream channels and low terraces). Not a Wetland. (BVG1M: 9e).

Vegetation communities in this regional ecosystem include:

8.3.6a: *Eucalyptus tereticornis*, *Corymbia intermedia* (or *C. clarksoniana*) and *Lophostemon suaveolens* open forest to woodland, or *C. tessellaris* open forest to woodland. *Eucalyptus tereticornis* may sometimes codominate where *C. tessellaris* is prominent. Other, less common species in the canopy may include *E. platyphylla*, *Melaleuca dealbata*, *M. leucadendra* and *Livistona decora*. A sparse secondary tree layer is often present and may include *Lophostemon suaveolens*, *Albizia procera*, *Planchonia careya* and sometimes *Melaleuca viridiflora* var. *viridiflora*, *M. nervosa* and *Livistona decora*. Rainforest species are often present, and sometimes form a mid-dense secondary tree layer. Species include *Millettia pinnata*, *Tabernaemontana orientalis*, *Larsenaikia jardinei*, *Cupaniopsis anacardioides*, *Jagera pseudorhus*, *Acronychia laevis*, *Litsea glutinosa*, *Diospyros geminata* and *Mallotus philippensis*. There is a sparse shrub layer, typically including *Planchonia careya*, *Glochidion lobocarpum*, *Acacia leptocarpa*, *Ficus opposita* and *Timonius timon* var. *timon*. The ground layer is commonly composed of *Imperata cylindrica*, *Sorghum nitidum* forma *aristatum*, *Heteropogon triticeus*, *H. contortus* and *Lomandra longifolia*. Occurs on terrace flats and fans on level alluvial plains of lowlands. Geologies include Qa, Qf and Qha (Quaternary clay, silt, sand, gravel, rubble and soil; mainly alluvium, some colluvium, flood-out sheets, small fans, active stream channels and low terraces). Not a Wetland. (BVG1M: 9e).

8.3.6c: *Eucalyptus tereticornis* open woodland to closed forest. Common associated species include *Corymbia intermedia* and *Lophostemon suaveolens*. (Occasionally *Corymbia intermedia* or *Lophostemon suaveolens* are dominant, and *E. tereticornis* may occur as an emergent). Other occasional associated species may include *E. platyphylla*, *C. tessellaris* and *E. crebra*. There is often a very sparse to sparse secondary tree layer consisting of species such as *Lophostemon suaveolens*, *Melaleuca viridiflora* var. *viridiflora*, *Allocasuarina torulosa* and *Banksia integrifolia* subsp. *compar*. There is sometimes a very sparse to sparse shrub layer of species such as *Acacia leiocalyx* subsp. *leiocalyx*, *Planchonia careya*, *Melaleuca viridiflora* var. *viridiflora* and *Acacia crassa* subsp. *longicoma*. The ground layer is mid-dense to very sparse and includes species such as *Themeda triandra*, *Heteropogon triticeus*, *H. contortus*, *Imperata cylindrica*, *Pteridium esculentum*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Arundinella nepalensis* and *Eremochloa bimaclata*. Occurs on plains, terrace flats, slopes, levees and drainage depressions on level alluvial plains of lowlands. Geologies include Qr and Qa (Quaternary clay, silt, sand, gravel and soil; colluvial, residual deposits and floodplain alluvium). Not a Wetland. (BVG1M: 9e).

<b>Short description:</b>	<i>Eucalyptus tereticornis</i> and/or <i>Corymbia intermedia</i> (or <i>C. clarksoniana</i> ) and/or <i>C. tessellaris</i> +/- <i>Lophostemon suaveolens</i> open forest on alluvial levees and lower terraces
<b>Supplementary descriptions:</b>	Bailey et al. (2003), ETC-3; Brushe et al. (in prep), Map Unit c31, c32, c33; Ryan et al. (2003), Vegetation unit 8TF2
<b>Subregions:</b>	4, 2, 3, (11.14), (1), (6), (5), (11.12)
<b>Protected areas:</b>	Byfield NP, Dryander NP, West Hill NP, Kelvin FR, Kelvin NP, Keppel Bay Islands NP, Eungella NP, Andromache CP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Not a Wetland

<b>Special values:</b>	<p>8.3.6: Potential habitat for NCA listed species: <i>Grevillea venusta</i>.</p> <p>8.3.6a: Any remnants which are in good condition with minimal weed invasion are considered to be extremely high value as most remnants are heavily invaded by weeds. Known habitat for endangered Red Goshawk and arboreal mammals.</p> <p>8.3.6c: Habitat for species at the northern limit of their range including <i>Petalostigma triloculare</i>, and <i>Podolepis longipedata</i>, as well as species poorly known in the Central Queensland Coast bioregion such as <i>Acacia leiocalyx</i> subsp. <i>leiocalyx</i>, <i>Acronychia imperforata</i>, <i>Hypoxis pratensis</i> var. <i>pratensis</i> and <i>Lomandra leucocephala</i> subsp. <i>leucocephala</i>. The few areas which remain in good condition within the Shoalwater Bay Training Area are extremely valuable given the long history of clearing, and detrimental effects of grazing on this regional ecosystem overall.</p>
<b>Comments:</b>	<p>8.3.6a: Very similar to 8.3.6c and most easily distinguished from it by its distribution (8.3.6a occurs in subregions 1,2,3 and 6 whilst 8.3.6c occurs in subregions 4 and 5). The regional ecosystems 8.3.13c and 8.3.13d may be similar but these occur on the interface between alluvial and estuarine (or sand dune) areas. All other <i>E. tereticornis</i> or <i>C. tessellaris</i> dominated regional ecosystems occur on different land zones. Occurs in the northern subregions (1, 2, 3 and 6). Scattered throughout the lowlands from east of Dingo Beach in the north to Mountain View station (20km west of Clairview). Very little remains of this regional ecosystem due to its occurrence on very fertile alluvial soils which have mainly been cleared for agriculture. Many remaining areas are heavily infested with herbaceous weeds, and the few remaining areas in reasonable condition are highly threatened by weed invasion due to the high fertility of the soils. Common weeds include *<i>Hyparrhenia rufa</i>, *<i>Lantana camara</i>, *<i>Triumfetta rhomboidea</i>, *<i>Urena lobata</i>, *<i>Megathyrsus maximus</i>, *<i>Ageratum conyzoides</i> subsp. <i>conyzoides</i>, *<i>Passiflora suberosa</i>, *<i>P. pallida</i>, *<i>Passiflora foetida</i>, *<i>Stylosanthes</i> spp., *<i>Mimosa pudica</i>, *<i>Sporobolus jacquemontii</i>, *<i>Stachytarpheta jamaicensis</i>, *<i>Centrosema molle</i> and *<i>Chamaecrista rotundifolia</i>.</p> <p>8.3.6c: Very similar to 8.3.6a and most easily distinguished from it by its distribution (8.3.6a occurs in subregions 1,2,3 and 6 whilst 8.3.6c occurs in subregions 4 and 5). The regional ecosystems 8.3.13c and 8.3.13d may be similar but these occur on the interface between alluvial and estuarine (or sand dune) areas. All other <i>Eucalyptus tereticornis</i> or <i>Corymbia tessellaris</i> dominated regional ecosystems occur on different land zones. Occurs throughout subregions 4 and 5 from Pinetrees Point just north of the mouth of Island Head Creek to Yeppoon. Also mapped on the Keppel islands. It is most extensive in an area to the north of Corio Bay. Vulnerable to weed invasion, and some areas are severely impacted. This ecosystem when not cleared, is preferred grazing for cattle and has therefore been subject to past and present moderate to high disturbance from grazing animals. A few examples within the Shoalwater Bay Military Training area remain in excellent condition. Common weeds include *<i>Lantana camara</i>, *<i>Urena lobata</i>, *<i>Passiflora suberosa</i>, *<i>P. pallida</i>, *<i>Triumfetta rhomboidea</i>, *<i>Melinis minutiflora</i>, *<i>Passiflora foetida</i>, *<i>Crotalaria goreensis</i>, *<i>Crotalaria pallida</i>, *<i>Megathyrsus maximus</i>, *<i>Sida cordifolia</i> and *<i>Themeda quadrivalvis</i>.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 66000 ha; Remnant 2021 15000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	Under review

## Regional ecosystem 8.3.8

**Description:** Syncarpia glomulifera and/or Eucalyptus portuensis and/or Corymbia intermedia open forest to woodland (15-30m tall). Associated species in the canopy may include Lophostemon suaveolens, C. trachyphloia, E. latisinensis and E. platyphylla. There is often a secondary tree layer dominated by species such as Allocasuarina torulosa, A. littoralis, Melaleuca viridiflora var. viridiflora, Banksia integrifolia subsp. compar and Lophostemon suaveolens. There is usually a shrub layer, with typical species including Grevillea banksii, Allocasuarina spp., Melaleuca viridiflora var. viridiflora, Acacia leptocarpa, Planchonia careya, A. flavescens and A. leiocalyx. The ground layer is commonly dominated by Themeda triandra, Xanthorrhoea latifolia subsp. latifolia, Heteropogon triticeus, Eremochloa bimaculata, Arundinella nepalensis and Imperata cylindrica. Plains, slopes, terrace flats, stream channels and footslopes on level plains to rolling hills of foothills. Geology mapped as Qa, Qr, Tw, Qr>PKg, Qr and Qr>Ccs (Quaternary clay, silt, sand, gravel and soil; floodplain alluvium, colluvial and residual deposits). Riverine. (BVG1M: 9d).

**Short description:** Syncarpia glomulifera and/or Eucalyptus portuensis and/or Corymbia intermedia open forest on sandy terrace flats and granite outwash

**Supplementary descriptions:** Bailey et al. (2003), SG-3; Brushe et al. (in prep), Map Unit c101

**Subregions:** 5, 4, (11.14)

**Protected areas:** Byfield NP

**Extent in reserves:** High

**Wetland:** Riverine

**Special values:** 8.3.8: Habitat for the NCA listed species Grevillea venusta. Habitat for species poorly known from the Central Queensland Coast such as Persoonia amaliae, Hibbertia velutina, Gompholobium pinnatum, and for Bowenia serrulata which is highly restricted in distribution (Byfield area). Northern limit of the range of Corymbia gummifera, Daviesia umbellulata, Grevillea venusta (mostly restricted to Shoalwater area), Persoonia virgata, Pomaderris ferruginea, Hibbertia vestita, Macrozamia miquelii and Hovea clavata.

**Comments:** 8.3.8: Distinguished from all other land zone 3 regional ecosystems by the dominance of Syncarpia glomulifera or Eucalyptus portuensis or Corymbia intermedia (usually with S. glomulifera and/or E. portuensis). May look similar to 8.9.1 but 8.9.1 occurs on low rises (land zone 9). Occurs in subregions 4 and 5 in an area west of Cape Manifold to Corio Bay. Some areas have been invaded by feral pine trees (self propagating). Some areas of freehold land are being cleared for pine plantations. Plant harvesting is a potential threat.

**Estimated extent:**<sup>1</sup> Pre-clearing 10000 ha; Remnant 2021 6000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.3.9

**Description:** Semi-deciduous complex notophyll vine forest. Frequent emergents are *Argyrodendron actinophyllum* subsp. *diversifolium*, *Falcataria toona* and *Trema orientalis*. The canopy is often dominated by species such as *Argyrodendron actinophyllum* subsp. *diversifolium*, *Archontophoenix alexandrae*, *Acmenosperma claviflorum*, *Myristica globosa* subsp. *muelleri*, *Beilschmiedia obtusifolia*, *Cryptocarya hypospodia* and *Planchonella myrsinodendron*. Common vines in the canopy include *Austrosteenisia blackii* and *Cissus hastata*. Lower tree layers frequently consist of similar species to the canopy, but also particularly *Archontophoenix alexandrae*, *Macropteranthes fitzalanii*, *Baloghia inophylla*, *Bosistoa pentacocca* subsp. *connaricarpa* and *Backhousia citriodora*. There are often one or more sparse shrub layers consisting of saplings from the upper layers as well as *Acronychia laevis*, *Atractocarpus fitzalanii*, *Cupaniopsis wadsworthii*, *Ficus fraseri*, *Gossia pubiflora*, *Dendrocnide* spp., *Ixora* spp., *Psychotria* spp. and many vines. The ground stratum is sparse, with typical species being *Oplismenus aemulus*, *Pseuderanthemum variabile*, *Aneilema acuminatum* and *Geophila repens*. Occurs on perched alluvials in valley flats of rolling mountains. Not a Wetland. (BVG1M: 4a).

**Short description:** Semi-deciduous complex notophyll vine forest on perched alluvials in valleys of undulating mountain ranges

### Supplementary descriptions:

**Subregions:** 1

**Protected areas:** Conway NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.3.9: Habitat for *Lepiderema* sp. (Impulse Creek A.B.Pollock 73) which is currently known from only a very limited area.

**Comments:** 8.3.9: Distinguished from all other rainforest regional ecosystems by its occurrence on Quaternary alluvium in perched valleys of undulating mountain ranges. Most closely related to 8.3.10 which occurs on colluvium, and 8.3.1a which occurs on Quaternary alluvium of the lowlands. Occurs to the west of the Conway Range around Repulse Creek and The Inlet, subregion 1. Possibly previous logging disturbance.

**Estimated extent:**<sup>1</sup> Pre-clearing 1000 ha; Remnant 2021 1000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.3.10

**Description:** Semi-evergreen to evergreen notophyll vine forest. This ecosystem is primarily defined by its landform, occurring on fans at the base of ranges, and excluding riparian rainforest. Dominants are very variable. Emergents may include *Eucalyptus tereticornis*, *Acacia fasciculifera* and *Cryptocarya hypospodia*. The canopy may include species such as *Dissiliaria indistincta*, *Terminalia melanocarpa*, *Argyrodendron polyandrum*, *Cleistanthus dallachyanus*, *Cryptocarya triplinervis*, *Cryptocarya vulgaris*, *Cryptocarya hypospodia* and *Miliusa brahei*. The sub-canopy may include species such as *Mallotus philippensis*, *Bosistoa pentacocca*, *Aidia racemosa*, *Chionanthus ramiflorus*, *Cleistanthus dallachyanus*, *Diospyros hebecarpa* and *Drypetes deplanchei*. The lower tree and shrub layers may consist of *Tabernaemontana orientalis*, *Alyxia ruscifolia*, *Acronychia laevis*, *Fitzalania heteropetala*, *Psydrax lamprophylla* and *Carallia brachiata*. The ground layer is very sparse with typical species including *Oplismenus aemulus*, *Aneilema acuminatum* and *Pseuderanthemum variabile*. Common vines are *Cissus oblonga*, *Trophis scandens* and *Tetrastigma nitens*. Epiphytes include *Platyserium bifurcatum* and *Dendrobium discolor*. Fans, terrace flats and plains (at the bases of ranges) on level alluvial plains to undulating hills of lowlands and foothills. Geologies are mapped as Qr, Qa and Qf (Quaternary clay, silt, sand, gravel and soil; mainly alluvium, some colluvium, residual deposits, floodplain alluvium, flood-out sheets and small fans). Not a Wetland. (BVG1M: 4a).

**Short description:** Semi-evergreen to evergreen notophyll vine forest on gently to moderately sloping alluvial fans adjacent to ranges

**Supplementary descriptions:** Brushe et al. (in prep), Map Unit c76

**Subregions:** 1, 4, (2), (6), (3), (5)

**Protected areas:** Conway NP, Dryander NP, Molle Islands NP, Dryander FR, South Cumberland Islands NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.3.10: Habitat for threatened plant species *Medicosma obovata*, *Neisosperma kilneri*, *Omphalea celata*, *Ristantia waterhousei* and the near threatened plant species *Brachychiton compactus* and *Rhodamnia glabrescens*. Habitat in some areas for restricted plant species such as *Argyrodendron* sp. (Whitsundays W.J.McDonald+ 5831), *Gossia pubiflora* and *Dissiliaria indistincta*, and for species poorly known in the Central Queensland Coast bioregion such as *Brachychiton acerifolius* and *Corymborkis veratrifolia*.

**Comments:** 8.3.10: Floristically variable and best distinguished from other rainforest ecosystems on alluvium its occurrence on fans close to the bases of ranges, and excluding riparian situations. Occurs in the area of the Dryander Ranges and Conway National Park, with occasional areas to the west of Mackay. Also found to the west of Island Head Creek in the Shoalwater Bay Military Training Area. Ranges from good to poor. Is suffering weed invasion in some parts. Common weed species are \**Lantana camara*, \**Passiflora suberosa*, \**P. pallida* and \**Rivina humilis*.

**Estimated extent:**<sup>1</sup> Pre-clearing 2000 ha; Remnant 2021 2000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.3.11

<b>Description:</b>	Melaleuca viridiflora var. attenuata closed forest to woodland (8-14m tall). Other occasional to rare associated canopy species include Pandanus cookii, Nauclea orientalis, Melaleuca dealbata, M. leucadendra and Lophostemon suaveolens, and more rarely, Corymbia tessellaris and Eucalyptus tereticornis. The epiphyte Dendrobium canaliculatum is almost always present in the canopy. Shrub layers are usually absent. The ground layer is mid-dense to sparse and is often dominated by species such as Ischaemum rugosum, Azolla pinnata, Leersia hexandra, Cyperus gunnii subsp. novae-hollandiae, Cyperus dactyloides and Cyperus lucidus. Broad drainage depressions and swamps on level alluvial plains of lowlands. Water lies at the surface for most of the year. Geology mapped variously as Qf, Qa, Qw and Qha (Quaternary sand, gravel, clay, silt, gravel: flood-out sheets, small fans, floodplain alluvium, some colluvium, residual soil, swamp deposits, active stream channels and low terraces). Palustrine. (BVG1M: 22b).
<b>Short description:</b>	Melaleuca viridiflora var. attenuata open forest in broad drainage areas
<b>Supplementary descriptions:</b>	Batianoff, Dillewaard and Franks (1997), 11 (in part); Nexus Environmental Studies Pty Ltd (1998), 3e
<b>Subregions:</b>	2
<b>Protected areas:</b>	South Cumberland Islands NP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Palustrine
<b>Special values:</b>	8.3.11: This regional ecosystem is dominated by Melaleuca viridiflora var. attenuata which is uncommon in the Central Queensland Coast area, and which resembles M. viridiflora var. viridiflora but is taller, with softer white bark, and paler yellowish flowers which open later in the year than M. viridiflora var. viridiflora. It is naturally restricted to small patches in low drainage depressions, a large proportion of which have now been drained and cleared. The remaining areas are often the only vegetation left standing in an otherwise cleared landscape, and provide valuable habitat for fauna and help to protect riparian systems from erosion. Habitat for species which are poorly known in the Central Qld Coast, such as Utricularia aurea, Lemna aequinoctialis, Ottelia ovalifolia, Dentella repens, Fimbristylis littoralis, Eleocharis philippinensis, Lobelia stenophylla and Panicum paludosum.
<b>Comments:</b>	8.3.11: Melaleuca viridiflora var. attenuata has affinities to M. viridiflora var. viridiflora and M. quinquenervia. This RE can be very similar to some examples of 8.2.11 and 8.2.7e which can be distinguished by their occurrence in dune swales instead of alluvial plains. The RE 8.3.13a may contain some M. viridiflora var. attenuata but it is not the dominant species. Occurs in scattered areas from Goorganga Plain to Bloomsbury and at Notch Point east of Ilbilbie. In pre-clearing times it was found extensively around Mackay and west to Mirani, these areas are no longer considered to be remnant vegetation in 2006. Extensively cleared. Many remnants have severe weed infestations, particularly of *Urochloa mutica (para grass), and *Hymenachne amplexicaulis (hymenachne). Threatened by draining and clearing for agricultural purposes. Generally a palustrine wetland although also some areas have been converted to lacustrine water bodies associated with the construction of bunds and levees.
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 4000 ha; Remnant 2021 300 ha
<b>VM class:</b>	Endangered
<b>Biodiversity status:</b>	Endangered
<b>Biodiversity status notes:</b>	



## Regional ecosystem 8.3.12

**Description:** *Imperata cylindrica* and/or *Sorghum nitidum* forma *aristatum* and/or *Ischaemum australe* closed tussock grassland to open tussock grassland. Other frequent to occasional associated species are *Fimbristylis ferruginea*, *Eremochloa bimaculata*, *Centella asiatica*, *Cyperus flavidus*, *C. polystachyos*, *C. victoriensis*, *C. scariosus*, *Bothriochloa decipiens*, *Eriochloa procera*, *Diplachne fusca*, *Lobelia concolor*, *Flemingia lineata*, *Glycine tabacina* and *Lobelia concolor*. The most common emergent is *Pandanus cookii*. Level alluvial or old marine plains (which no longer receive any tidal inundation, often on black cracking clays) of lowlands. Geology mapped variously as Qf, Qa and Qha (Quaternary sand, gravel, clay and silt: flood-out sheets, small fans, some colluvium, residual soil, active stream channels and low terraces). Palustrine. (BVG1M: 32a).

<b>Short description:</b>	<i>Imperata cylindrica</i> and/or <i>Sorghum nitidum</i> forma <i>aristatum</i> and/or <i>Ischaemum australe</i> tussock grassland on alluvial and old marine plains
<b>Supplementary descriptions:</b>	Batianoff, Dillewaard and Franks (1997), Vegetation unit 9; Nexus Environmental Studies Pty Ltd (1998), 5b
<b>Subregions:</b>	2
<b>Protected areas:</b>	Bakers Creek CP, Sandringham Bay CP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Palustrine
<b>Special values:</b>	8.3.12: The regional ecosystem was previously very extensive, and a large percentage has now been ploughed and drained (and planted with sugar cane), sown with pasture grasses, and/or invaded by weeds. A common misconception is that these areas were timbered pre-clearing (this misconception is exacerbated by some areas now supporting regrowth <i>Melaleuca</i> spp. Or <i>Eucalyptus</i> spp. Perhaps due to changes in drainage). How these areas remained treeless over long periods of time is not well understood but is likely to be a combination of soil and drainage properties, and frequency of burning. Habitat for the Red-cheeked Dunnart.
<b>Comments:</b>	8.3.12: Large areas once existed on black cracking clays for which their species dominance is unknown (all areas now either planted with sugar cane or pasture grasses). These may have been dominated by <i>Ischaemum</i> spp. Large areas which are highly disturbed still remain on the Goorganga plains. Intact areas are restricted to eastern parts of the Goorganga plains and tiny remnants in the Mackay area. Threatened by extensive conversion to agricultural and pastoral lands and associated invasion by weeds, including pasture grasses. Some of the lower elevation grasslands are inundated by water for periods over the wet season and can be considered to be wetlands. There is only one other grassland RE on alluvium - 8.3.14, and this is distinguished by occurring in upland areas (rather than lowlands). Once widely distributed particularly in the Goorganga area, west of Mackay around Victoria Plains, and between Marian and Pleystowe. Now restricted to northern parts of the Goorganga plains and tiny remnants in the Mackay area. Remnants of this grassland in a relatively intact condition are very rare. Weeds and pasture species are now abundant in many remnants, and species which often dominate are <i>*Cynodon dactylon</i> , <i>*Sporobolus jacquemontii</i> , <i>*Sporobolus natalensis</i> , <i>*Urochloa mutica</i> , <i>*Echinochloa polystachya</i> . Near the edges of this community where it abuts estuarine ecosystems, species such as <i>Fimbristylis ferruginea</i> , Some small areas in far northern parts of the Goorganga Plain are very low in weed cover and dominated by the native <i>Sorghum nitidum</i> forma <i>aristatum</i> .
<b>Estimated extent:<sup>1</sup></b>	Pre-clearing 9000 ha; Remnant 2021 2000 ha
<b>VM class:</b>	Endangered
<b>Biodiversity status:</b>	Endangered
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.3.13

**Description:** *Melaleuca quinquenervia* and/or *M. leucadendra* and/or *M. dealbata* and/or *Eucalyptus tereticornis* and/or *Corymbia tessellaris* closed forest to low open woodland (to tall open forest) (5-35m tall). Associated canopy species may include *Melaleuca viridiflora* var. *viridiflora*, *Melaleuca viridiflora* var. *attenuata*, *Lophostemon suaveolens*, *Corymbia intermedia*, *Eucalyptus platyphylla* and *Albizia procera*. Very sparse to sparse lower tree layers are sometimes present and may include *Melaleuca* spp., *Livistona decora* and *Lophostemon suaveolens*, and there is sometimes a well-developed rainforest element consisting of species such as *Millettia pinnata*, *Scolopia braunii*, *Chionanthus ramiflorus* and *Jagera pseudorhus*. A very sparse shrub layer may include *Melaleuca* spp. saplings, *Acacia flavescens*, *Planchonia careya* and *Petalostigma pubescens*. The ground layer is very variable depending on the substrate and degree of inundation. Dominants may be one or several of *Imperata cylindrica*, *Paspalum scrobiculatum*, *Ischaemum australe*, *Eremochloa bimaculata*, *Sorghum nitidum* forma *aristatum*, *Paspalidium distans*, *Themeda triandra* and *Cyperus polystachyos* var. *polystachyos*. Plains, drainage depressions, fans, levees, swales, swamps, flood-outs and backplains (usually near-coastal) on level alluvial or marine plains to gently undulating rises of lowlands. Geology mapped as Qa, Qr and Qf (Quaternary clay, silt, sand, gravel and soil; floodplain alluvium, some colluvium, residual soil, flood-out sheets and small fans). Palustrine. (BVG1M: 22b).

Vegetation communities in this regional ecosystem include:

8.3.13a: *Melaleuca quinquenervia* and/or *M. leucadendra* closed forest to low open woodland (to tall open forest) (10-35m tall). Occasional associated species may include *Melaleuca viridiflora* var. *viridiflora*, *Melaleuca viridiflora* var. *attenuata*, *Lophostemon suaveolens*, *Corymbia intermedia* and *Eucalyptus tereticornis*. Scattered trees forming a secondary tree layer are frequently present and may include *Melaleuca* spp., *Livistona decora*, *Lophostemon suaveolens* and *Syncarpia glomulifera* subsp. *glomulifera*. A very sparse shrub layer may include *Melaleuca* spp. saplings, *Timonius timon* var. *timon*, *Acacia flavescens* and *Melastoma malabathricum* subsp. *malabathricum*. The ground layer is very variable depending on the substrate and degree of inundation. Some combinations of dominants may include *Paspalum scrobiculatum*, *Ischaemum australe* and *Leersia hexandra*, or *Eremochloa bimaculata* with *Sorghum nitidum* forma *aristatum*, or *Paspalidium distans* with *Ischaemum australe* and *Cyperus polystachyos* var. *polystachyos*, or *Ischaemum* spp. with *Entolasia stricta*. Plains, drainage depressions, swamps, flood-outs and backplains (usually near-coastal) on level alluvial or marine plains to gently undulating rises of lowlands. Geology mapped as Qa (Quaternary alluvium, some colluvium and residual soil). Palustrine. (BVG1M: 22b).

8.3.13b: *Melaleuca dealbata* low open forest to low woodland (to open forest to woodland). Commonly consists of single-age stands of immature trees, and in some instances they are not present on the 1960s aerial photography (they were grasslands). Associated canopy species may include occasional *Corymbia tessellaris* and *Melaleuca viridiflora* var. *viridiflora* (or *M. viridiflora* var. *attenuata*). Lower canopy and shrub layers are usually absent. The ground layer is often dominated by *Paspalidium distans*, and associated species may include *Leersia hexandra*, *Chrysopogon filipes*, *Eleocharis* spp. and *Cyperus trinervis*. Plains and very slight depressions on level swampy alluvial or marine plains of lowlands (in the vicinity of the coast). Geology mapped as Qa (Quaternary clay, silt, sand and gravel; floodplain alluvium). Palustrine. (BVG1M: 22b).

8.3.13c: *Eucalyptus tereticornis* and/or *Corymbia tessellaris* low woodland to open forest (9-22m tall). *Melaleuca quinquenervia* and/or *M. dealbata* are sometimes codominant or associated species in the canopy. Other occasional associated canopy species may include *Melaleuca viridiflora* var. *viridiflora* (or *M. viridiflora* var. *attenuata*), *Eucalyptus platyphylla*, *Lophostemon suaveolens* and *Albizia procera*. There are sometimes very sparse to sparse lower tree layers which may be dominated by species such as *Melaleuca viridiflora* var. *viridiflora*, *Eucalyptus tereticornis*, *E. platyphylla* and *Livistona decora*, and there is sometimes a well-developed rainforest element consisting of species such as *Millettia pinnata*, *Scolopia braunii*, *Chionanthus ramiflorus* and *Jagera pseudorhus*. A very sparse shrub layer may be present and may be dominated by saplings from the tree layers and species such as *Petalostigma pubescens*, *Ficus congesta* var. *congesta* and *Acacia disparrima* subsp. *disparrima*. The ground layer is often sparse to mid-dense, and dominants may include *Imperata cylindrica*, *Themeda triandra*, *Ischaemum australe* var. *villosum*, and *Cyperus* spp. Plains, drainage depressions, fans, levees, swales and swamps on level alluvial and marine plains to undulating rises of lowlands. Geology is mapped as Qa, Qr and Qf (Quaternary clay, silt, sand, gravel and soil; floodplain alluvium, colluvial, residual deposits and small fans). Palustrine. (BVG1M: 9e).

8.3.13d: *Corymbia tessellaris* and or *Eucalyptus tereticornis* woodland to open woodland. There may be a very sparse secondary tree layer of *Melaleuca viridiflora* var. *viridiflora* (or *M. viridiflora* var. *attenuata*) and *Planchonia careya*. The ground layer is grassy and mid-dense, frequently dominated by species such as *Paspalidium distans* and *Sorghum nitidum* forma *aristatum*, with other common associated species being *Capillipedium spicigerum*, *Desmodium* spp. and *Alysicarpus* spp. Marine plains and alluvial level plains adjacent to estuarine areas, of lowlands. Geology mapped as Qa and Qf (Quaternary sand, gravel and clay; mainly alluvium, some colluvium, residual soil, flood-out sheets and small fans). Palustrine. (BVG1M: 9e).

<b>Short description:</b>	Eucalyptus tereticornis and/or Corymbia tessellaris and/or Melaleuca spp. woodland on alluvial and marine plains, often adjacent to estuarine areas
<b>Supplementary descriptions:</b>	Bailey et al. (2003), 8ME, 8MEa, MQ-3, MQa-3, 8MDb, 8MEc, MV, MVb-3; Batianoff, Dillewaard and Franks (1997), Vegetation unit 12 (in part), and 13; Brushe et al. (in prep), Map Unit c50-3, 50-3, 51-3, c45-3, c46-3, c51-2, c51-3; Cumming (1997), Vegetation type 10, 21, 25; Nexus Environmental Studies Pty Ltd (1998), Vegetation unit 3a and 3b
<b>Subregions:</b>	5, 2, 11.14, 4, (1)
<b>Protected areas:</b>	Byfield NP, Sandringham Bay CP, Bakers Creek CP, West Hill NP, Cape Palmerston NP, Broad Sound Islands Conservation Park, Conway NP, Causeway Lake CP, South Cumberland Islands NP, Broad Sound Islands NP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Palustrine
<b>Special values:</b>	<p>8.3.13: Potential habitat for NCA listed species: <i>Xylosma ovata</i>.</p> <p>8.3.13a: Habitat for a large number of plant species that are wetland specialists and which are becoming rare as introduced weeds become more dominant in wetlands. Habitat to several poorly known plant species such as <i>Nymphoides exiliflora</i> which has rarely been recorded in the Central Queensland Coast Bioregion.</p> <p>8.3.13b: Habitat some species which are rare in the Central Queensland Coast bioregion including <i>Basilicum polystachyon</i>, <i>Alternanthera denticulata</i> var. <i>micrantha</i>, <i>Panicum larcornianum</i>, <i>Melochia corchorifolia</i> and <i>Eleocharis philippinensis</i>. Habitat for plant species that are threatened due to widespread weed invasion by pest and alien pasture species, including <i>Cyperus gunnii</i> subsp. <i>novae-hollandiae</i> and <i>Eleocharis</i> spp. Northern limit of distribution of <i>Lespedeza juncea</i>, which is very rare in the Central Queensland Coast bioregion.</p> <p>8.3.13c: Habitat for some species which are poorly known in the Central Qld Coast, including <i>Panicum larcornianum</i>, <i>Alysicarpus schomburgkii</i>, <i>Lespedeza juncea</i> subsp. <i>sericea</i> and <i>Lobelia stenophylla</i>.</p>

**Comments:**

8.3.13a: The RE 8.3.13a is distinguished from 8.3.13b by not being dominated by *Melaleuca dealbata* and from 8.3.13c and 8.3.13d by being dominated by *Melaleuca* spp. (instead of *Eucalyptus* spp. or *Corymbia* spp.). The RE 8.3.2 occurs in less swampy situations and is always dominated by *Melaleuca viridiflora* var. *viridiflora*. The regional ecosystems 8.3.3a and 8.3.3b are strictly riparian (occurring on the banks of streams) whereas 8.3.13a is in swamps and poorly-drained depressions. The RE 8.3.11 is dominated by *Melaleuca viridiflora* var. *attenuata*. All other *Melaleuca* spp. dominated regional ecosystems occur in different land zones. *Melaleuca viridiflora* var. *attenuata* which occurs occasionally as an associated species in this RE has affinities to *M. viridiflora* var. *viridiflora* and *M. quinquenervia*. Scattered across the bioregion from Proserpine in the north to Carmila in subregion 2. In subregions 4 and 5 between the Colcarra Range and Mt Solitude (west of Cape Manifold) and from Corio Bay west to near Charley Peak and south to Emu Park. Often poor due to the affects of drainage changes caused by the installation of drains, roads and housing developments, and by runoff containing fertilisers, sediment and weeds. Grazing has also encouraged weed establishment by increasing soil fertility, reducing competition from thick perennial plants and by disturbing the soil surface. Problem weeds include *\*Hymenachne amplexicaulis*, *\*Urena lobata*, *\*Passiflora foetida*, *\*Stachytarpheta jamaicensis*, *\*Urochloa mutica*, *\*Echinochloa colona*, *\*Mimosa pudica*, *\*Paspalum conjugatum*, *\*Sporobolus fertilis*, *\*Sida rhombifolia*, *\*Cynodon dactylon* and various pasture grasses.

8.3.13b: This vegetation community appears to be in many instances quite young, having invaded open grasslands. The cause is unknown but may be due to cessation of burning practices and/or soil and water table changes as a result of cattle grazing and changes to drainage. Distinguished from all other *Melaleuca* spp. dominated regional ecosystems and vegetation communities on land zone 3 by the clear dominance of *M. dealbata*. Occurs around Goorganga Plains from near the Proserpine River (directly east of Proserpine) to just south of Campbells Plain and also south of the O'Connell River (5km north of Laguna Quays). Also occurs from Corio Bay to Yeppoon and west to Grays Hill. Moderate to very poor, particularly due to the invasion by *\*Urochloa mutica* and various pasture grasses. Other common weeds include *\*Centrosema molle*, *\*Paspalum conjugatum*, *\*Eriochloa meyeriana*, *\*Mimosa pudica*, *\*Stachytarpheta jamaicensis*, *\*Macroptilium atropurpureum*, *\*M. lathyroides*, *\*Phyllanthus debilis*, *\*Ruellia simplex*, *\*Sida spinosa*, *\*Sporobolus* spp., *\*Triumfetta rhomboidea*, *\*Passiflora foetida* and *\*Sesbania cannabina* var. *cannabina*.

8.3.13c: Can be very similar in species composition to 8.2.13a and 8.2.13b, however these are on a sandy substrate from nearby dune systems (and are classified as Land Zone 2). The regional ecosystems 8.3.6a and 8.3.6c may be similar but have a drier, grassier ground stratum, and have a co-dominance to subdominance of *Corymbia intermedia*. Occurs in the north of Goorganga Plains, and scattered patches from Mackay south to approx. 15km south-west of Sarina. Also in the Shoalwater Bay area, around Port Clinton, north of Water Park Creek, and to the west of Corio Bay and Yeppoon. The relatively fertile soils make this vegetation community prone to weed invasion. Common weeds include *\*Passiflora suberosa*, *\*P. pallida*, *\*Melinis minutiflora*, *\*Stachytarpheta jamaicensis*, *\*Triumfetta rhomboidea* and *\*Urochloa mutica*.

8.3.13d: Many examples of this RE appear to be recent woody encroachment over former grasslands. Most similar to 8.3.6a, but distinguished by the close proximity to estuarine areas (usually only a few 100m from mangroves, or from drainage channels with estuarine influence). Also has a much simpler structure and lower tree/shrub diversity than 8.3.6a, in particular, lacking *Corymbia intermedia*, *C. clarksoniana* and *Lophostemon suaveolens*. Similar to 8.3.13c but lacking the dense layer of *Melaleuca viridiflora*. Occurs in subregion 2 in the area of Goorganga Plains and in Cape Palmerston National Park. There is a low to moderate degree of weed invasion.

**Estimated extent:**<sup>1</sup> Pre-clearing 20000 ha; Remnant 2021 7000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:** Under review

## Regional ecosystem 8.3.14

**Description:** *Ischaemum australe* and/or *Imperata cylindrica* and/or *Sorghum nitidum* forma *aristatum* and/or *Cenchrus purpurascens* open tussock grassland to closed tussock grassland. Other associated species include *Fimbristylis dichotoma*, *Bothriochloa bladhii*, *Centella asiatica*, *Eclipta prostrata*, *Lobelia concolor*, *Cyperus* spp. and *Ranunculus lappaceus*. Broad drainage depressions on rolling mountains of foothills and uplands. Geology mapped as Qf (Quaternary sand, gravel and clay: flood-out sheets and small fans). Not a Wetland. (BVG1M: 32a).

**Short description:** *Ischaemum australe* and/or *Imperata cylindrica* and/or *Sorghum nitidum* forma *aristatum* tussock grassland on drainage channels in gently undulating upland areas

**Supplementary descriptions:**

**Subregions:** 3

**Protected areas:** Kelvin FR

**Extent in reserves:** Low

**Wetland:** Not a Wetland

**Special values:** 8.3.14: Habitat for several herbaceous species which are poorly known in the Central Queensland Coast bioregion, including *Brachyscome paludicola* (here at the northern limit of its range), *Ranunculus lappaceus*, and sedge species such as *Eleocharis cylindrostachys*. Important habitat for frogs. A *Pseudophryne* species may prove to be restricted to this RE, or this and other similar regional ecosystems (e.g. 8.12.9) in the bioregion. Important habitat for Swamp Rat.

**Comments:** 8.3.14: Distinguished from the only other grassland ecosystem on alluvium, 8.3.12, by its occurrence on upland areas in valleys, usually associated with the RE 8.12.9 (8.3.12 occurs on lowland alluvial plains). Occurs at the headwaters of Sandy Creek (20km south-west of Bloomsbury). Also along the Connors Range from near Round Mount (30km south of Sarina), south to Burwood Station (30km south-west of St Lawrence). Extent of disturbance is severe, with many areas suffering a very high proportion of weed cover. This is possibly due to mechanical clearing of the surrounding woodlands/open forests (usually RE 8.12.9), and a high concentration of cattle which disturb the soil and increase its fertility. Weed invasion is the most serious threat to this ecosystem, and species such as *\*Cynodon dactylon*, *\*Paspalum dilatatum*, *\*P. conjugatum*, *\*Echinochloa colona*, *\*Mimosa pudica*, and *\*Gomphocarpus physocarpus* are already a prominent feature even in relatively isolated areas. A small infestation of the highly invasive weed *\*Hymenachne amplexicaulis* has been observed in the largest mapped example of this ecosystem. Exotic legumes are also prominent in some areas. Pigs cause damage in some areas. These threats combined with its natural rarity make this regional ecosystem highly threatened.

**Estimated extent:**<sup>1</sup> Pre-clearing 1000 ha; Remnant 2021 800 ha

**VM class:** Of concern

**Biodiversity status:** Endangered

**Biodiversity status notes:** Highly disturbed and subject to high cover of perennial non-native grasses at most known locations. Highly localised.

## Regional ecosystem 8.3.15

**Description:** Open water in river channels, waterholes and lagoons, and exposed stream bed and bars. Usually devoid of emergent vegetation although scattered trees and shrubs such as *Melaleuca viminalis* or *Melaleuca* spp. may be present and aquatic species may be abundant particularly in waterholes and lagoons. Stream channels and lagoons, and exposed stream beds and bars of watercourses on level plains to rolling mountains. Geology mapped as Qha, Qa and Qf (Quaternary sand, gravel, silt and clay; active stream channels, low terraces, floodplain alluvium, flood-out sheets and small fans). Riverine. (BVG1M: 16d).

**Short description:** Open water in river channels, waterholes and lagoons, and exposed stream beds and bars

### Supplementary descriptions:

**Subregions:** 2, (1), (3)

**Protected areas:** Conway NP

**Extent in reserves:** Low

**Wetland:** Riverine

**Special values:** 8.3.15: Essential habitat for a variety of aquatic and riparian invertebrates, frogs and other fauna.

**Comments:** 8.3.15: Associated with all streams, and therefore the regional ecosystems 8.3.3 and 8.3.1. Largest mappable areas occur in Cattle Creek, Hatton Creek and the Pioneer River in the Pioneer Valley west of Mackay. Also at Repulse Creek in Conway Range National Park. Areas surrounded by cleared land tend to be in poorer condition, with weed species sometimes the only species present, and the hydrology altered substantially (especially where affected by dams, weirs and causeways). The water quality may also be affected in areas which have been surrounded by agriculture for a long time.

**Estimated extent:**<sup>1</sup> Pre-clearing 900 ha; Remnant 2021 800 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.5.1

**Description:** *Corymbia clarksoniana* open forest to open woodland, sometimes with *Eucalyptus drepanophylla*, often with a secondary tree or shrub layer including species such as *Melaleuca viridiflora* var. *viridiflora*, *M. nervosa*, *Acacia julifera*, *Pandanus cookii*, *Acacia leptostachya*, *Grevillea parallela*, *Allocasuarina luehmannii* and *Persoonia falcata*, and often a low shrub layer of *Xanthorrhoea johnsonii*. The ground stratum includes *Eriachne trisetata*, *Eremochloa bimaculata*, *Chrysopogon fallax*, *Eriachne rara*, *Cleistochloa subjuncea*, *Aristida acuta* and *Aristida queenslandica* var. *dissimilis*. Includes low rises on fine sediments with *Corymbia intermedia* open forest, with a secondary tree layer of *Melaleuca viridiflora* var. *viridiflora*, *Grevillea parallela* and some pioneering rainforest spp., as well as areas of shale supporting *Corymbia clarksoniana* +/- *E. drepanophylla* with a shrubby layer of *Acacia leptocarpa*, *Melaleuca viridiflora* var. *viridiflora*, *Lophostemon confertus* and *Acacia simsii*. Occurs on low Tertiary rises on fine sediments as well as areas of shale. Underlain by fine grained sediments and areas of shale leading to minor impurities of land zones 9 and 10. Geology is primarily To (Tertiary coarse clayey sandstone, sandy claystone and conglomerate). The soil surface may be very sandy, or a coarse sandy loam +/- abundant ironstone nodules. Not a Wetland. (BVG1M: 9e).

Vegetation communities in this regional ecosystem include:

8.5.1a: *Corymbia intermedia* open forest. *Corymbia clarksoniana* is a common associated species in the canopy. Hybrids or intermediates between *C. intermedia* and *C. clarksoniana* are occasionally present. *Eucalyptus platyphylla* is rarely present as a minor canopy component. There is often a sparse secondary tree layer of *Melaleuca viridiflora* var. *viridiflora*, *C. intermedia*, *C. clarksoniana*, *Lophostemon confertus* and *Grevillea parallela*, and occasionally there are rainforest spp. saplings present. There is frequently a very sparse to sparse shrub layer of *Lophostemon confertus*, *Melaleuca viridiflora* var. *viridiflora*, and *Glochidion lobocarpum*. The ground layer is species rich, and dominant and associated species include *Eriachne trisetata*, *Eremochloa bimaculata*, *Chrysopogon fallax*, *Desmodium pullenii*, *Fimbristylis acicularis*, *Flemingia parviflora*, *Lomandra* spp., *Urochloa polyphylla*, *Abildgaardia vaginata*, *Brunoniella acaulis*, *Scleria rugosa* and *Cyperus* spp. Occurs on small, pronounced, low Tertiary rises of lowlands. Underlain by fine grained sediments and areas of shale leading to minor impurities of land zones 9 and 10 (mainly subregion 6). Geology is primarily To (Tertiary coarse clayey sandstone, sandy claystone and conglomerate). The soil surface is very sandy. Not a Wetland. (BVG1M: 9e).

8.5.1b: *Corymbia clarksoniana* open forest to open woodland (12-22m tall). Other occasional to common canopy species are *Eucalyptus platyphylla*, *E. drepanophylla* and *C. dallachiana*. There may be a very sparse to mid-dense lower tree layer of *Melaleuca viridiflora* var. *viridiflora* and/or *M. nervosa* and/or *Acacia julifera*. Other associated species in lower tree layers include *Pandanus cookii*, *Acacia leptostachya*, *Grevillea parallela*, *Allocasuarina luehmannii*, *Persoonia falcata*, *Lophostemon confertus*, *Acacia simsii* and *Planchonia careya*. The shrub layer is usually very sparse, with dominant species including saplings from upper layers as well as *Xanthorrhoea johnsonii*, *Glochidion apodogynum* and *Coelospermum reticulatum*. The ground layer is mid-dense to sparse and is very species rich. Dominants and associated species often include *Eriachne trisetata*, *Eremochloa bimaculata*, *Chrysopogon fallax*, *Eriachne rara*, *Cleistochloa subjuncea*, *Aristida acuta*, *Aristida queenslandica* var. *dissimilis* (and other *Aristida* spp.), *Abildgaardia ovata*, *Xanthorrhoea johnsonii*, *Fimbristylis dichotoma*, *Heteropogon* spp., *Lomandra* spp., *Desmodium pullenii* (and other *Desmodium* spp.), *Cyperus* spp. and *Fimbristylis* spp. There are many ephemeral species present during the wet season. This ecosystem includes areas of shale supporting *Corymbia clarksoniana* +/- *E. drepanophylla* with a shrubby layer of *Acacia leptocarpa*, *Melaleuca viridiflora* var. *viridiflora*, *Lophostemon confertus* and *Acacia simsii*. Occurs on Tertiary sand plains and pediments on gently undulating plains and rises of lowlands. Underlain by fine grained sediments and areas of shale leading to minor impurities of land zones 9 and 10. Geology is primarily To (Tertiary coarse clayey sandstone, sandy claystone and conglomerate). The soil surface is a coarse sandy loam, and often has abundant ironstone nodules. Not a Wetland. (BVG1M: 9e).

**Short description:** *Corymbia clarksoniana* and/or *C. intermedia* open forest on Tertiary sand plains and rises including small areas of shale (mainly subregion 6)

### Supplementary descriptions:

**Subregions:** 6, 2

**Protected areas:**

**Extent in reserves:** No representation

**Wetland:** Not a Wetland

<b>Special values:</b>	<p>8.5.1a: Potential habitat for the near threatened species <i>Eulophia bicallosa</i>. The ground layer is species rich and includes some species which are poorly known in the Central Queensland Coast bioregion, such as <i>Scleria tricuspidata</i>, <i>Urochloa polyphylla</i>, <i>Murdannia gigantea</i>, <i>Phyllanthus sulcatus</i> and <i>Scleria rugosa</i>. This ecosystem is rare and restricted.</p> <p>8.5.1b: Potential habitat for the near threatened plant species <i>Habenaria xanthantha</i> and <i>Eulophia bicallosa</i>. The ground layer is very species rich, and includes many species which are poorly known in the Central Queensland Coast bioregion, such as <i>Aristida acuta</i>, <i>Mnesithea formosa</i>, <i>Panicum seminudum</i> var. <i>cairnsianum</i> (here at the southern end of its range), <i>Pseudopogonatherum contortum</i>, <i>Lysimachia ovalis</i>, <i>Buchnera gracilis</i>, <i>Chlorophytum laxum</i> (here at the southern end of its range), <i>Cyperus cuspidatus</i>, <i>Cyperus nervulosus</i>, <i>Mitrasacme nummularia</i>, <i>Phyllanthus simplex</i>, <i>Polygala wightiana</i> and <i>Rotala occultiflora</i>. Habitat for the northern quoll (<i>Dasyurus hallucatus</i>) (recorded several times at the Proserpine Airport) which is listed as Endangered under the Environment Protection and Biodiversity Conservation Act 1999. Further survey is likely to reveal the presence of more flora and fauna species with local or State significance.</p>
<b>Comments:</b>	<p>8.5.1a: Distinguished from 8.5.1b by presence of <i>Corymbia intermedia</i>, and tends to occur in slightly more elevated parts of the landscape. Could be confused with RE 8.3.5, though this occurs on alluvium and lacks the very sandy soil surface. Also 8.3.5 is dominated by <i>C. clarksoniana</i> instead of <i>C. intermedia</i>, and the ground layer tends to have a high cover of either <i>Themeda triandra</i>, <i>Imperata cylindrica</i>, <i>Sorghum nitidum</i> forma <i>aristatum</i> or <i>Heteropogon triticeus</i>, whereas the most dominant ground species of 8.5.1a are indicative of poorer soils - such as <i>Eriachne</i> spp. and <i>Eremochloa bimaculata</i>. Restricted to an area between Slater Creek (5km south-west of Proserpine) and the intersection of the Bruce Highway and Ten Mile Creek (15km north-west of Proserpine). Threatened by clearing and weed invasion. Being naturally restricted to small patches surrounded by more fertile land, it is also threatened by detrimental edge effects of the surrounding (often now cleared) land. Weeds of particular concern are <i>*Mitracarpus hirtus</i>, <i>*Mimosa pudica</i>, <i>*Sida acuta</i>, <i>*Sporobolus jacquemontii</i>, <i>*Stylosanthes</i> spp., <i>*Triumfetta rhomboidea</i> and <i>*Chamaecrista rotundifolia</i>.</p> <p>8.5.1b: Distinguished from 8.5.1a by absence of <i>Corymbia intermedia</i>, and tends to occur in slightly less elevated parts of the landscape (though still elevated above alluvium). The RE 8.5.3b is similar but occurs closer to creeks or lower in the landscape and tends to have a less sandy soil (more alluvial influence), a co-dominance of <i>Eucalyptus platyphylla</i> and <i>E. drepanophylla</i> in the canopy, and <i>Planchonia careya</i> prominent in the shrub-layer. Could be confused with RE 8.3.5, though this occurs on alluvium and lacks the sandy soil surface with ironstone nodules. Also the ground layer of 8.3.5 tends to have a high cover of either <i>Themeda triandra</i>, <i>Imperata cylindrica</i>, <i>Sorghum nitidum</i> forma <i>aristatum</i> or <i>Heteropogon triticeus</i>, whereas the most dominant ground species of 8.5.1b are indicative of poorer soils - such as <i>Eriachne</i> spp., <i>Eremochloa bimaculata</i> and <i>Aristida</i> spp. Occurs in subregions 2 and 6. The present day extent is between White Cliffs on Edgumbe Bay (20km south-east of Bowen) to the O'Connell River (20km south of Proserpine). It was also previously mapped near Munbura (15km north-west of Sarina). This ecosystem has always been fairly uncommon and is now severely reduced in area and fragmented. It is highly vulnerable to erosion. Weed invasion is a problem, with the most serious spp. being <i>*Lantana camara</i>, <i>*Chamaecrista rotundifolia</i>, <i>*Stylosanthes</i> spp., <i>*Stachytarpheta jamaicensis</i>, <i>*Mitracarpus hirtus</i> and <i>*Urochloa subquadriflora</i>. This ecosystem is also very erodible and at risk from gully erosion.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 5000 ha; Remnant 2021 1000 ha
<b>VM class:</b>	Endangered
<b>Biodiversity status:</b>	Endangered
<b>Biodiversity status notes:</b>	Under review



## Regional ecosystem 8.5.2

**Description:** *Melaleuca viridiflora* var. *viridiflora* woodland to open forest, often with *Allocasuarina luehmannii* or *Melaleuca nervosa* and emergent *Corymbia clarksoniana*. There is a sparse secondary tree or shrub layer which may include *Melaleuca viridiflora* var. *viridiflora*, *Acacia julifera*, *Acacia leptocarpa*, *Petalostigma pubescens* and *Melaleuca nervosa*. There may be a very sparse shrub layer, with species including *Xanthorrhoea johnsonii*, *Acacia julifera* subsp. *curvinervia* and *Acacia simsii*. The ground layer is diverse and includes *Chrysopogon fallax*, *Aristida superpendens*, *Schoenus sparteus*, *Fimbristylis cinnamometorum*, *Eremochloa bimaculata*, *Alloteropsis semialata* and *Eriachne trisetata*. Ephemeral dominants frequently include *Schizachyrium* spp. and *Pseudopogonatherum contortum*. Occurs on Tertiary sand plains (subregion 6) on flat plains and gently undulating rises, dissected by many incised streams. The geology is primarily To (Tertiary coarse clayey sandstone, sandy claystone, conglomerate, coarse argillaceous sandstone and sandy siltstone) sometimes with the underlying geology mapped as Kh (Hecate Granite) Lower Cretaceous granodiorite, diorite, rhyolite, porphyry, gabbro and microdiorite. Not a Wetland. (BVG1M: 21a).

Vegetation communities in this regional ecosystem include:

8.5.2a: *Melaleuca viridiflora* var. *viridiflora* open woodland to open forest (5-20m tall). *Allocasuarina luehmannii* is sometimes codominant to subdominant in the canopy. *Corymbia clarksoniana* is a common emergent and is occasionally co-dominant in the canopy. *Eucalyptus drepanophylla*, *C. dallachiana* and *E. platyphylla* are occasional associated species in the canopy or emergents. Other occasional canopy species are *Acacia julifera*, *Melaleuca nervosa*, *Pandanus cookii*, *Grevillea striata*, *Acacia leptocarpa*, *Petalostigma pubescens* and *Allocasuarina littoralis*. There is often a very sparse lower tree layer of *Melaleuca viridiflora* var. *viridiflora*, *Allocasuarina* spp., *Acacia julifera* subsp. *curvinervia*, *A. leptocarpa*, *Petalostigma pubescens*, *Grevillea* spp. and *Melaleuca nervosa*. There may occasionally be a very sparse shrub layer of saplings from the upper layers and *Xanthorrhoea johnsonii* and *Acacia julifera* subsp. *curvinervia*. The ground layer is very-sparse to mid-dense, and changes dominance according to the season, with ephemeral species being dominant in the wet season. Perennial dominants may include *Chrysopogon fallax*, *Eriachne pallescens* var. *pallescens*, *Aristida* spp., *Schoenus sparteus*, *Fimbristylis cinnamometorum*, *Eremochloa bimaculata*, *Alloteropsis semialata* and *Eriachne trisetata*. Ephemeral dominants frequently include *Schizachyrium* spp. and *Pseudopogonatherum contortum*. In the wet season the ground layer is very species rich with many short lived species contributing to the biomass. Occurs on Tertiary sand plains and pediments, in relatively flat locations (gently undulating plains and rises of lowlands). The geology is primarily To (Tertiary coarse clayey sandstone, sandy claystone, conglomerate, coarse argillaceous sandstone and sandy siltstone). Poorly drained, duplex soils with a sandy surface. Not a Wetland. (BVG1M: 21a).

8.5.2c: *Melaleuca viridiflora* var. *viridiflora* and *M. nervosa* open woodland to open forest. Occasional to common associated canopy species or emergents include *Corymbia clarksoniana*, *Eucalyptus platyphylla* and *Petalostigma pubescens*. There may be a very sparse shrub layer consisting of saplings from the canopy and species such as *Acacia simsii*, *Planchonia careya* and *Coelospermum reticulatum*. The ground layer ranges from very sparse to mid-dense and is very species rich. It is frequently dominated by *Eremochloa bimaculata*. Other common species are *Abildgaardia vaginata*, *Paspalidium distans*, *Eragrostis brownii*, *Eriachne rara* and *Aristida acuta*. During the wet season, ephemeral species may be very common and include *Panicum seminudum* var. *cairnsianum* and *Schizachyrium* spp. Occurs on Tertiary sand plains on gently undulating plains of lowlands, dissected by many incised streams. The underlying geology is mapped as Kh (Hecate Granite) Lower Cretaceous granodiorite, diorite, rhyolite, porphyry, gabbro and microdiorite. Not a Wetland. (BVG1M: 21a).

**Short description:** *Melaleuca viridiflora* +/- *Allocasuarina luehmannii*, or *M. viridiflora* and *M. nervosa* woodland on Tertiary sand plains

**Supplementary descriptions:** Batianoff, Dillewaard and Franks (1997), Vegetation unit 10

**Subregions:** 6, (2), (11.2)

**Protected areas:** Dryander NP

**Extent in reserves:** Low

**Wetland:** Not a Wetland

<b>Special values:</b>	<p>8.5.2a: Potential habitat for the near threatened species <i>Habenaria xanthantha</i> and <i>Eulophia bicallosa</i>. The ground layer is very species rich, and includes many species which are poorly known in the Central Queensland Coast, such as <i>Mnesithea formosa</i>, <i>Panicum seminudum</i> var. <i>cairnsianum</i>, <i>Pseudopogonatherum contortum</i>, <i>Buchnera gracilis</i>, <i>Phyllanthus simplex</i>, <i>Phyllanthus sulcatus</i>, <i>Polygala wightiana</i>, <i>Schizachyrium dolosum</i>, <i>Polygala exsuarrosa</i>, <i>Byblis liniflora</i>, <i>Centrolepis exserta</i>, <i>Centrolepis banksii</i>, <i>Cyperus cristulatus</i>, <i>Fimbristylis acuminata</i>, <i>Fimbristylis pterigosperma</i>, <i>Habenaria propinqua</i>, <i>Heliotropium vagum</i>, <i>Hybanthus monopetalus</i>, <i>Mitrasacme laricifolia</i>, <i>Mitrasacme multicaulis</i>, <i>Mitrasacme brachystemonea</i>, <i>Polygala longifolia</i>, <i>Rhynchospora pterochaeta</i>, <i>Sarga angustum</i>, <i>Schizachyrium dolosum</i>, <i>Thaumatococcus major</i>, <i>Thysanotus banksii</i>, <i>Xyris indica</i>, <i>Cartonema brachyantherum</i>, and <i>Rotala occultiflora</i>.</p> <p>8.5.2c: Potential habitat for the near threatened species <i>Habenaria xanthantha</i> and <i>Eulophia bicallosa</i>. The ground layer is very species rich, and includes many species which are poorly known in the Central Queensland Coast bioregion, such as <i>Aristida acuta</i>, <i>Alysicarpus schomburgkii</i>, <i>Cyperus castaneus</i>, <i>Cyperus nervulosus</i>, <i>Eriocaulon nanum</i>, <i>Mnesithea formosa</i>, <i>Panicum seminudum</i> var. <i>cairnsianum</i>, <i>Buchnera gracilis</i>, <i>Phyllanthus simplex</i>, <i>Byblis liniflora</i>, <i>Mitrasacme laricifolia</i>, <i>Mitrasacme multicaulis</i>, <i>Mitrasacme brachystemonea</i>, <i>Polygala longifolia</i>, <i>Rhynchospora pterochaeta</i>, <i>Sarga angustum</i>, <i>Schizachyrium dolosum</i>, <i>Thaumatococcus major</i>, <i>Thysanotus banksii</i>, <i>Xyris indica</i> and <i>Rotala occultiflora</i>.</p>
<b>Comments:</b>	<p>8.5.2a: The RE 8.5.2a is not protected in any reserves, and occurs in an area that is being targeted for sugar cane expansion. This RE is similar to 8.5.2c but is not co dominated by <i>Melaleuca nervosa</i>, and occurs in slightly wetter, more coastal areas (8.5.2c is restricted to the drier areas to the west of the Proserpine Dam). Can be distinguished from RE 8.5.6 by its location (8.5.6 occurs in the Cape Palmerston area, 8.5.2a occurs in the Debella area) and 8.5.6 never has <i>Allocasuarina luehmannii</i>. When <i>Corymbia clarksoniana</i> is common in 8.5.2a it can appear similar to 8.5.3a, however 8.5.3a will also have <i>Eucalyptus drepanophylla</i> (and often <i>E. platyphylla</i>) present. Otherwise distinguished from all other regional ecosystems by the dominance of <i>Melaleuca viridiflora</i> var. <i>viridiflora</i> in the canopy (or secondary tree layer but forming the greatest biomass) and its occurrence on a Tertiary age substrate. Coastal lowlands, mainly in subregions 2 and 6, from White Cliffs on Edgumbe Bay (20km south-east of Bowen) to Dingo Beach (south-east of Cape Gloucester) and south to the O'Connell River near Lethebrook. This regional ecosystem has already been substantially reduced in area, and the remnants are dissected. This ecosystem is highly vulnerable to erosion, and prone to weed invasion, and it is possible that over 75% of the remainder is severely degraded. The most serious weed species are <i>*Stachytarpheta jamaicensis</i>, <i>*Stylosanthes</i> spp. and <i>*Sporobolus jacquemontii</i>.</p> <p>8.5.2c: This RE is similar to 8.5.2a but is co dominated by <i>Melaleuca nervosa</i>, and occurs in drier, more inland areas. Can be distinguished from RE 8.5.6 by its location (8.5.6 occurs in the Cape Palmerston area, 8.5.2a occurs in the Debella area). Otherwise distinguished from all other regional ecosystems by the dominance of <i>Melaleuca viridiflora</i> var. <i>viridiflora</i> in the canopy (or secondary tree layer but forming the greatest biomass) and the occurrence on a Tertiary age substrate. Occurs only in subregion 6 between the Don River and Proserpine Rivers, west of the Proserpine Dam. Extensively cleared and the remnants are in poor condition. It is possible that over 75% of the remainder is severely degraded. Suffering from severe infestations of <i>*Lantana camara</i>, <i>*Bothriochloa pertusa</i> (Indian Couch), <i>*Urochloa subquadriflora</i> and <i>*Chamaecrista rotundifolia</i>. Other problem weeds include <i>*Mitracarpus hirtus</i>, <i>*Sporobolus</i> spp., <i>*Sida rhombifolia</i>, <i>*Sida cordifolia</i> and <i>*Stylosanthes</i> spp. This vegetation community is highly vulnerable to erosion.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 13000 ha; Remnant 2021 4000 ha
<b>VM class:</b>	Endangered
<b>Biodiversity status:</b>	Endangered
<b>Biodiversity status notes:</b>	Remnants are subject to impacts of weed invasion and soil erosion.

## Regional ecosystem 8.5.3

**Description:** *Eucalyptus drepanophylla* open woodland to open forest or *Eucalyptus drepanophylla*, *E. platyphylla*, *Corymbia clarksoniana* woodland to open forest. *Corymbia dallachiana* is a common associated species. Other occasional associated canopy species may include *Corymbia dallachiana*, *Grevillea parallela* and *Corymbia erythrophloia*. There is sometimes a very sparse to mid-dense secondary tree layer of *Melaleuca viridiflora* var. *viridiflora* with occasional associated species being *Eucalyptus drepanophylla*, *Corymbia dallachiana*, *Allocasuarina littoralis*, *A. luehmannii*, *Grevillea striata*, *Melaleuca nervosa*, *Planchonia careya*, *Petalostigma banksii*, *Acacia julifera* and *Vachellia bidwillii*. Shrub layers are very sparse and may include *Acacia* spp. and *Xanthorrhoea johnsonii*. The ground layer is very diverse, with many ephemeral species. Dominants may include *Eremochloa bimaculata*, *Chrysopogon fallax*, *Aristida queenslandica* var. *queenslandica*, *Xanthorrhoea johnsonii*, *Aristida warburgii* and *Aristida queenslandica* var. *dissimilis*. Occurs on low rises on gently sloping Tertiary plains, dissected and reworked by many minor drainage lines (white sandy surface). Geology is mapped variously as Kh (Hecate Granite) Lower Cretaceous granodiorite, diorite, rhyolite and porphyry, To (Tertiary coarse clayey sandstone, sandy claystone, coarse argillaceous sandstone and sandy siltstone) and Qa (Quaternary alluvium, some colluvium and residual soil). Not a Wetland. (BVG1M: 13c).

Vegetation communities in this regional ecosystem include:

8.5.3a: *Eucalyptus drepanophylla* open woodland to open forest. *Corymbia dallachiana* is sometimes codominant or dominant in the canopy, whilst *C. clarksoniana* is an occasional associated species. There is frequently a very sparse to mid-dense secondary tree layer of *Melaleuca viridiflora* var. *viridiflora* with occasional associated species being *Eucalyptus drepanophylla*, *Corymbia dallachiana*, *Allocasuarina littoralis*, *A. luehmannii*, *Grevillea striata*, *Melaleuca nervosa* and *Vachellia bidwillii*. Lower tree and shrub layers are frequently present but very sparse, frequently consisting of *Acacia leptocarpa*, *A. julifera*, *A. leptostachya*, *A. simsii*, *Planchonia careya* and *Coelospermum reticulatum*. The ground layer is variable, with dominants one or several of *Eremochloa bimaculata*, *Chrysopogon fallax*, *Aristida queenslandica* var. *queenslandica*, *Xanthorrhoea johnsonii* (or this may be part of a lower shrub layer), *Themeda triandra*, *Heteropogon triticeus* and *Mnesithea rottboellioides*. During the wet season, ephemeral species such as *Schizachyrium* spp. may dominate. Occurs on Tertiary sand plains and fans on broad low rises, gently sloping or undulating plains, to undulating rises of lowlands. Geology is To (Tertiary coarse clayey sandstone, sandy claystone, coarse argillaceous sandstone and sandy siltstone), with underlying geology including Kh (Hecate Granite) Lower Cretaceous granodiorite, diorite, rhyolite and porphyry. Not a Wetland. (BVG1M: 13c).

8.5.3b: *Eucalyptus drepanophylla*, *E. platyphylla*, *Corymbia clarksoniana* woodland to open forest. Occasional associated species may include *Corymbia dallachiana*, *Grevillea parallela* and *Corymbia erythrophloia*. There are often very sparse to sparse secondary tree layers, with typical species including *Melaleuca viridiflora* var. *viridiflora* (sometimes dominated by this species), *Melaleuca nervosa*, *Planchonia careya*, *Petalostigma banksii*, *Acacia julifera*, *Allocasuarina luehmannii*, *Persoonia falcata* and *Grevillea parallela*. A very sparse shrub layer may occasionally present, including species such as *Xanthorrhoea johnsonii* and *Acacia leptocarpa*. The ground layer is diverse, and dominants may include *Aristida warburgii*, *Aristida queenslandica* var. *dissimilis*, *Eremochloa bimaculata*, *Chrysopogon fallax*, *Heteropogon contortus*, *Mnesithea rottboellioides* and *Xanthorrhoea johnsonii*. During the wet season, ephemeral species such as *Schizachyrium* spp. may dominate. Occurs on sloping, dissected Tertiary plains on gently sloping to undulating rises of lowlands. Often has alluvial influence. Geology is mapped as To (Tertiary coarse clayey sandstone, sandy claystone, coarse argillaceous sandstone and sandy siltstone), and the underlying geology may be mapped as Kh (Hecate Granite) Lower Cretaceous granodiorite, diorite and rhyolite or PKg (Lower Permian or Lower Cretaceous leucogranite and microgranite). Not a Wetland. (BVG1M: 13c).

**Short description:** *Eucalyptus drepanophylla* +/- *Corymbia clarksoniana* +/- *E. platyphylla* +/- *C. dallachiana* +/- *Melaleuca viridiflora* woodland on broad low rises and gently sloping Tertiary sand plains

**Supplementary descriptions:** Batianoff, Dillewaard and Franks (1997), Vegetation unit 26

**Subregions:** 6, (2), (11.2)

**Protected areas:** Cape Palmerston NP, Dryander NP

**Extent in reserves:** Low

**Wetland:** Not a Wetland

<b>Special values:</b>	<p>8.5.3a: The ground layer includes some species which are poorly known in the Central Queensland Coast, such as <i>Eriachne glauca</i> var. <i>glauca</i>, <i>Phyllanthus simplex</i>, <i>Thaumastochloa major</i> and <i>Vigna</i> sp. (Station Creek R.J.Lawn CQ3284). Potential habitat for the significant species <i>Eulophia bicallosa</i> and <i>Habenaria xanthantha</i> which are all listed as "Near Threatened" in the Queensland Nature Conservation Act 1992. Habitat for southern subspecies of the Squatter Pigeon which is listed as "Vulnerable" in the Queensland Nature Conservation Act 1992.</p> <p>8.5.3b: This vegetation unit has a diverse ground layer. Potential habitat for the near threatened species <i>Eulophia bicallosa</i> and <i>Habenaria xanthantha</i>. Habitat for southern subspecies of the Squatter Pigeon which is listed as "Vulnerable" in the Queensland Nature Conservation Act 1992.</p>
<b>Comments:</b>	<p>8.5.3a: 8.5.3b is similar but occurs in areas with more alluvial influence and usually has <i>Eucalyptus platyphylla</i> as a dominant or co-dominant, and <i>Planchonia careya</i> is more common in the lower tree or shrub layers. Distinguished from other land zone 5 regional ecosystems by the dominance of <i>E. drepanophylla</i>. Mainly occurs in subregion 6 but also in subregion 2. Mapped in lowland areas from Dingo Creek (just south of Dingo Beach), to White Cliffs (20km south-east of Bowen), and south to Andromache River (west of Lethebrook). Also found near Cape Palmerston. A large proportion of this vegetation community is in poor condition, with fragmentation and various forms of mechanical disturbance and probably grazing assisting the spread of weeds. The worst weeds are <i>*Stachytarpheta jamaicensis</i>, <i>*Bothriochloa pertusa</i> and <i>*Stylosanthes</i> spp, with other serious weed species including <i>*Sporobolus jacquemontii</i>, <i>*Stachytarpheta jamaicensis</i>, <i>*Sida rhombifolia</i> and <i>*Sida cordifolia</i>.</p> <p>8.5.3b: 8.5.3a is similar but occurs in slightly higher areas with no recent alluvial influence and <i>Eucalyptus platyphylla</i> is much rarer. Also <i>Planchonia careya</i> is very rare or absent in the lower tree or shrub layers in 8.5.3a. Distinguished from other land zone 5 regional ecosystems by the dominance, co-dominance or subdominance of <i>E. drepanophylla</i> and/or <i>E. platyphylla</i> and its occurrence in the far north of the bioregion. Occurs only in subregion 6, in lowlands, from White Cliffs (20km south-east of Bowen) east to Dingo Creek (south-east of Cape Gloucester) , and west to the Clarke Range lowlands surrounding Proserpine Dam. A large proportion of this vegetation community is in poor condition, with fragmentation and various forms of mechanical disturbance and probably grazing assisting the spread of weeds. The worst weeds are <i>*Stachytarpheta jamaicensis</i>, <i>*Bothriochloa pertusa</i> and <i>*Stylosanthes</i> spp, with other serious weed species including <i>*Sporobolus jacquemontii</i>, <i>*Stachytarpheta jamaicensis</i>, <i>*Sida rhombifolia</i> and <i>*Sida cordifolia</i>.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 12000 ha; Remnant 2021 6000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.5.5

**Description:** *Eucalyptus exserta* and/or *Corymbia clarksoniana* and/or *E. crebra* woodland to open forest, or *Melaleuca viridiflora* var. *viridiflora* and/or *M. nervosa* woodland to open forest. Where *Melaleuca* spp. dominate, *E. exserta* and/or *C. clarksoniana* and/or *E. crebra* may occur as emergents. Where *Eucalyptus* spp. and/or *Corymbia* spp. dominate, there is frequently a secondary tree layer dominated by *Melaleuca viridiflora* var. *viridiflora* and/or *M. nervosa*. Other associated species in the lower tree layers may include *Corymbia dallachiana*, *Acacia leptocarpa*, *Planchonia careya*, *Petalostigma pubescens*, *Pandanus cookii*, *Lophostemon confertus* and *Acacia simsii*. There may be a very sparse shrub layer, with dominant species including *Xanthorrhoea johnsonii*, *Acacia leptocarpa*, *Melaleuca* spp. and *Coelospermum reticulatum*. The ground layer is very sparse to mid-dense and often dominated by species such as *Eremochloa bimaclata*, *Chrysopogon fallax*, *Xanthorrhoea johnsonii* and *Aristida queenslandica* var. *queenslandica*, with other dominant to associated species including *Fimbristylis dichotoma* and *Themeda triandra*. Ephemeral species may dominate in the wet season and include *Scleria rugosa*, and *Schizachyrium fragile*. Occurs on inactive Quaternary sand plains (possibly Tertiary age) (gently sloping to undulating plains and rises of lowlands). Geology currently mapped as Qf and Qa (Quaternary sand, gravel, clay and silt: flood-out sheets and small fans). Not a Wetland. (BVG1M: 9e).

**Short description:** *Eucalyptus exserta* and/or *Corymbia clarksoniana* and/or *E. crebra* and/or *Melaleuca* spp. woodland on Tertiary sand plains

### Supplementary descriptions:

**Subregions:** 2, 11.14, (3)

**Protected areas:** Broad Sound Islands NP

**Extent in reserves:** Low

**Wetland:** Not a Wetland

**Special values:** 8.5.5: Habitat for the locally rare and poorly known species *Pseudopogonatherum irritans*. Potential habitat for the near threatened species *Eulophia bicallosa* and *Habenaria xanthantha*.

**Comments:** 8.5.5: Most similar to RE 8.5.6, however this is dominated by *Melaleuca* spp. (with *Eucalyptus* spp. and *Corymbia* spp. as emergents). Also similar to regional ecosystems 8.5.3b and 8.5.1b from which it is most easily distinguished by location (8.5.3b and 8.5.1b occur only in northern parts of subregion 2, as far south as Sarina, whilst 8.5.5 is restricted to the Clairview area), but also by the presence of *E. exserta* which is absent from 8.5.3b and 8.5.1b. The RE 8.5.3a may also be similar but is dominated by *Eucalyptus drepanophylla* and lacks *E. exserta*. The RE 8.5.7 occurs only in subregions 4 and 5. Restricted to subregion 2 between Bone Creek (just north of Carmila) and Clairview. Also found as an outlier west of Mount Edward (15km south of Clairview). Threatened by clearing for agricultural and grazing lands. This regional ecosystem is also highly vulnerable to erosion and highly prone to weed invasion and it is possible that over 75% of the remainder is severely degraded. Common weed species include *\*Sporobolus jacquemontii*, *\*Stachytarpheta jamaicensis*, *\*Stylosanthes* spp., and *\*Digitaria eriantha* cv. Pangola.

**Estimated extent:**<sup>1</sup> Pre-clearing 5000 ha; Remnant 2021 2000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:** Under review

## Regional ecosystem 8.5.6

**Description:** *Melaleuca viridiflora* var. *viridiflora* low woodland to low open forest. *Allocasuarina littoralis* may sometimes occur as a codominant or associated species. Other associated species may include *Corymbia clarksoniana*, *C. intermedia*, *Eucalyptus exserta*, *Allocasuarina torulosa*, *Lophostemon suaveolens* and *Pandanus cookii*. The epiphyte *Dendrobium canaliculatum* is common in the canopy on *Melaleuca viridiflora* var. *viridiflora*. A very sparse to sparse shrub layer is sometimes present, often including *Allocasuarina littoralis*, *Melaleuca viridiflora* var. *viridiflora*, *Corymbia clarksoniana* and *Acacia leptocarpa*. The ground layer is usually dominated by *Xanthorrhoea johnsonii*, with other dominant to associated species including *Schoenus sparteus*, *Eriachne pallescens* var. *pallescens*, *Eremochloa bimaculata* and *Rhynchospora leae*. Occurs on sandy plains (flat or gently sloping to undulating plains of lowlands), currently mapped on old inactive alluvium. Geology mapped as Qf (Quaternary sand, gravel and clay: flood-out sheets and small fans). Not a Wetland. (BVG1M: 21a).

**Short description:** *Melaleuca viridiflora* +/- *Allocasuarina littoralis* woodland on Tertiary sand plains

### Supplementary descriptions:

**Subregions:** 2

**Protected areas:** Cape Palmerston NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.5.6: Remains poorly surveyed, but given the sandy soils and ephemeral nature of the ground layer, this ecosystem is likely to be highly diverse and contain several species which are significant range extensions or very poorly known.

**Comments:** 8.5.6: Similar to RE 8.5.2a from which it can be distinguished by its distribution and the usual presence (and often sub-dominance) of *Allocasuarina littoralis* (8.5.2a may have *Allocasuarina luehmannii* as a co-dominant or subdominant, if *A. littoralis* is present it is usually uncommon). May sometimes be similar to 8.5.7 but never contains species such as *Eucalyptus latisinensis* and *Banksia robur* (also 8.5.7 occurs only in subregions 4 and 5). Occurs in subregion 2 on lowlands from in and around Cape Palmerston National Park, south-west to Marion Creek near Ilbilbie and west to Coalters Creek east of Koumala (20km south of Sarina). A substantial proportion has been completely cleared, but there remain areas within Cape Palmerston NP in good condition. Weeds which are a threat to this ecosystem include *\*Stylosanthes* spp., *\*Sporobolus jacquemontii* and *\*Stachytarpheta jamaicensis*.

**Estimated extent:**<sup>1</sup> Pre-clearing 3000 ha; Remnant 2021 2000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.5.7

**Description:** *Melaleuca viridiflora* var. *viridiflora* and/or *Eucalyptus latisinensis* low open woodland to open forest (6-14m tall). The structure and composition varies from a *Melaleuca viridiflora* var. *viridiflora* low open woodland to woodland (with occasional associated canopy species including *Allocasuarina littoralis*, *Acacia leptocarpa* and *Grevillea banksii*), to a *Eucalyptus latisinensis* open forest to woodland with associated canopy species sometimes including *Syncarpia glomulifera*, *Eucalyptus exserta* and *Corymbia intermedia* (and with lower tree layers including species such as *Allocasuarina littoralis*, *A. torulosa*, *Melaleuca viridiflora* var. *viridiflora* and *Grevillea banksii*). There is frequently a very sparse to mid-dense shrub layer, with dominants and associated species including *Banksia robur*, *Melaleuca viridiflora* var. *viridiflora*, *Allocasuarina littoralis* and *Grevillea banksii*. Dominant species in the ground layer may include *Themeda triandra*, *Xanthorrhoea fulva*, *Banksia robur*, *Schoenus brevifolius*, *Melaleuca viridiflora* var. *viridiflora* and *Schoenus calostachyus*. Cainozoic sand plains of uncertain age and origin on level to sloping (to undulating) plains. Possibly formed by deep in-situ weathering of metamorphosed sandstone. The geomorphology of this area appears to be fairly similar to that of the Cooloola-Noosa River area, where a low plain exists behind a large parabolic dune system and is said to be derived from both the sandstone hills to the west and the Cooloola sandmass, as well as lacustrine sediments and estuarine deposits (Thompson and Moore, 1984) however there appears to be a greater (or younger) alluvial influence in this system. Mapped on geology types Qr,Tw, Qr and Qr>Ccs (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits) and Ccs (Shoalwater Formation) Carboniferous quartzose sandstone and mudstone; local quartz-muscovite-biotite schist. Not a Wetland. (BVG1M: 21a).

**Short description:** *Melaleuca viridiflora* and/or *Eucalyptus latisinensis* +/- *Syncarpia glomulifera* woodland on Cainozoic sand plains of uncertain age and origin

**Supplementary descriptions:** Bailey et al. (2003), MV-2; Brushe et al. (in prep), c49

**Subregions:** 5, 4, (11.14)

**Protected areas:** Byfield NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.5.7: Habitat for a number of species which are at the northern limit of their range, including *Xanthorrhoea fulva*, *Pseudanthus orientalis*, *Sprengelia sprengelioides*, *Astrotricha intermedia*, *Baloskion pallens*, *Persoonia virgata*, *Phyllota phyllicoides*, *Mirbelia rubiifolia* and *Patersonia sericea*.

**Comments:** 8.5.7: Distinguished from all other land zone 5 regional ecosystems by the occurrence in subregions 4 and 5 only and by the presence of species such as *Banksia robur* and *Eucalyptus latisinensis* which do not occur in other subregions of the Central Qld Coast bioregion. Occurs in subregions 4 and 5, in the northern part of Island Head Creek, near Cockatoo Island (to the west of Port Clinton), and from near Mt Solitude (south of Port Clinton) to Black Creek (just north of Corio Bay). Generally in very good condition but some areas have suffered weed invasion. Susceptible to damage from road works which cause changes to the natural drainage and encourages weed establishment.

**Estimated extent:**<sup>1</sup> Pre-clearing 7000 ha; Remnant 2021 6000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:** Remnants are subject to impacts of weed invasion and soil erosion.

## Regional ecosystem 8.8.1

**Description:** Evergreen notophyll to complex notophyll vine forest. High rainfall examples are complex, and dominated by species such as *Acmena resa*, *Argyrodendron actinophyllum* subsp. *diversifolium*, *Syzygium wesa*, *Archontophoenix cunninghamiana*, *Cryptocarya corrugata*, *Litsea leefeana* and *Cinnamomum oliveri*, whilst lower rainfall examples tend to be less complex and dominated by *Argyrodendron actinophyllum* subsp. *diversifolium*, *A. polyandrum*, *Cryptocarya hypospodia*, *Dendrocnide photiniphylla*, *Cryptocarya bidwillii*, *Diospyros pentamera* and *Podocarpus elatus*. Epiphytes are very common, especially in the high rainfall areas, and include *Asplenium australasicum*, *Dendrobium speciosum* and *Platynerium bifurcatum*. Vines often include *Elaeagnus triflora*, *Jasminum dallachii*, *Melodinus australis*, *Cissus antarctica* and *Pandorea jasminoides*. A sparse shrub layer may be present, with species including *Cordyline murchisoniae*, *Psychotria loniceroides*, *Steghanthera laxiflora*, *Tapeinosperma pseudojambosa*, *Wilkiea macrophylla*, *Alyxia ruscifolia* and *Tasmania insipida*. The ground layer is usually sparse, with species including *Adiantum formosum*, *Oplismenus imbecillis*, *Blechnum cartilagineum*, *Lastreopsis tenera*, *Adiantum aethiopicum*, *Alpinia caerulea* and *Arachniodes aristata*. Occurs on upper slopes, ridges, crests, scarps and plateaus on steep mountains of uplands and highlands of the cloudy moist to the very dry rainfall zones (<1300-2000mm per annum). Geology mapped as Tb (Mostly Tertiary olivine basalt; some areas of nephelinite, basanite etc) and Tv (Early Tertiary trachyte, rhyolite, dacite and andesite flows and volcanoclastic rocks; some plugs and dykes). Not a Wetland. (BVG1M: 5b).

Vegetation communities in this regional ecosystem include:

8.8.1a: Evergreen complex notophyll feather palm vine forest. Emergents include *Acmena resa*, *Argyrodendron actinophyllum* subsp. *diversifolium* and *Syzygium wesa*. The canopy commonly consists of *Archontophoenix cunninghamiana*, *Argyrodendron actinophyllum* subsp. *diversifolium*, *Cryptocarya corrugata* and *Litsea leefeana*. Other associated canopy species, which sometimes dominate, include *Cinnamomum oliveri*, *Elaeocarpus foveolatus*, *Cryptocarya angulata*, *Cryptocarya macdonaldii*, *Sloanea macbrydei*, *Elaeocarpus ruminatus*, *Endiandra muelleri* subsp. *bracteata*, *Acronychia acidula*, *Acmena resa*, *Syzygium wesa* and *Elaeocarpus largiflorens*. Epiphytes are very common and include *Asplenium australasicum*, *Dendrobium speciosum* and *Platynerium bifurcatum*. Typical vines are *Elaeagnus triflora*, *Jasminum dallachii*, *Melodinus australis*, *Parsonia ventricosa*, *Cissus antarctica* and *Cissus penninervis*. Lower tree layers may include *Archontophoenix cunninghamiana*, *Acronychia acidula*, *Syzygium cryptophlebium*, *Cryptocarya densiflora*, *Dendrocnide photiniphylla*, *Elaeocarpus foveolatus* and *Litsea leefeana*. The shrub or lowest tree layer often includes *Cordyline murchisoniae*, *Psychotria loniceroides*, *Steghanthera laxiflora*, *Tapeinosperma pseudojambosa*, *Wilkiea macrophylla*, *Alpinia caerulea* and *Tasmania insipida*. Common ground layer species are *Arachniodes aristata*, *Blechnum cartilagineum*, *Lastreopsis tenera* and *Nephrolepis cordifolia*. Occurs on upper slopes, ridges, crests and plateaus on steep mountains of uplands and highlands of the cloudy moist rainfall zone (1600-2000mm per annum, plus cloud). Geology mapped as Tb (Mostly Tertiary olivine basalt; some areas of nephelinite, basanite etc) and Tv (Early Tertiary trachyte, rhyolite, dacite and andesite flows and volcanoclastic rocks; some plugs and dykes). Not a Wetland. (BVG1M: 5b).

8.8.1b: Evergreen notophyll vine forest. Emergents may include *Argyrodendron actinophyllum* subsp. *diversifolium*, *A. polyandrum* and *Cryptocarya hypospodia*. The canopy commonly consists of *A. actinophyllum* subsp. *diversifolium*, *A. polyandrum*, *Cryptocarya hypospodia*, *Dendrocnide photiniphylla*, *Cryptocarya bidwillii*, *Diospyros pentamera* and *Podocarpus elatus*. Common epiphytes are *Dendrobium speciosum*, *Pyrrosia confluens* and *Asplenium australasicum*. Lower tree layers may include *Podocarpus elatus*, *Cryptocarya bidwillii*, *C. macdonaldii*, *Arytera divaricata*, *Baloghia inophylla*, *Diospyros pentamera*, *Hodgkinsonia ovatiflora* and *Dendrocnide photiniphylla*. Vines are common, such as *Cissus antarctica*, *Pandorea jasminoides* and *Tetrastigma nitens*. A very sparse shrub layer includes species such as *Cleistanthus cunninghamii*, *Arytera divaricata*, *Alyxia ruscifolia*, *Myrsine variabilis*, *Wilkiea macrophylla* and *Tapeinosperma pseudojambosa*. The ground layer is usually sparse, typically including *Adiantum formosum*, *Oplismenus imbecillis*, *Adiantum aethiopicum*, *Alpinia caerulea*, *Arachniodes aristata* and *Cordyline murchisoniae*. Occurs on upper slopes, ridges and scarps on steep mountains of uplands and highlands of the very dry rainfall zone (<1300mm per annum). Geology mapped as Tb (Mostly Tertiary olivine basalt; some areas of nephelinite, basanite etc) and Tv (Early Tertiary trachyte, rhyolite, dacite and andesite flows and volcanoclastic rocks; some plugs and dykes). Not a Wetland. (BVG1M: 2a).

**Short description:** Evergreen notophyll to complex notophyll vine forest of uplands and highlands, on basalt

**Supplementary descriptions:** McDonald (1995), Group 9 (in part), 11

**Subregions:** 3

**Protected areas:** Crediton FR, Homevale NP

**Extent in reserves:** High

**Wetland:** Not a Wetland



<b>Special values:</b>	<p>8.8.1a: A naturally restricted regional ecosystem on highly fertile soils. Has a high species richness of orchids (&gt;30 species). Habitat for the Eungella Honeyeater (listed as "Near Threatened" in the Queensland Nature Conservation Act 1992) and <i>Taudactylus</i> spp (listed as "Endangered" or "Near Threatened" in the Queensland Nature Conservation Act 1992). Habitat for the near threatened species <i>Sarcotoechia heterophylla</i>. Southern limit of the range of <i>Acmena resa</i> and <i>Syzygium wesa</i>. Habitat for plant species restricted to high altitudes and otherwise rare in the Central Queensland Coast such as <i>Syzygium wesa</i>, <i>Archontophoenix cunninghamiana</i>, <i>Elaeocarpus foveolatus</i>, <i>Cryptocarya corrugata</i>, <i>Acronychia acidula</i>, <i>Cryptocarya angulata</i>, <i>Gmelina leichhardtii</i>, <i>Ackama paniculosa</i>, <i>Citronella moorei</i>, <i>Jasminum dallachii</i>, <i>Parsonsia ventricosa</i>, <i>Pothos brownii</i>, <i>Sarcotoechia heterophylla</i> and many more.</p> <p>8.8.1b: A naturally highly restricted regional ecosystem, on very fertile soils. Marginal habitat for species restricted to high altitudes and otherwise rare in the Central Queensland Coast such as <i>Archontophoenix cunninghamiana</i> and <i>Jasminum dallachii</i>.</p>
<b>Comments:</b>	<p>8.8.1a: Related to 8.8.1b which is also on basalt, but distinguished by occurring in a higher rainfall area (approximately 1800mm as opposed to 1100mm) and also by the common presence of species such as <i>Syzygium wesa</i>, <i>Acmena resa</i>, <i>Cryptocarya corrugata</i> and <i>Archontophoenix cunninghamiana</i>, which are uncommon or absent in 8.12.1b. Occurs in subregion 3. Mapped in the Credition area of the Clarke Range, south-east of Eungella. Most examples which haven't been cleared, have been logged in the past. Threatened by climate change. Fire is a threat in dry years or where the vegetation is already disturbed.</p> <p>8.8.1b: Related to 8.8.1a which is also on basalt, but distinguished by occurring in a lower rainfall area (approximately 1100mm as opposed to 1800mm) and also by the absence or rarity of species such as <i>Syzygium wesa</i>, <i>Acmena resa</i>, <i>Cryptocarya corrugata</i> and <i>Archontophoenix cunninghamiana</i>, which are common in 8.12.1a. Occurs in Subregion 3, in the Denham Range approximately 15km south of Credition. Has been logged, and some areas are invaded by <i>Lantana camara</i>. Fire is a threat in dry years or where the vegetation is already disturbed (especially when invaded by <i>Lantana camara</i>).</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 3000 ha; Remnant 2021 2000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

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## Regional ecosystem 8.9.1

<b>Description:</b>	<i>Eucalyptus latisinensis</i> and/or <i>Corymbia intermedia</i> +/- <i>Syncarpia glomulifera</i> woodland to open forest (9-24m tall). Occasionally <i>Allocasuarina torulosa</i> and/or <i>A. littoralis</i> may be dominant in the canopy, and <i>E. latisinensis</i> occurs as an emergent. Other associated canopy species may include <i>E. crebra</i> , <i>C. trachyphloia</i> and <i>Lophostemon suaveolens</i> . There is often a mid-dense to sparse (occasionally dense) secondary tree layer dominated by species such as <i>Allocasuarina</i> spp., <i>Banksia integrifolia</i> subsp. <i>compar</i> , <i>Syncarpia glomulifera</i> and <i>Lophostemon suaveolens</i> . A very sparse lower tree and/or shrub layer is usually present, with species including <i>Allocasuarina</i> spp., <i>Grevillea banksii</i> , <i>Syncarpia glomulifera</i> , <i>Acacia crassa</i> subsp. <i>longicoma</i> , <i>Banksia robur</i> and <i>Acacia leiocalyx</i> . The ground layer may be dominated by <i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i> , <i>Themeda triandra</i> , <i>Entolasia stricta</i> , <i>Eremochloa bimaculata</i> and <i>Pteridium esculentum</i> . Occurs on slopes and crests of gently undulating rises of coastal plains. Geology mapped as Qr, Qr,Tw, Qr>Ccs and Qr>PKg (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits) and Ccs (Shoalwater Formation) Carboniferous quartzose sandstone and mudstone; local quartz-muscovite-biotite schist). Not a Wetland. (BVG1M: 9d).
<b>Short description:</b>	<i>Eucalyptus latisinensis</i> and/or <i>Corymbia intermedia</i> +/- <i>Syncarpia glomulifera</i> woodland on low rises in coastal plains
<b>Supplementary descriptions:</b>	Bailey et al. (2003), EU-9; Brushe et al. (in prep), Map Unit 43-9
<b>Subregions:</b>	5, 4
<b>Protected areas:</b>	Byfield NP
<b>Extent in reserves:</b>	Medium
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	8.9.1: Habitat for species poorly known within the bioregion including <i>Acacia leiocalyx</i> subsp. <i>leiocalyx</i> and <i>Gompholobium pinnatum</i> . Northern limit of <i>Eucalyptus latisinensis</i> , <i>Xanthorrhoea fulva</i> , <i>Hibbertia vestita</i> , <i>Hovea clavata</i> and <i>Patersonia sericea</i> .
<b>Comments:</b>	8.9.1: The only land zone 9 RE, this RE may appear similar to 8.3.8. however 8.3.8 occurs on alluvium whilst 8.9.1 occurs on low rises/undulating country. 8.3.8 also tends to be dominated (or codominated) by <i>Eucalyptus latisinensis</i> whilst 8.3.8 tends to be dominated by <i>Syncarpia glomulifera</i> and/or <i>E. portuensis</i> and/or <i>Corymbia intermedia</i> . Occurs in subregions 4 and 5, inland from the northern most part of Port Clinton south to Byfield. Currently reasonably good overall.
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 8000 ha; Remnant 2021 6000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.10.1

<b>Description:</b>	<i>Acacia julifera</i> subsp. <i>julifera</i> closed forest to woodland, or <i>Corymbia dallachiana</i> and/or <i>C. tessellaris</i> , and/or <i>Eucalyptus exserta</i> woodland to open forest (to low open forest). Also includes areas of semi-evergreen, simple microphyll low closed forest, and areas of <i>Heteropogon contortus</i> tussock grassland. Shrubs in woodland and open forest communities may include <i>Wikstroemia indica</i> , <i>Seringia lanceolata</i> , <i>Acacia julifera</i> subsp. <i>julifera</i> , <i>Alphitonia excelsa</i> , <i>Geijera salicifolia</i> , <i>Planchonia careya</i> , and pioneering rainforest species. A grassy to forb-rich ground layer often includes species such as <i>Paspalidium distans</i> , <i>Heteropogon contortus</i> , <i>Digitaria brownii</i> , <i>Dinebra decipiens</i> var. <i>decipiens</i> , <i>Eragrostis</i> spp. and <i>Lomandra</i> spp. Dominant species in patches of semi-evergreen closed forest include <i>Ficus</i> spp., <i>Alectryon connatus</i> , <i>Brachychiton australis</i> and <i>Sersalisia sericea</i> . Areas of open grassland are dominated by species such as <i>Heteropogon contortus</i> , <i>Themeda triandra</i> , <i>Dichanthium sericeum</i> and <i>Aristida</i> spp. Occurs on slopes of exposed gentle or flat ridge-crests and exposed rocky headlands on gently undulating rises to undulating low hills of lowlands on islands and headlands. Rock is sometimes present at the surface. Includes some areas of lithosols of weathered rock derived from this geology. Geology mapped as Kx (Styx Coal Measures). Early Cretaceous quartzose sandstone, green lithic sandstone, mudstone, conglomerate, carbonaceous shale and coal. Not a Wetland. (BVG1M: 28e).
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Vegetation communities in this regional ecosystem include:

8.10.1a: *Acacia julifera* subsp. *julifera* closed forest to low woodland. There may sometimes be emergents such as *Eucalyptus exserta*, *Corymbia clarksoniana*, or occasionally *C. tessellaris*. The relatively dense canopy often restricts most other shrubs, but occasional species may include *Wikstroemia indica*, and *Seringia lanceolata*. In the western parts of Wild Duck island, patches of *Allocasuarina luehmannii* replace *Acacia julifera* subsp. *julifera*, or they may intergrade. There is a grassy ground layer of *Paspalidium distans*, *Eriachne rara*, *Eragrostis* spp., *Lomandra multiflora* and *Lomandra confertifolia*. Occasional rainforest elements are present in areas that have remained unburnt, in particular *Jasminum simplicifolium* and *Psychotria daphnoides*. Occurs on exposed gentle

or flat ridge-crests (often on headlands) on gently undulating rises to undulating low hills of lowlands. Rock is usually present at the surface. Includes some areas of lithosols of weathered rock derived from this geology. Geology mapped as Kx (Styx Coal Measures). Early Cretaceous quartzose sandstone, green lithic sandstone, mudstone, conglomerate, carbonaceous shale and coal. Not a Wetland. (BVG1M: 28e).

8.10.1b: *Corymbia dallachiana* and/or *Corymbia tessellaris*, and/or *Eucalyptus exserta* woodland to open forest (to low open forest). Other associated species in the canopy may include *C. clarksoniana* and occasionally *E. platyphylla*. A shrub layer may be present and may include species such as *Acacia julifera* subsp. *julifera*, *Alphitonia excelsa*, *Geijera salicifolia*, *Planchonia careya*, *Phyllanthus novae-hollandiae* and other *Acacia* spp. Pioneering rainforest trees, shrubs and vines may sometimes form a prominent secondary tree layer. In the western half of Wild Duck Island, a variation of this community is associated with soil soakages with localised clumps of *Melaleuca nervosa* and/or *Melaleuca viridiflora* var. *viridiflora*. A grassy to forb-rich ground layer may include *Heteropogon contortus*, *Digitaria brownii*, *Dinebra decipiens* var. *decipiens*, *Sida hackettiana*, *Aristida* spp., *Eriachne rara*, *Setaria surgens*, *Urochloa foliosa*, *Oplismenus* spp., *Scleria mackaviensis*, *Cyperus gracilis*, *Eragrostis* spp. and *Gahnia aspera*. Occurs on slopes on gently undulating rises to undulating low hills of lowlands on islands and headlands. Soils are grey or white sandy loams. Geology mapped as Kx (Styx Coal Measures). Early Cretaceous quartzose sandstone, green lithic sandstone, mudstone, conglomerate, carbonaceous shale and coal. Not a Wetland. (BVG1M: 9c).

8.10.1c: Semi-evergreen, simple microphyll to notophyll vine thicket to vine forest. On headlands, the structure is low and wind-sheared (2-4.5m), and the canopy is dominated by species such as *Ficus* spp., *Alectryon connatus*, *Brachychiton australis*, *Sersalisia sericea*, *Exocarpos latifolius* and *Falcataria toona*. In more protected areas along low steep sharp cliff-lines and minor sharp ridge-crests the structure is taller (up to 12m), and the canopy is dominated by *Ficus obliqua*, *F. virens* and *F. rubiginosa* forma *rubiginosa*. There is a lower tree layer with species including *Falcataria toona*, *Alectryon connatus*, *Geijera salicifolia*, *Cryptocarya triplinervis* and *Terminalia porphyrocarpa*. Vines are prominent and include *Jasminum simplicifolium*, *Capparis sepiaria*, *Pandorea pandorana*, *Cissus oblonga* and *C. reniformis*. Moist sandstone canyon floors support *Polyalthia nitidissima*, *Alyxia ruscifolia*, *Acronychia laevis*, *Cyclophyllum coprosmoides*, *Hoya australis* subsp. *australis*, *Secamone elliptica* and *Drypetes deplanchei*. Cliffs (often on headlands), ridges and crests on rolling rises to badlands, of the very dry rainfall zone, of lowlands and foothills, on Cretaceous quartzose sedimentary rocks on islands. Geology mapped as Kx (Styx Coal Measures). Early Cretaceous quartzose sandstone, green lithic sandstone, mudstone, conglomerate, carbonaceous shale and coal. Not a Wetland. (BVG1M: 5b).

8.10.1d: *Heteropogon contortus* tussock grassland with small areas of *Themeda triandra*. Associated species may include *Dichanthium sericeum*, *Aristida* spp., *Cassytha pubescens*, *Oxalis perennans*, *Glycine tomentella*, *Scleria mackaviensis*, *Crotalaria montana* and *Phyllanthus* spp. Small clumps of wind sheared rainforest species may be present, up to 1 metre in height. In minor areas, an unvegetated pavement of rock may predominate. In other minor seaward areas, an open woodland of *Casuarina equisetifolia* subsp. *incana* with isolated trees of *Pandanus tectorius*, occasional shrubs or vines of wind sheared *Geijera salicifolia*, *Sersalisia sericea*, *Jasminum* spp., and a grassy ground layer of *Thuarea involuta*, *Sporobolus virginicus*, or *Heteropogon contortus* may occur. Occurs on coastal exposed rocky headlands on Cretaceous quartzose sediments, subject to strong sea-breezes and salt-laden winds. Geology is mapped as Kx (Styx Coal Measures). Early Cretaceous quartzose sandstone, green lithic sandstone, mudstone, conglomerate, carbonaceous shale and coal. Not a Wetland. (BVG1M: 32b).

**Short description:** *Acacia julifera* and/or *Eucalyptus* spp. +/- *Corymbia* spp. open forest and/or semi-evergreen, simple microphyll low closed forest and/or *Heteropogon contortus* tussock grassland on slopes of islands on Cretaceous sedimentary rocks

**Supplementary descriptions:**

**Subregions:** 4

**Protected areas:** Broad Sound Islands NP, Broad Sound Islands Conservation Park

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.10.1a: Significant due to the rarity of the geology type in the bioregion. The presence of *Allocasuarina luehmannii* is biogeographically significant and illustrates the connection between the islands' flora with that of sandstones within the adjacent Brigalow Belt Bioregion.  
8.10.1b: Significant due to the rarity of the geology type in the bioregion.  
8.10.1c: Habitat for near threatened plant species *Xylosma ovata*.  
8.10.1d: A rare geology type in the Central Queensland Coast bioregion. This ecosystem most likely owes its existence to a combination of extreme windshear/salt-spray effects and a low surface rock content ensuring that it is not fire protected (Brennan 1986). It is therefore naturally restricted to exposed parts of islands and headlands.

<b>Comments:</b>	<p>8.10.1a: Occurs as c. 120 ha on Wild Duck Island. Has affinity with RE 8.12.29, but occurs on LZ 10. Distinguished from all other regional ecosystems and vegetation communities by the occurrence on Styx Coal measures (land zone 11) and dominance of <i>Acacia julifera</i> subsp. <i>julifera</i>. Thought to be restricted to Wild Duck Island, in the Broad Sound area. Possibly occurs on Outer Newry Island. Current known extent is approximately 90 hectares.</p> <p>8.10.1b: Unit Ctc_11 has floristic affinities with RE 8.12.26 and 8.12.12d, but occurs on LZ 10. Distinguished from all other regional ecosystems and vegetation communities by the occurrence on Styx Coal measures (land zone 11) and dominance of <i>Eucalyptus</i> and or <i>Corymbia</i> spp. rather than <i>Acacia julifera</i> subsp. <i>julifera</i>. Restricted to Wild Duck Island and a small islet to the south-west called Infelix Islet, in the Broad Sound area. Possibly occurs on Outer Newry Island (Willmott 2006). In places, clumps of <i>*Lantana camara</i> are present, but are not dominant. Dieback of <i>Corymbia dallachiana</i> has been observed in recent years, which is probably a natural phenomenon caused by drought and periodic wildfire. Some other weeds are present, including <i>*Melinis repens</i> and <i>*Sida cordifolia</i>.</p> <p>8.10.1c: This community has close floristic affinity with RE 8.12.11a and 8.11.11, but occurs on LZ 10. This is the only rainforest regional ecosystem on land zone 10. Thought to be restricted to Wild Duck Island, in the Broad Sound area. Probably minor areas on Outer Newry Island (Willmott 2006). Weeds appeared rare in this community, with <i>*Lantana camara</i> and <i>*Solanum seaforthianum</i> occasionally present.</p> <p>8.10.1d: 8.10.1d belongs to the only RE so far described on land zone 10 in the Central Queensland Coast bioregion. The vegetation community 8.10.1d appears to be floristically similar to 8.12.13, and 8.11.9, but occurs on land zone 10. Thought to be restricted to Wild Duck Island, in the Broad Sound area. Possible minor occurrence on Outer Newry Island (Willmott 2006). Approximate extent is 60 hectares. Subject to severe invasion in some areas by <i>*Melinis repens</i> (Pollock 2007). Known to be subject to grazing pressure by introduced deer in 2007.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 300 ha; Remnant 2021 300 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

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## Regional ecosystem 8.11.1

**Description:** *Eucalyptus drepanophylla* woodland to open forest (15-28m tall). *Eucalyptus platyphylla* is sometimes an associated to codominant species in the canopy, though *E. drepanophylla* may sometimes be the only species present, especially along ridgelines. *Corymbia clarksoniana* is a frequent associated species in the canopy, and *Lophostemon suaveolens* is occasionally present. There is often a very sparse (to isolated trees) secondary tree layer with species such as *E. platyphylla*, *Planchonia careya*, *Albizia procera* and *Melaleuca viridiflora* var. *viridiflora*. A very sparse shrub layer may be present, and species may include *Cycas media* subsp. *media*, *Planchonia careya* and *Ficus opposita*. The ground layer is mid-dense to sparse and commonly includes *Mnesithea rottboellioides*, *Imperata cylindrica*, *Sorghum nitidum* forma *aristatum*, *Themeda triandra*, *Chrysopogon fallax*, *Heteropogon triticeus* and *Panicum effusum*. Slopes, ridges and crests on undulating low hills to rolling hills of foothills. Geologies mapped include Pc/s (Carmila beds/s), Pla (Carmila Beds), Ple (Calen Coal Measures), Pc/v (Carmila beds/v) and Pc/sh (Carmila beds/sh). Early Permian siltstone, mudstone, sandstone, conglomerate, carbonaceous shale, coal and rhyolitic to dacitic volcanoclastic rocks. Not a Wetland. (BVG1M: 9b).

**Short description:** *Eucalyptus drepanophylla* +/- *E. platyphylla* woodland on hills formed from metamorphosed sediments

### Supplementary descriptions:

**Subregions:** 2, (3)

**Protected areas:** Mount Kinchant CP, Eungella NP, Mount Ossa NP

**Extent in reserves:** Low

**Wetland:** Not a Wetland

**Special values:** 8.11.1: Habitat for the endangered Northern Quoll (Pollock, 1995). Also habitat for Black-chinned Honeyeater and Rufous Owl.

**Comments:** 8.11.1: Distinguished from 8.11.4 (which has the same spp. dominance) by its association with moderate to steep hills (slope > 10%) rather than gently undulating areas. Found in subregion 2, between the Proserpine River and Mount Alice (15km north west of Sarina). It has been reduced to around 56% of its former range and is now in much smaller, scattered patches, over approximately the same extent. Generally fairly average to poor due to weed invasion exacerbated by cattle and horse grazing. Many areas are heavily invaded by weeds, particularly *\*Megathyrsus maximus* and *\*Lantana camara*. Other weed species include *\*Crotalaria pallida*, *\*Triumfetta rhomboidea*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Stylosanthes* spp., *\*Ageratum conyzoides* subsp. *conyzoides*, *\*Crotalaria goreensis*, *\*Emilia sonchifolia*, *\*Hyparrhenia rufa*, *\*Melinis minutiflora*, *\*Melinis repens*, *\*Passiflora foetida* and *\*Sida cordifolia*. Some areas have suffered topsoil loss.

**Estimated extent:**<sup>1</sup> Pre-clearing 10000 ha; Remnant 2021 5000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.11.2

**Description:** Semi-evergreen notophyll to microphyll vine forest. Emergents such as *Argyrodendron polyandrum* and *Dysoxylum mollissimum* subsp. *molle* may be present. Typical canopy dominants are *Argyrodendron polyandrum*, *Terminalia porphyrocarpa*, *Myristica globosa* subsp. *muelleri*, *Archontophoenix cunninghamiana*, *Falcata toona* and *Dendrocnide photiniphylla*. The sub-canopy may include species such as *Myristica globosa* subsp. *muelleri*, *Archontophoenix cunninghamiana*, *Alangium polyosmoides* subsp. *tomentosum*, *Strychnos psilosperma*, *Drypetes deplanchei*, *Gossia bidwillii* and *Planchonella cotinifolia*. Lower tree and shrub layers typically include *Drypetes deplanchei*, *Diospyros geminata*, *Mallotus philippensis*, *Eugenia reinwardtiana*, *Alyxia ruscifolia*, *Psychodora odorata* and *Strychnos psilosperma*. Common vines are *Trophis scandens*, *Austrosteenisia blackii*, *Cissus oblonga* and *Melodorum leichhardtii*. The ground layer is usually very sparse and may include *Adiantum hispidulum*, *Alpinia caerulea*, *Ancistrachne uncinulata* and *Adiantum aethiopicum*. Epiphytes are often present and commonly include *Asplenium australasicum* and *Drynaria rigidula*. Occurs on slopes, gullies and ridges on undulating low hills to steep mountains of foothills and uplands, of the moist to dry rainfall zone. Geologies are mapped as Ccs (Shoalwater Formation), DCt (Townshend Formation), DCb (Broome Head Metamorphics) and Kx (Styx Coal Measures). Early Cretaceous - Devonian quartzose and lithic sandstone, mudstone, schist, amphibolite, quartzite and gneiss. Not a Wetland. (BVG1M: 5b).

Vegetation communities in this regional ecosystem include:

8.11.2x1a: Semi-evergreen microphyll vine thicket to vine forest. The canopy may be dominated by species such as *Drypetes deplanchei*, *Sersalisia sericea* and *Alectryon connatus*. Other canopy and sub-canopy species include *Cupaniopsis anacardioides*, *Cyclophyllum coprosmoides*, *Ficus obliqua*, *Ixora queenslandica*, *Litsea fawcettiana*, *Macaranga involucreta* var. *mallotoides* and *Pittosporum ferrugineum*. Gullies sometimes support clumps of *Archontophoenix cunninghamiana*. Stands of *Araucaria cunninghamii* (often with very few other species associated) are known to occur on South Percy Island on serpentinite. Common vines include *Jasminum didymum*, *J. simplicifolium*, *Trophis scandens* subsp. *scandens* and *Capparis sepiaria*. The ground stratum is usually sparse. Slopes and ridges on rolling rises to steep low hills of the very dry rainfall zone, of lowlands on islands and near-coastal headlands, on metamorphic rocks. Geologies mapped as Ccs (Shoalwater Formation), DCt (Townshend Formation) and DCb (Broome Head Metamorphics). Carboniferous - Devonian quartzose sandstone, mudstone, amphibolite, quartzite, schist and quartz-rich garnetiferous psammitic to pelitic migmatitic gneiss. Also serpentinite. Not a Wetland. (BVG1M: 5b).

<b>Short description:</b>	Semi-evergreen notophyll to microphyll vine forest of foothills and uplands on metamorphosed sediments
<b>Supplementary descriptions:</b>	Bailey et al. (2003), CLMR-11, NRF-11, RF-11, 8HVS-11; Brushe et al. (in prep), Map Units c27-11, c72-11, c78-11; McDonald (1995), Groups 5, 6
<b>Subregions:</b>	4, 2, 5, (11.14), (3)
<b>Protected areas:</b>	Mount Kinchant CP, Byfield NP, Eungella NP, Mount Ossa NP, Capricorn Coast NP, Percy Isles NP, Broad Sound Islands NP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	8.11.2: Habitat for near threatened plant species <i>Arytera dictyoneura</i> and species with a restricted distribution such as <i>Bowenia serrulata</i> and <i>Macrozamia miquelii</i> . The light colour form of the southern Boobook Owl is of locally significant conservation value. 8.11.2x1a: A restricted ecosystem which is still poorly known. Examples on serpentinite are very rare. Habitat for near threatened plant species <i>Xylosma ovata</i> .

<b>Comments:</b>	<p>8.11.2: Distinguished from all other rainforests on Land Zone 11 by occurring on foothills and uplands of the mainland (instead of islands or headlands where 8.11.11 occurs) and by consisting of a higher proportion of species which occur in more mesic situations (such as <i>Myristica globosa</i> subsp. <i>muelleri</i> and <i>Alangium villosum</i>) as opposed to those which dominate in the harsh conditions of the islands and headlands on which 8.11.11 occurs (such as <i>Drypetes deplanchei</i> and <i>Sersalisia sericea</i>). Occurs in subregion 2, from Calen to an area just south of Kinchant Dam. Also mapped throughout subregions 4 and 5, from West Point Head (west of Port Clinton) to Yeppoon. Moderate to good, with most areas having some history of logging, and some areas suffering minor weed invasion with species such as *<i>Lantana camara</i> and *<i>Passiflora suberosa</i>, *<i>P. pallida</i>.</p> <p>8.11.2x1a: Distinguished from the only other rainforest ecosystem on metamorphics in the Central Queensland Coast bioregion (8.11.2) by the occurrence on islands and headlands (as opposed to inland from the coastal edge) and dominance of microphyll species such as <i>Drypetes deplanchei</i> and <i>Sersalisia sericea</i>. Is similar in landscape position, and can be similar in species composition, to 8.10.1c (but this occurs on sedimentary rocks), and 8.12.11c (but this occurs on igneous rocks). Restricted to the Shoalwater Bay area. There are patches north and south of Cape Manifold, on the western side of Port Clinton, on the east coast of Townshend Island and on other smaller islands within Shoalwater Bay. Also South Percy Island. Patches are often small, and sometimes fragmented, leading to a vulnerability to weed invasion. Some areas invaded by *<i>Lantana camara</i>, and *<i>Passiflora suberosa</i>, *<i>P. pallida</i> may also be present. Vulnerable to hot fires.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 3000 ha; Remnant 2021 3000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.11.3

**Description:** *Eucalyptus portuensis* and/or *Corymbia intermedia* and/or *C. trachyphloia*, and/or *E. exserta* and/or *E. platyphylla* and/or *E. crebra* and/or *Eucalyptus tereticornis* and/or *E. platyphylla* and/or *Lophostemon suaveolens* and/or *E. drepanophylla* and/or *C. clarksoniana* woodland (to low woodland) to open forest (8-35m tall). There is often a mixture of three or more species in the canopy, and there are several other species which may sometimes be dominant or co-dominant. There is often a sparse to mid-dense secondary tree layer consisting of juvenile *Eucalyptus* spp. and *Corymbia* spp., and sometimes *Lophostemon* spp., *Melaleuca* spp. and *Acacia* spp. A mid-dense to very sparse shrub layer is often present and may include *Allocasuarina* spp., *Acacia* spp., *Cycas media* subsp. *media* and *Xanthorrhoea latifolia* subsp. *latifolia*. The ground layer is often dominated by species such as *Themeda triandra*, *Xanthorrhoea latifolia* subsp. *latifolia* and *Heteropogon* spp. Occurs on low to medium hills formed from metamorphosed sediments. Geologies mapped include Ccs (Shoalwater Formation), DCcw (Wandilla Formation), Pa/Plc (Calen Coal Measures) and Plz (Lizzie Creek Volcanics). Early Permian - Late Devonian quartzose and lithic sandstone, mudstone and siltstone. Qr (Quaternary clay, silt and gravel; colluvial). Not a Wetland. (BVG1M: 9d).

Vegetation communities in this regional ecosystem include:

8.11.3a: *Corymbia intermedia* and/or *Eucalyptus portuensis* and/or *C. clarksoniana* and/or *E. platyphylla* and/or *E. drepanophylla* open forest to woodland (15-32m tall). There is usually a mixture of three or more species in the canopy, and there are several other species which may sometimes be dominant, co-dominant or associated in the canopy, including *E. exserta*, *C. tessellaris* and *E. tereticornis*. There is usually a very sparse to mid-dense secondary tree layer, often consisting of juvenile *Eucalyptus* spp. and *Corymbia* spp., as well as sometimes *Lophostemon suaveolens*, *L. confertus*, *Acacia leptocarpa*, *Melaleuca viridiflora* var. *viridiflora* and rainforest pioneering species. There is sometimes a very sparse to mid-dense shrub layer, with common species including *Hibiscus heterophyllus*, *Cycas media* subsp. *media*, *Acacia leptocarpa*, *Glochidion sumatranum*, *Tabernaemontana orientalis*, *Timonius timon* var. *timon* and *Glochidion apodogynum*. Juvenile pioneering rainforest species may also be common. The ground layer is often dominated by species such as *Themeda triandra*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Mnesithea rottboellioides* and *Imperata cylindrica*, with other species frequently to occasionally present including *Flemingia parviflora*, *Glycine cyrtoloba*, *Pycnospora lutescens*, *Fimbristylis dichotoma*, *Desmodium rhytidophyllum*, *Dianella caerulea* and *Eragrostis brownii*. Slopes, ridges and crests on undulating to rolling hills of foothills. Geologies mapped include Pa/Plc (Calen Coal Measures), Ccs (Shoalwater Formation) and Plz (Lizzie Creek Volcanics). Early Permian - Carboniferous quartzose and lithic sandstone, siltstone, mudstone, coal, shale and acid to intermediate flows and pyroclastics; local schist). Not a Wetland. (BVG1M: 9d).

8.11.3b: *Eucalyptus portuensis* and/or *Corymbia intermedia* and/or *C. trachyphloia* and/or *E. exserta* and/or *Lophostemon confertus* woodland (to low woodland) to open forest (8-35m tall). *E. crebra* and *E. tereticornis* are rare dominant canopy species. Other species which may be co-dominant or form a minor component of the

canopy include *Syncarpia glomulifera*, *Lophostemon suaveolens*, *E. crebra*, *C. clarksoniana*, *E. fibrosa* and *E. suffulgens*. There is often a very sparse to mid-dense secondary tree layer (2.5-15m tall) which may be dominated by *Allocasuarina torulosa*, *Acacia flavescens*, *Lophostemon confertus*, *Syncarpia glomulifera* and *Banksia integrifolia* subsp. *compar*. A shrub layer is commonly present (1-5m tall), and dominants may include *Lophostemon confertus*, *Acacia flavescens*, *Allocasuarina torulosa*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Acacia aulacocarpa*, *Planchonia careya*, *Jacksonia scoparia*, *Grevillea banksii* and *Coelospermum reticulatum*. The mid-dense to very sparse ground layer is dominated by species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Themeda triandra*, *Heteropogon triticeus*, *Macrozamia miquelii*, *Aristida* spp., *Heteropogon contortus*, *Bowenia serrulata* and *Entolasia stricta*. Slopes (often steep), ridges and crests on gently undulating rises to steep mountains of foothills and uplands. Geologies mapped include Ccs (Shoalwater Formation) and DCcw (Wandilla Formation). Late Devonian - Carboniferous quartzose and lithic sandstone, mudstone, siltstone and jasper; local schist. Qr and Qr>Ccs (Quaternary clay, silt, sand and gravel; colluvial and residual deposits). Not a Wetland. (BVG1M: 9d).

8.11.3c: *Eucalyptus tereticornis* and/or *E. platyphylla* and/or *Lophostemon suaveolens* and/or *E. crebra* woodland to open forest (11-25m tall). *Corymbia intermedia* and/or *C. tessellaris* are sometimes co-dominant in the canopy. Other associated canopy species may include *E. portuensis*, *C. clarksoniana*, *Lophostemon confertus* and *C. dallachiana*. Rainforest elements are occasionally present in the canopy. A sparse to mid-dense secondary tree layer (4-15m tall) is usually present, and dominant species may include *Allocasuarina torulosa*, *Lophostemon suaveolens*, *L. confertus*, *Acacia flavescens* and *Livistona decora*, with rainforest elements sometimes present. A mid-dense to very sparse shrub layer (1.5-5m tall) is frequently present, and dominants may include *Allocasuarina torulosa*, *Acacia flavescens*, *Planchonia careya*, *Acacia crassa* subsp. *longicoma* and *Alphitonia excelsa*. The sparse to mid-dense ground layer (0.4-1.5m tall) may be dominated by species such as *Themeda triandra*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Heteropogon contortus*, *Digitaria* sp., *Dianella caerulea*, *Imperata cylindrica* and *Heteropogon triticeus*. Occurs on slopes, ridges and crests on undulating rises to steep hills of foothills, on metamorphosed sediments. Geologies mapped include Ccs (Shoalwater Formation) and DCcw (Wandilla Formation). Late Devonian - Carboniferous quartzose and lithic sandstone, mudstone, siltstone and jasper; local schist. Qr and TQr/g\c (Quaternary - Late Tertiary clay and clayey chert gravel; colluvial). Not a Wetland. (BVG1M: 9c).

<b>Short description:</b>	Variable woodland to open forest, often including <i>Corymbia intermedia</i> , <i>Eucalyptus portuensis</i> , <i>C. trachyphloia</i> , <i>E. platyphylla</i> and <i>E. drepanophylla</i> on low hills on metamorphosed sediments
<b>Supplementary descriptions:</b>	Bailey et al. (2003), EA-11; Brushe et al. (in prep), Map Units 55-11, c55-11b, c55-11d, c62-11, c63-11, c64-11, c65-11, c69-11, c70-11b, c70-11d c71-11; Queensland Herbarium (2008), Egc_11
<b>Subregions:</b>	4, 2, (5), (11.14), (3)
<b>Protected areas:</b>	Byfield NP, Mount Ossa NP, Eungella NP, Pioneer Peaks NP, Percy Isles NP
<b>Extent in reserves:</b>	Medium
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	8.11.3: Habitat for the Northern Quoll (Pollock, 1995) which is listed as "Endangered" in the Environment Protection and Biodiversity Conservation Act 1999. Potential habitat for the endangered species <i>Cycas ophiolitica</i> . 8.11.3b: Habitat for the vulnerable species <i>Grevillea venusta</i> . Also habitat for a number of species at the northern limit of their range, including <i>Comesperma esulifolium</i> , <i>Jacksonia scoparia</i> , <i>Daviesia umbellulata</i> , <i>Eucalyptus fibrosa</i> , <i>E. suffulgens</i> , <i>Pomaderris ferruginea</i> , <i>Patersonia sericea</i> and <i>Hovea clavata</i> . Also habitat for a number of species which are poorly known from the CQC Bioregion, including <i>Daviesia ulicifolia</i> , <i>Corybas barbarae</i> and <i>Rhynchospira rubra</i> . 8.11.3c: Habitat for a number of species which are poorly known in the CQC bioregion, including <i>Dysoxylum rufum</i> , <i>Dockrillia bowmanii</i> , <i>Acacia implexa</i> , <i>Brachychiton bidwillii</i> , <i>Cymbidium suave</i> and <i>Calanthe triplicata</i> . Habitat for some species at the northern limit of their range, including <i>Petalostigma triloculare</i> .



**Comments:**

8.11.3a: Distinguished from 8.11.3b and 8.11.3c by occurring only in subregion 2 (the others are only in subregion 4). Distinguished from 8.11.1 and 8.11.4 by the presence of other co-dominating or dominating species besides *Eucalyptus platyphylla* and *E. drepanophylla* (and 8.11.3a occurs on more definite hills than the more gently undulating terrain of 8.11.4). Composed of more of a mixture of canopy species than the 8.11.5 series which is always dominated by *E. tereticornis* and/or *Corymbia tessellaris*. Distinguished from 8.11.6 by the absence of *E. latisinensis* and the occurrence in subregion 2 instead of subregion 4. Differs from the 8.11.8 series by never having *C. citriodora* or *E. moluccana* dominant or subdominant. Has a taller canopy than 8.11.10 and is never dominated by *Lophostemon confertus*. Occurs in subregion 2 between Mount Catherine (just south of Yalboroo) and the Pioneer River near Marian. Ranges from poor to good, depending on the history and severity of disturbance caused by activities such as cattle-grazing, timber harvesting and recreation. Weed invasion is a major issue in many areas, with *\*Lantana camara* being one of the most serious issues. Other problem weeds include *\*Triumfetta rhomboidea*, *\*Mimosa pudica*, *\*Ageratum conyzoides* subsp. *conyzoides*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Synedrella nodiflora*, *\*Urena lobata*, *\*Centrosema molle*, *\*Mesosphaerum suaveolens*, *\*Megathyrsus maximus*, *\*Melinis minutiflora*, *\*Melinis repens*, *\*Stachytarpheta* spp. and *\*Stylosanthes* spp.

8.11.3b: Similar to 8.11.3a, but occurs only in subregions 4 and 5 (8.11.3a occurs only in subregion 2). Distinguished from all other regional ecosystems on land zone 11 by the occurrence away from exposed slopes of islands and headlands (8.11.3b tends to occur inland or in more sheltered situations than the sometimes similar 8.11.10) and also by the dominance of *Eucalyptus portuensis*, *C. intermedia*, *C. trachyphloia*, *E. exserta* or *L. confertus*. Where occasionally *E. tereticornis* or *E. crebra* are dominant, one or more of the previous species are usually also a prominent feature of the canopy or subcanopy. Occurs only in the Shoalwater Bay area and is almost entirely restricted to subregion 4, with a few patches occurring in subregion 5. It is mapped extensively from Mount Hummock to Conical Mountain and also around Mount Atherton. Relatively good, though some areas are invaded by *\*Lantana camara*. Ground layer weeds may include *\*Passiflora suberosa*, *\*P. pallida*, *\*Melinis minutiflora*, *\*Sida cordifolia*, *\*Triumfetta rhomboidea* and *\*Emilia sonchifolia*.

8.11.3c: Occasionally similar to 8.11.3a, but occurs only in subregions 4 and 5 (8.11.3a occurs only in subregion 2). Distinguished from 8.11.3b by the dominance of *Lophostemon suaveolens* or *Eucalyptus platyphylla* or *E. tereticornis*, and although *E. portuensis* may be present, it is not dominant. Can seem similar to 8.11.5a and 8.11.5b, but these occur only in subregion 2 and 8.11.3c occurs only in subregion 4. Sometimes similar to 8.11.4 but occurs on more definite slopes as opposed to gently undulating areas. Distinguished from all other regional ecosystems on land zone 11 by the occurrence away from exposed slopes of islands and headlands. Occurs on slopes and ridges in subregion 4. An extensive area exists in the Shoalwater Bay Military Training Area. In the past there was a large area to the north of Yeppoon, this is almost entirely gone with only small patches remaining. Vulnerable to weed invasion, with problem species including *\*Lantana camara* and *\*Passiflora suberosa*, *\*P. pallida* and *\*Triumfetta rhomboidea*. Other common weeds include *\*Passiflora foetida*, *\*Macroptilium atropurpureum*, *\*Sporobolus pyramidalis*, *\*Ageratum conyzoides* subsp. *conyzoides* and *\*Melinis repens*.

**Estimated extent:**<sup>1</sup> Pre-clearing 32000 ha; Remnant 2021 29000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:** Under review

## Regional ecosystem 8.11.4

**Description:** Eucalyptus platyphylla and/or Corymbia clarksoniana and/or C. intermedia and/or C. tessellaris open woodland to open forest (9-25m tall). Associated canopy species may include E. drepanophylla, E. crebra, E. tereticornis and C. tessellaris. There is frequently a very sparse to mid-dense secondary tree layer/tall shrub layer, often dominated by Melaleuca viridiflora var. viridiflora and/or M. nervosa, or other species may include E. platyphylla, Allocasuarina torulosa and Lophostemon suaveolens. There is occasionally a very sparse shrub layer which may include Planchonia careya, Glochidion lobocarpum, Acacia holosericea and Acacia spp. The ground layer is often dominated by species such as Themeda triandra, Heteropogon triticeus, Xanthorrhoea latifolia subsp. latifolia and Imperata cylindrica. Occurs on gently undulating slopes (often adjacent to alluvial plains), on undulating to rolling low hills of lowlands and foothills, on metamorphosed sediments. Geologies mapped as Pc/s (Carmila beds/s), Pla (Carmila Beds), Pc/v (Carmila beds/v) and Ccs (Shoalwater Formation). Early Permian siltstone and mudstone, volcanilithic, lithic and quartzose sandstone, conglomerate and rhyolitic to dacitic volcanoclastic rocks. Not a Wetland. (BVG1M: 9b).

**Short description:** Eucalyptus platyphylla and/or Corymbia clarksoniana and/or C. intermedia and/or C. tessellaris woodland on low undulating areas on metamorphosed sediments

**Supplementary descriptions:** Brushe et al. (in prep), Map Unit 34-11

**Subregions:** 2, 4, (6)

**Protected areas:** Keppel Bay Islands NP

**Extent in reserves:** Low

**Wetland:** Not a Wetland

**Special values:** 8.11.4: Habitat for Black-chinned Honeyeater near Kinchant Dam. In subregions 4 and 5 this RE is habitat for the highly restricted plant species Bowenia serrulata, and for Macrozamia miquelii which occurs there at the northern end of its range.

**Comments:** 8.11.4: Distinguished from 8.11.1 (which often has the same spp. dominance) by its association with very gently sloping terrain adjacent to alluvial areas (as opposed to definite hills). The RE 8.11.6 also often occurs on gently sloping terrain, however it is usually dominated by E. latisinensis (occasionally by E. crebra but then E. platyphylla is absent). The prominent presence of E. platyphylla and/or Corymbia clarksoniana and/or C. tessellaris are also a good indicator for this RE. Occurs in subregion 2 and 6, from near Ben Lomond, south to Bell Creek (10km north-west of Sarina). Also found in subregion 4, with an extensive area near Pineapple Gap, and other smaller areas scattered throughout the lowlands. Extensively cleared. Remnants in good condition are rare or non-existent in the northern subregions as they are heavily fragmented and disturbed. Some areas are heavily invaded by the woody weed \*Haematoxylum campechianum. Continued clearing for subdivision and incremental loss through property development (fence lines, tracks, dams, buildings etc) are also a threat. Weeds are common and species include \*Megathyrsus maximus, \*Triumfetta rhomboidea, \*Passiflora suberosa, \*P. pallida, \*Urena lobata and \*Xanthium occidentale.

**Estimated extent:**<sup>1</sup> Pre-clearing 11000 ha; Remnant 2021 2000 ha

**VM class:** Endangered

**Biodiversity status:** Endangered

**Biodiversity status notes:**

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## Regional ecosystem 8.11.5

**Description:** *Corymbia tessellaris* and/or *Eucalyptus tereticornis* open forest to woodland. Occasionally *E. drepanophylla* and/or *C. clarksoniana* are co-dominant or associated species. There is occasionally a very sparse secondary tree layer with species which may include *C. tessellaris*, *E. tereticornis*, *E. platyphylla*, *C. dallachiana*, *Albizia procera*, *Alphitonia excelsa*, and *Planchonia careya*. A shrub layer may be present and typical species might include *Cycas media* subsp. *media*, *Ficus opposita*, *Glochidion lobocarpum*, *Alphitonia excelsa* and *Planchonia careya*. The ground layer is grassy, and commonly includes *Imperata cylindrica*, *Mnesithea rottboellioides*, *Digitaria parviflora*, *Abildgaardia ovata*, *Heteropogon triticeus*, *Panicum effusum*, *Themeda triandra* and *Heteropogon contortus*. Occurs on slopes, ridges and crests on undulating low hills to rolling hills of foothills. Soil is dark and geology probably mostly sedimentary, metamorphic rocks and conglomerates. Geology types mapped include DCc (Campwyn Beds), Kgbm/b (Ben Mohr Igneous Complex/b), Kgbm/g (Ben Mohr Igneous Complex/g), Ple (Calen Coal Measures) and Pla (Carmila Beds). Early Cretaceous to Late Devonian acid to intermediate flows, mudstone, siltstone, sandstone and gabbro. Not a Wetland. (BVG1M: 9c).

Vegetation communities in this regional ecosystem include:

8.11.5a: *Corymbia tessellaris* and *Eucalyptus tereticornis* open forest to woodland. Occasionally *C. clarksoniana* is a co-dominant or associated species, and *Lophostemon suaveolens* is sometimes present. There is occasionally a very sparse secondary tree layer with species which may include *Albizia procera*, *Alphitonia excelsa*, and *Planchonia careya*. A shrub layer may be present and typical species might include *Cycas media* subsp. *media*, *Alphitonia excelsa* and *Planchonia careya*. The ground layer is grassy, and commonly includes *Imperata cylindrica*, *Abildgaardia ovata*, *Heteropogon triticeus*, *Mnesithea rottboellioides*, *Panicum effusum*, *Digitaria parviflora*, *Themeda triandra* and *Heteropogon contortus*. Occurs slopes, ridges and crests on undulating low hills to rolling hills of foothills. Soil is dark and geology probably mostly sedimentary, metamorphic rocks and conglomerates. Geology types mapped include Kgbm/b (Ben Mohr Igneous Complex/b) and Kgbm/g (Ben Mohr Igneous Complex/g) Early Cretaceous gabbro and monzogranite and Ple (Calen Coal Measures) and Pla (Carmila Beds) Early Permian quartzose and lithic sandstone, siltstone, mudstone and conglomerate. Not a Wetland. (BVG1M: 9c).

8.11.5b: *Corymbia tessellaris* woodland to open forest. *Eucalyptus drepanophylla* is sometimes present as a codominant or associated canopy species. There may be a secondary tree layer with species including *C. tessellaris*, *E. drepanophylla*, *E. platyphylla*, *C. dallachiana* and *Albizia procera*. The shrub layer is very sparse to sparse, and may include species such as *Cycas media* subsp. *media*, *Ficus opposita* and *Glochidion lobocarpum*. The ground layer is mid-dense and commonly dominated by species such as *Digitaria parviflora* and *Mnesithea rottboellioides*. Occurs on Slopes and crests on undulating rises to rolling low hills of foothills. Appears to be mainly occurring on conglomerate rocks, with the geology type mapped as DCc (Campwyn Beds). Early Carboniferous to Late Devonian acid to intermediate flows and pyroclastics; mudstone, siltstone, quartzose sandstone, oolitic limestone and conglomerate. Not a Wetland. (BVG1M: 9c).

**Short description:** *Corymbia tessellaris* and/or *Eucalyptus tereticornis* +/- *E. drepanophylla* open forest on low hills formed from metamorphosed sediments or conglomerate (subregion 2)

**Supplementary descriptions:**

**Subregions:** 2, (3)

**Protected areas:**

**Extent in reserves:** No representation

**Wetland:** Not a Wetland

**Special values:** 8.11.5a: An uncommon vegetation community.  
8.11.5b: Very restricted, poorly known vegetation community.

<b>Comments:</b>	<p>8.11.5a: Distinguished from 8.11.5b by lacking <i>Eucalyptus drepanophylla</i> as a prominent component of the canopy. Distinguished from all other regional ecosystems on land zone 11 by the clear dominance of <i>E. tereticornis</i> and/or <i>Corymbia tessellaris</i>. Occurs in two isolated patches within subregion 2. The first, near the O'Connell River west of the Bruce Highway between Yalboroo and Elaroo (10km south of Bloomsbury) and the other between Blue Mountain and the Pioneer River (10km south of Mirani). Largely unknown, but weeds are likely to be a problem given the proximity to cleared lands and possibly a slightly higher soil fertility than other surrounding ecosystems on low hills. *<i>Lantana camara</i> is known to be dense in some places. Other weed species present include *<i>Ageratum conyzoides</i> subsp. <i>conyzoides</i>, *<i>Melinis minutiflora</i>, *<i>Passiflora suberosa</i>, *<i>P. pallida</i> and *<i>Triumfetta rhomboidea</i>.</p> <p>8.11.5b: Distinguished from 8.11.5a by the presence of <i>Eucalyptus drepanophylla</i> as a prominent component of the canopy. Distinguished from all other regional ecosystems on land zone 11 by the clear dominance of <i>Corymbia tessellaris</i>. Restricted to a small area between Mount Springcliffe and Mount Sweetland about 10km west of Cape Hillsborough National Park, in subregion 2. Areas visited appear to be heavily weed invaded, possibly due to a combination of past land practices and a relatively high soil fertility. The most problematic species are *<i>Lantana camara</i> and *<i>Centrosema molle</i>, with other species including *<i>Ageratum conyzoides</i> subsp. <i>conyzoides</i>, *<i>Bidens pilosa</i>, *<i>Melinis repens</i>, *<i>Mimosa pudica</i>, *<i>Passiflora suberosa</i>, *<i>P. pallida</i>, *<i>Stylosanthes</i> spp., *<i>Triumfetta rhomboidea</i> and *<i>Urena lobata</i>.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 600 ha; Remnant 2021 400 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

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## Regional ecosystem 8.11.6

**Description:** *Eucalyptus latisinensis* and/or *E. crebra* and/or *E. exserta* open forest to open woodland (9-22m tall). Where *E. latisinensis* is a prominent feature of the canopy, common codominant or associated species include *Corymbia intermedia*, *C. trachyphloia*, *Syncarpia glomulifera*, *E. portuensis* and *Allocasuarina* spp. In areas closer to mangroves on low hills, *E. crebra* and/or *E. exserta* are sometimes dominant, with associated species including *C. clarksoniana* and *C. trachyphloia*. There is frequently a mid-dense to very sparse lower tree layer present, and in *E. latisinensis* dominated associations this often consists of *Allocasuarina torulosa* and/or *A. littoralis*, *Banksia integrifolia* subsp. *compar* and *Grevillea banksii*, whilst in *E. crebra* and/or *E. exserta* communities there is often an *Acacia flavescens* or *Lophostemon confertus* dominated layer. A shrub layer and/or lower tree layer is usually present consisting of species such as *Allocasuarina* spp., *Melaleuca viridiflora* var. *viridiflora*, *Grevillea banksii*, *Acacia flavescens*, *A. disparrima* subsp. *disparrima*, *Alyxia ruscifolia* and *Coelospermum reticulatum*. The ground layer is dominated by species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Themeda triandra*, *Eremochloa bimaculata*, *Entolasia stricta*, *Hibbertia stricta* and *Gahnia aspera*. Occurs on slopes and crests on gently undulating rises to undulating hills of lowlands and foothills, on sediments. Geologies mapped include Ccs (Shoalwater Formation). Carboniferous quartzose sandstone, mudstone; local quartz-muscovite-biotite schist. Qr and Qr>Ccs (Quaternary clay, silt, sand, gravel and soil; colluvial and residual deposits). Not a Wetland. (BVG1M: 9d).

**Short description:** *Eucalyptus latisinensis* and/or *E. crebra* and/or *E. exserta* +/- *Corymbia intermedia* +/- *C. trachyphloia* open forest on metamorphosed sediments

**Supplementary descriptions:** Bailey et al. (2003), Map unit ECg-11; Brushe et al. (in prep), Map units c43-11, c44, c47-11a

**Subregions:** 4, (11.14), (5)

**Protected areas:** Byfield NP

**Extent in reserves:** Medium

**Wetland:** Not a Wetland

**Special values:** 8.11.6: Habitat for plant species that are poorly known in the Central Queensland Coast bioregion including *Acacia leiocalyx* subsp. *leiocalyx*, *Gompholobium pinnatum*, *Goodenia rotundifolia* and *Hypoxis pratensis* var. *pratensis*, as well as species at the northern limit of their range such as *Xanthorrhoea fulva*, *Hibbertia vestita* and *Comesperma esulifolium*. Also habitat for *Bowenia serrulata* which is restricted to the Shoalwater area. Habitat for the Glossy Black Cockatoo which is listed as "Vulnerable" in the Queensland Nature Conservation Act 1992.

**Comments:** 8.11.6: The RE 8.11.1 may sometimes have a similar species dominance, but 8.11.6 tends to be associated with very more gently sloping terrain (as opposed to definite steep hills). The RE 8.11.4 also often occurs on gently sloping terrain, however it is usually dominated by *Eucalyptus platyphylla*. Occurs in subregion 4 around the mouth of Water park Creek at Corio Bay and in the coastal area to the east of Mount Hummock and west of Port Clinton in the Shoalwater Bay Military Training Area. Moderately good, though susceptible to weed invasion. Common weeds include \**Lantana camara*, \**Melinis minutiflora* and \**Passiflora suberosa*, \**P. pallida*.

**Estimated extent:**<sup>1</sup> Pre-clearing 8000 ha; Remnant 2021 8000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.11.7

**Description:** Lophostemon confertus and/or Banksia integrifolia subsp. compar and/or Allocasuarina littoralis and/or Xanthorrhoea latifolia subsp. latifolia open shrubland to closed scrub (to low woodland). Associated canopy species may include Acacia aulacocarpa, Syncarpia glomulifera, Grevillea banksii and Eucalyptus exserta. When lower shrub layers are present, common species may include Jacksonia scoparia, Xanthorrhoea latifolia subsp. latifolia, Leptospermum polygalifolium, Acronychia laevis, Acrotriche aggregata and Astrotricha intermedia. The ground layer is dominated by species such as Xanthorrhoea latifolia subsp. latifolia, Leptospermum polygalifolium, Eremochloa bimaculata, Lomandra confertifolia subsp. pallida and Themeda triandra. Ridges, crest and upper slopes on rolling hills, steep mountains and very steep hills. Geology is mapped as Ccs (Shoalwater Formation). Carboniferous quartzose sandstone, mudstone; local quartz-muscovite-biotite schist. Not a Wetland. (BVG1M: 28e).

**Short description:** Lophostemon confertus and/or Banksia integrifolia and/or Allocasuarina littoralis and/or Xanthorrhoea latifolia shrubland on exposed metamorphic mountain tops

**Supplementary descriptions:** Bailey et al. (2000), MH-11; Brushe et al. (in prep), Map units c92-11.

**Subregions:** 4

**Protected areas:** Byfield NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.11.7: Habitat for threatened plant species Parsonsia larcomensis and Samadera bidwillii and near threatened species Habenaria xanthantha. Habitat for species at the northern limit of their range including Astrotricha intermedia, Comesperma esulifolium, Olearia nernstii and Macrozamia miquelii, and for species that are poorly known from the bioregion including Zieria minutiflora subsp. trichocarpa, Doodia dissecta and Homalanthus stillingiifolius.

**Comments:** 8.11.7: Distinguished from all other land zone 11 regional ecosystems by the occurrence on mountain tops and the low shrubby structure. Very limited in extent, occurring only in subregion 4 around Mount Atherton and The Peaks, in Byfield National Park (20km north of Corio Bay). Good, probably due to the remoteness and harshness of the site.

**Estimated extent:**<sup>1</sup> Pre-clearing 200 ha; Remnant 2021 200 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.11.8

**Description:** *Corymbia citriodora* or *Eucalyptus moluccana* woodland to open forest (14-28m tall). Associated canopy species may include *E. crebra*, *E. portuensis*, *C. trachyphloia*, *E. exserta*, *C. clarksoniana* and *C. intermedia*. There is sometimes a very sparse to sparse secondary tree layer dominated by species such as *Lophostemon confertus*, *L. suaveolens*, *Acacia flavescens*, *Allocasuarina torulosa*, *Melaleuca viridiflora* var. *viridiflora*, *Corymbia* spp. and *Eucalyptus* spp. There may be a very sparse to sparse shrub layer, with typical species including *Lophostemon confertus*, *Jacksonia scoparia*, *Coelospermum reticulatum*, *Acacia crassa* subsp. *longicoma*, *A. aulacocarpa*, *A. flavescens* and *Alphitonia excelsa*. The ground layer may be dominated by species such as *Themeda triandra*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Lomandra* spp., *Aristida* spp., *Heteropogon triticeus*, *Eremochloa bimaculata*, *Paspalidium* spp., *Macrozamia miquelii* and *Heteropogon contortus*. Occurs on slopes, ridges and crests on undulating rises to steep hills of foothills, on metamorphosed sediments. Geology mapped as Ccs (Shoalwater Formation). Carboniferous quartzose sandstone, mudstone; local schist. DCcw (Wandilla Formation). Late Devonian - Carboniferous mudstone, lithic sandstone (locally containing silicified oolites), siltstone, jasper and chert; local schist. Not a Wetland. (BVG1M: 10b).

Vegetation communities in this regional ecosystem include:

8.11.8a: *Corymbia citriodora* woodland to open forest (14-28m tall). *Eucalyptus crebra* is a common codominant or associated canopy tree, and other species may include *E. portuensis*, *C. trachyphloia*, *C. clarksoniana*, *E. exserta*, *C. intermedia* and *E. moluccana*. There is sometimes a very sparse to sparse secondary tree layer dominated by species such as *Lophostemon confertus*, *Acacia flavescens*, *Allocasuarina torulosa*, *Melaleuca viridiflora* var. *viridiflora* and *Corymbia* spp. and *Eucalyptus* spp. There may be a very sparse to sparse shrub layer, with typical species including *Lophostemon confertus*, *Jacksonia scoparia*, *Acacia crassa* subsp. *longicoma*, *A. aulacocarpa*, *A. flavescens* and *Coelospermum reticulatum*. The ground layer may be dominated by species such as *Themeda triandra*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Aristida* spp., *Heteropogon triticeus*, *Eremochloa bimaculata*, *Macrozamia miquelii*, *Heteropogon contortus* and *Lomandra* spp. Occurs on slopes, ridges and crests on undulating rises to steep hills of foothills, on metamorphosed sediments. Geology is mapped as Ccs (Shoalwater Formation). Carboniferous quartzose sandstone, mudstone; local schist. DCcw (Wandilla Formation). Late Devonian - Carboniferous mudstone, lithic sandstone (locally containing silicified oolites), siltstone, jasper and chert; local schist. Not a Wetland. (BVG1M: 10b).

8.11.8b: *Eucalyptus moluccana* woodland to open forest (15-28m tall). Occasional associated species may include *E. portuensis*, *Corymbia citriodora* and *E. exserta*. There is sometimes a very sparse to sparse secondary tree layer, and species may include *E. moluccana*, *Lophostemon suaveolens*, *C. trachyphloia*, *E. crebra* and *L. confertus*. A very sparse to sparse shrub layer includes species such as *Coelospermum reticulatum*, *Alphitonia excelsa*, *Lophostemon confertus*, *Acacia crassa* subsp. *longicoma* and *Breynia oblongifolia*. The ground layer may include *Themeda triandra*, *Lomandra longifolia*, *Paspalidium* spp., *Aristida utilis* var. *utilis*, *Dianella caerulea*, *Eremochloa bimaculata*, *Aristida queenslandica* var. *queenslandica*, *Eustrephus latifolius* and *Lomandra multiflora*. Occurs on lower slopes of gently undulating rises to undulating hills of foothills, on metamorphosed sediments. Geology mapped as DCcw (Wandilla Formation). Late Devonian - Carboniferous mudstone, lithic sandstone (locally containing silicified oolites), siltstone, jasper and chert; local schist. Ccs (Shoalwater Formation). Carboniferous quartzose sandstone, mudstone; local schist. Not a Wetland. (BVG1M: 13d).

<b>Short description:</b>	<i>Corymbia citriodora</i> or <i>Eucalyptus moluccana</i> woodland on metamorphosed sediments (subregion 4)
<b>Supplementary descriptions:</b>	Bailey et al. (2000), CCCb-11; Brushe et al. (in prep.), map units c36-11, 70-11a, c55-11a, c66-11, c70-11a
<b>Subregions:</b>	4, (11.14), (5)
<b>Protected areas:</b>	Keppel Bay Islands NP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	8.11.8a: Habitat for some species poorly known from the Central Queensland Coast Bioregion including <i>Brachychiton populneus</i> and <i>Indigofera australis</i> . Northern range limit for some species including <i>Acacia leiocalyx</i> subsp. <i>leiocalyx</i> and <i>Macrozamia miquelii</i> . Habitat for the Glossy Black Cockatoo which is listed as "Vulnerable" in the Queensland Nature Conservation Act 1992. 8.11.8b: Habitat for poorly known taxa such as <i>Hypoxis pratensis</i> var. <i>pratensis</i> and <i>Polygala</i> sp., and species at the northern edge of their range such as <i>Goodenia rotundifolia</i> .

<b>Comments:</b>	<p>8.11.8: A high burning frequency, and impacts from artillery action are threats to this ecosystem.</p> <p>8.11.8a: Distinguished from all other land zone 11 regional ecosystems and vegetation communities by the dominance (or codominance) of <i>Corymbia citriodora</i>. Occurs in subregion 4, widely distributed within the Shoalwater Bay Military Training Area from Conical Mountain in Coast Range towards Mount Hummock to an area west of Port Clinton. Also mapped on North Keppel Island. Weeds are a problem in some areas. Common species include *<i>Lantana camara</i>, *<i>Passiflora suberosa</i>, *<i>P. pallida</i> and *<i>Triumfetta rhomboidea</i>.</p> <p>8.11.8b: Distinguished from all other land zone 11 regional ecosystems and vegetation communities by the dominance (or codominance) of <i>Eucalyptus moluccana</i>. Occurs within the Shoalwater Bay Military Training Area, subregion 4. from near Mount Hummock in the north to Conical Mountain in the Coast Range. Also occurs on Great Keppel Island. Vulnerable to weed invasion. Common species include *<i>Lantana camara</i>, *<i>Passiflora foetida</i>, *<i>P. suberosa</i>, *<i>Sida cordifolia</i>, *<i>Sporobolus jacquemontii</i> and *<i>Stachytarpheta jamaicensis</i>.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 13000 ha; Remnant 2021 13000 ha
<b>VM class:</b>	Least concern
<b>Biodiversity status:</b>	No concern at present
<b>Biodiversity status notes:</b>	

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## Regional ecosystem 8.11.9

**Description:** Themeda triandra and/or Heteropogon contortus tussock grassland (0.3-1.2m tall), or Xanthorrhoea latifolia subsp. latifolia dwarf shrubland to open heath (0.7- 1.2m tall). Imperata cylindrica is rarely a dominant. Includes occasional areas of dwarf heathland (0.3m tall) dominated by Grevillea banksii, Jacksonia scoparia and Themeda triandra. Associated species may include Xanthorrhoea latifolia subsp. latifolia, Dianella caerulea, Glycine tomentella, Coronidium lanuginosum, Lepidosperma laterale, Evolvulus alsinoides, Aristida holathera var. holathera, Digitaria diffusa, Phyllanthus virgatus, Tephrosia filipes, Lomandra longifolia, Camptacra barbata and Cassytha filiformis. Emergents include Xanthorrhoea latifolia subsp. latifolia, Acacia spp. and Grevillea banksii. Very small clumps of wind sheared rainforest and/or sclerophyllous species may be present, including Cupaniopsis anacardioides, Diospyros geminata, Ficus opposita, Acacia spp., Pandanus spp., Allocasuarina littoralis, Banksia integrifolia subsp. compar, Glochidion lobocarpum and Dodonaea lanceolata. Occurs on slopes, crests and ridges on rolling rises to steep hills of lowlands and foothills (of exposed headlands subject to strong sea-breezes and salt-laden winds) (especially east and south-east facing slopes and peninsulas) on metamorphosed sediments. Geologies mapped include Ccs (Shoalwater Formation), DCt (Townshend Formation) and DCcw (Wandilla Formation). Carboniferous - Devonian quartzose and lithic sandstone, mudstone, massive amphibolite, quartzite and mica schist, siltstone, jasper, chert and slate; local schist. Not a Wetland. (BVG1M: 32b).

<b>Short description:</b>	Themeda triandra and/or Heteropogon contortus tussock grassland or Xanthorrhoea latifolia shrubland with Themeda triandra on exposed rocky headlands on metamorphosed sediments
<b>Supplementary descriptions:</b>	Bailey et al. (2000), 8HG-11, R-1-74, RHg-11; Brushe et al. (in prep.), map unit c74; Queensland Herbarium (2008) Hcp_11, Hgl_11
<b>Subregions:</b>	4, 5, 11.14
<b>Protected areas:</b>	Percy Isles NP, Keppel Bay Islands NP, Byfield NP, Byfield CP, Broad Sound Islands NP, Capricorn Coast NP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	8.11.9: Habitat for threatened species Comesperma oblongatum (listed as "Vulnerable" in the Queensland Nature Conservation Act 1992 and the Environment Protection and Biodiversity Conservation Act 1999.) and Stackhousia tryonii (listed as "Near Threatened" in the Queensland Nature Conservation Act 1992). Also habitat for species which are poorly known in the CQC Bioregion, including Pultenaea spinosa, Dianella crinoides, Diuris alba, Diuris chrysantha, Diuris alba x chrysantha, Diuris sp., Caladenia catenata, Chamaecrista concinna, Dysphania carinata, Chorizema parviflorum, Eremophila debilis, Eulalia trispicata, Peripleura diffusa, Spermacoce multicaulis and Velleia pubescens, as well as species at the northern limit of their range, including Brachyloma daphnoides, Hovea clavata, Jacksonia scoparia, Hibbertia vestita, Patersonia sericea and Brunonia australis.
<b>Comments:</b>	8.11.9: Structurally similar to 8.12.13, but often with substantial floristic differences, and occurring on land zone 11. Distinguished from all other regional ecosystems and vegetation communities on Land Zone 11 by the combination of occurrence on islands and headlands, and the structure (grassland or dwarf heathland (or shrubland of Xanthorrhoea latifolia subsp. latifolia). Heath examples are closely related to 8.11.10, but are included in 8.12.13a when they are less than 0.4m tall at which point they are usually indistinguishable from 8.12.13a on aerial photography. Occurs on the coast from Emu Park to Cape Manifold and also on several islands including, the Keppel Island Group, Townshend Island, South Percy Island, Long Island (in Broad Sound) and some islands within Shoalwater Bay. Some areas are in excellent condition, whilst others (which have been subject to grazing activities or invasion by feral animals) are more impacted and are sometimes heavily invaded with weeds. The most problematic species are *Melinis repens, *Stachytarpheta jamaicensis and *Lantana camara. Other weeds include *Passiflora foetida, *Passiflora suberosa, *P. pallida, *Stylosanthes spp., *Sida rhombifolia, *Sida cordifolia, *Opuntia stricta, *Melinis minutiflora and *Sporobolus fertilis. Erosion has been a severe problem on some of the islands, particularly where feral goats have been present.
<b>Estimated extent:<sup>1</sup></b>	Pre-clearing 1000 ha; Remnant 2021 1000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.11.10

**Description:** Lophostemon confertus and/or L. suaveolens and/or Acacia leiocalyx and/or A. julifera subsp. curvinervia and/or A. disparrima subsp. disparrima and/or Allocasuarina littoralis tall open shrubland to open scrub or low woodland to low open forest (2-7m tall). Eucalyptus crebra and/or E. exserta may sometimes be codominants or associated canopy species. The canopy is highly variable, and is usually a mixture of several of these species. Other occasional associated species in the canopy may include Corymbia intermedia, C. clarksoniana, C. dallachiana, C. xanthope, C. tessellaris, Alphitonia excelsa and E. platyphylla. A dense to very sparse shrub layer (0.2 - 2.5m tall) is often present, and dominant species may sometimes include Lophostemon confertus, Acacia leiocalyx, Melaleuca viridiflora var. viridiflora, Acacia disparrima subsp. disparrima, Grevillea banksii, Banksia integrifolia subsp. compar, Alphitonia excelsa, Dodonaea lanceolata and Xanthorrhoea latifolia subsp. latifolia. Rainforest species may be present. A very sparse to mid-dense lower shrub layer is sometimes present, and dominants may include Xanthorrhoea latifolia subsp. latifolia, Breynia oblongifolia, Alectryon connatus, and Phyllota phyllicoides. The ground layer is very sparse (to isolated plants) due to the complex and often dense shrub and/or tree layers (unless Xanthorrhoea latifolia is in the ground layer in which case it may be dense). Species may include Acacia spp. seedlings, Gahnia aspera, Themeda triandra, Schoenus sparteus, Lomandra confertifolia, Xanthorrhoea latifolia subsp. latifolia, Alloteropsis semialata, Paspalidium distans and Eremochloa bimaculata. Slopes, ridges and crests (often on headlands usually with rock at surface) on rolling rises, undulating low hills and steep low hills of lowlands and foothills. Geologies mapped include Ccs (Shoalwater Formation). Carboniferous quartzose sandstone, mudstone; local quartz-muscovite-biotite schist. DCt (Townshend Formation). Devonian - Carboniferous massive amphibolite, quartzite and mica schist. Not a Wetland. (BVG1M: 28e).

<b>Short description:</b>	Lophostemon spp. and/or Acacia spp. and/or Melaleuca viridiflora and/or Allocasuarina littoralis +/- Eucalyptus spp. +/- Corymbia spp. tall open shrubland on exposed hill slopes of islands and headlands on metamorphosed sediments
<b>Supplementary descriptions:</b>	Bailey et al. (2000); 8H-11, 8HG, R-1-73, RHs-11; Brushe et al. (in prep.), map units c60, c73, Queensland Herbarium 2008 Caslof11
<b>Subregions:</b>	4, 11.14, 5
<b>Protected areas:</b>	Keppel Bay Islands NP, Percy Isles NP, Byfield NP, Capricorn Coast NP, Keppel Bay Islands NP (S), Byfield CP, Shoalwater Bay CP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	8.11.10: A structurally diverse regional ecosystem which is habitat for a diverse range of fauna. Habitat for vulnerable plant species Corymbia xanthope and Comesperma oblongatum. Also habitat for a number of plant species which are poorly known in the Central Qld Coast bioregion, including Hakea lorea (common inland but not on the coast), Acianthus spp., Cryptostylis erecta, Dianella crinoides, Digitaria diffusa, Hybanthus monopetalus, Peripleura diffusa and Pterostylis ophioglossa. Northern range limit of a number of plant species, including Marsdenia fraseri, Phyllota phyllicoides, Hovea clavata and Patersonia sericea. Northern limit in coastal areas for Lomandra leucocephala.
<b>Comments:</b>	8.11.10: Previously large areas along and adjacent to Emu Park have been largely cleared for urban use. Distinguished from all other regional ecosystems and vegetation communities on land zone 11 by the low stature of the vegetation, dominance of sclerophyll species, and presence on headlands and islands. Restricted to the Shoalwater Bay area. Found along the coast (mainly headlands) between Emu Park and Port Clinton. Also on the Keppel Island Group, Townshend Island, South Percy Island and other smaller islands within Shoalwater Bay. Often relatively good due to the exposed/harsh nature of the habitat which discourages weed invasion. Some islands however have been heavily impacted by feral and grazing animals (goats, sheep, cattle and horses) though most of these animals have now been removed. Impacts include significant changes to vegetation structure and species composition, as well as loss of ground cover and soil erosion. Weed invasion is a problem in some places (especially those areas that have been grazed) and include *Lantana camara, *Passiflora suberosa, *P. pallida, *Opuntia stricta, *Melinis repens and *Passiflora foetida.
<b>Estimated extent:<sup>1</sup></b>	Pre-clearing 2000 ha; Remnant 2021 2000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.11.12

**Description:** Eucalyptus crebra and/or E. drepanophylla and/or E. exserta and/or Corymbia clarksoniana and/or C. xanthope and/or Lophostemon confertus open forest to tall shrubland (2.5-15m tall). Other occasional to common associated canopy species may include Allocasuarina littoralis, C. trachyphloia and C. dallachiana. There is sometimes a secondary tree layer of species such as Allocasuarina littoralis, Lophostemon confertus and Acacia julifera. Vine scrub pioneering species may sometimes be prominent. A shrub layer of Xanthorrhoea latifolia subsp. latifolia is often present, with occasional Dodonaea lanceolata var. subsessilifolia, Styphelia imbricata and Lophostemon confertus. The ground layer very sparse to mid-dense and may include Gahnia aspera, Themeda triandra, Xanthorrhoea latifolia subsp. latifolia, Aristida spuria, Scleria mackaviensis, Brunoniella australis, Eriachne pallescens, Lomandra multiflora and Entolasia stricta. Occurs on slopes, ridges and crests on undulating rises to rolling low hills of lowlands and foothills of islands and headlands, on metamorphic rocks. Not a Wetland. (BVG1M: 9c).

**Short description:** Eucalyptus crebra and/or E. drepanophylla and/or E. exserta and/or Corymbia clarksoniana and/or C. xanthope and/or Lophostemon confertus low woodland on metamorphics on islands and headlands

**Supplementary descriptions:** Bailey et al. (2003) R-1-60; Brushe et al. (in prep.) c60\_11; Queensland Herbarium (2008) Caslo211, Eoflof11

**Subregions:** 4, 11.14, 5

**Protected areas:** Percy Isles NP, Keppel Bay Islands NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.11.12: Potential habitat for NCA listed species: Xylosma ovata.

**Comments:**

**Estimated extent:**<sup>1</sup> Pre-clearing 400 ha; Remnant 2021 400 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.12.1

**Description:** Evergreen notophyll feather palm vine forest. Emergents are sometimes present, including species such as *Acmena resa* or *Argyrodendron actinophyllum* subsp. *diversifolium*. The canopy may be dominated by *Cryptocarya corrugata*, *Archontophoenix* spp., *Argyrodendron actinophyllum* subsp. *diversifolium*, *Acmena hemilampra*, *Acmenosperma claviflorum*, *Cryptocarya angulata*, *Ackama paniculosa* and *Cryptocarya hypospodia*. Typical sub-canopy species include *Archontophoenix* spp., *Myristica globosa* subsp. *muelleri*, *Dysoxylum alliaceum*, *Syzygium cryptophlebium*, *Stegantthera laxiflora* and *Ptychosperma elegans*. Lower tree and shrub layers may include *Wilkiea macrophylla*, *Bosistoa pentacocca*, *Neolitsea dealbata* and *Cordyline murchisoniae*. The ground layer may have scattered plants of *Arachniodes aristata*, *Lastreopsis poecilophlebia* and *Blechnum cartilagineum*. Common vines include *Cissus antarctica*, *Freycinetia excelsa*, *Palmeria scandens* and *Embelia australiana*. Epiphytes are often abundant and species include *Asplenium australasicum*, *Arthropteris tenella* and *Platynerium bifurcatum*. Occurs on high mountain plateaus, slopes, ridges and crests on rolling mountains of foothills, uplands and highlands. Geologies mapped as CKr (Urannah Igneous Complex), CPgpl (Palms Lookout Granodiorite), Kp (Proserpine Volcanics), CKgu (Urannah Batholith) and CPn. Early Cretaceous - Late Carboniferous acid, intermediate and basic plutonic rocks. Includes granodiorite to tonalite. Not a Wetland. (BVG1M: 5b).

Vegetation communities in this regional ecosystem include:

8.12.1a: Evergreen notophyll feather palm vine forest. Emergents are sometimes present, including *Acmena resa* and *Argyrodendron actinophyllum* subsp. *diversifolium*. The canopy is dominated by species such as *Cryptocarya corrugata*, *Archontophoenix cunninghamiana*, *Cryptocarya angulata*, *Ackama paniculosa*, *Argyrodendron actinophyllum* subsp. *diversifolium*, *Cryptocarya glaucescens*, *Litsea leefeana*, *Syzygium wesa*, *Elaeocarpus foveolatus*, *E. largiflorens* and *Sloanea macbrydei*. Typical sub-canopy species are *Archontophoenix alexandrae*, *A. cunninghamiana*, *Syzygium cryptophlebium*, *Stegantthera laxiflora* and *Endiandra muelleri* subsp. *bracteata*. Lower tree and shrub layers may include *Wilkiea macrophylla*, *Neolitsea dealbata*, *Cordyline murchisoniae*, *Archontophoenix cunninghamiana*, *Syzygium cryptophlebium*, *Polyosma rhytophloia* and *Cyathea* spp. The ground layer may have scattered plants of *Arachniodes aristata*, *Blechnum cartilagineum* and *Alpinia caerulea*. Common vines are *Cissus antarctica*, *Freycinetia excelsa*, *Palmeria scandens* and *Melodinus australis*. Epiphytes are abundant and species include *Arthropteris tenella*, *Asplenium australasicum* and *Platynerium bifurcatum*. Occurs on high mountain plateaus, slopes, ridges and crests on rolling mountains of foothills, uplands and highlands. Geologies mapped include CKr (Urannah Igneous Complex), CPgpl (Palms Lookout Granodiorite), CKgu (Urannah Batholith), CPn and CPgfh (Finch Hatton Granite). Early Cretaceous - Late Carboniferous acid to intermediate and basic plutonic rocks. Includes granodiorite to tonalite. Not a Wetland. (BVG1M: 5b).

8.12.1b: Evergreen notophyll feather palm vine forest. Occasional emergents include *Argyrodendron actinophyllum* subsp. *diversifolium* and *Alstonia scholaris*. The canopy is dominated by species such as *Argyrodendron actinophyllum* subsp. *diversifolium*, *Archontophoenix alexandrae*, *Acmena hemilampra*, *Acmenosperma claviflorum*, *Endiandra cowleyana*, *Cryptocarya hypospodia*, *Litsea leefeana* and *Pleioluma queenslandica*. The sub-canopy may be dominated by *Archontophoenix alexandrae*, *Myristica globosa* subsp. *muelleri*, *Dysoxylum alliaceum*, *Ptychosperma elegans* and *Pleioluma queenslandica*. Lower tree and shrub layers may include *Wilkiea macrophylla*, *Bosistoa pentacocca*, *Aglaia brownii*, *Polyscias australiana* and *Cordyline murchisoniae*. The ground layer is very sparse and includes species like *Lastreopsis poecilophlebia*, *Arachniodes aristata* and *Blechnum cartilagineum*. Vines are abundant, such as *Cissus antarctica*, *Embelia australiana*, *Ripogonum album* and *Cissus sterculiifolia*. Epiphytes may include *Asplenium australasicum*, *Platynerium bifurcatum* and *Arthropteris tenella*. Plateaus and upper slopes on rolling mountains of foothills and uplands. Geologies mapped as Kp (Proserpine Volcanics) and Kg. Lower Cretaceous rhyolite, andesite, minor pyroclastics, leucocratic alkali granite, granophyre and quartz syenite. Not a Wetland. (BVG1M: 5b).

**Short description:** Evergreen notophyll feather palm vine forest of uplands and highlands, on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:** McDonald (1995), Group 9 (in part), 11

**Subregions:** 3, 1

**Protected areas:** Eungella NP, Crediton FR, Conway NP, Dryander NP, Kelvin NP, Connors FR

**Extent in reserves:** High

**Wetland:** Not a Wetland

<b>Special values:</b>	<p>8.12.1: Potential habitat for NCA listed species: <i>Acronychia eungellensis</i>, <i>Aphyllorchis anomala</i>, <i>Asplenium normale</i>, <i>Ozothamnus eriocephalus</i>, <i>Coleus eungellaensis</i>.</p> <p>8.12.1a: Habitat for threatened plant species <i>Trigonostemon inopinatus</i>, <i>Asplenium normale</i>, <i>Coleus eungellaensis</i>, <i>Ozothamnus eriocephalus</i>, <i>Dryopteris sparsa</i>. Habitat for near threatened plant species <i>Diteilis simmondsii</i>, <i>Elaphoglossum callifolium</i>, <i>Sarcotoechia heterophylla</i> and <i>Acronychia eungellensis</i>. Also habitat for plant species poorly known in the Central Queensland Coast bioregion such as <i>Lenwebbia lasioclada</i>, <i>Dendrobium schneiderae</i> var. <i>majus</i>, <i>Diplopterygium longissimum</i>, <i>Palmeria hypotephra</i>, <i>Dictymia brownii</i>, <i>Quintinia quatrefagesii</i>, <i>Dendrobium gracilicaule</i> and <i>Alyxia magnifolia</i> (and many others). Habitat for many plant species at limits of their known range. Habitat for threatened fauna species including Eungella Honeyeater and Eungella Tinker Frog (Liem's Frog) which are both listed as "Near Threatened" under the Queensland Nature Conservation Act 1992 and the Eungella Day Frog which is list as "Endangered".</p> <p>8.12.1b: Habitat for plant species at the southern limit of their range such as <i>Acmena resa</i>, <i>Dysoxylum papuanum</i> and <i>Vavaea amicorum</i>, and species poorly known from the Central Queensland Coast bioregion such as <i>Corymborkis veratrifolia</i>, <i>Dockrillia teretifolia</i> and <i>Marsdenia glandulifera</i>.</p>
<b>Comments:</b>	<p>8.12.1a: Distinguished from other regional ecosystems on land zone 12 by occurring at high altitudes on the main Clarke Range and by the dominance of species such as <i>Acmena resa</i>, <i>Syzygium wesa</i>, <i>Argyrodendron actinophyllum</i> and <i>Archontophoenix</i> spp. Can be similar to 8.12.17 but is notophyll dominated, rather than microphyll dominated, and 8.12.17 tends to occur more specifically on exposed windswept ridgelines. Occurs only in subregion 3 on mountains. Mapped on the Clarke Range from 20km west of Bloomsbury to Credition. Also found to the north-west of Sarina on Pine Mountain, Mount Turnor and Black Mountain. A large proportion has been logged in the past and other threats include fungal disease (<i>Phytophthora</i>, <i>Armillaria</i>) and feral pigs.</p> <p>8.12.1b: Distinguished from most other land zone 12 regional ecosystems by occurrence on the mainland, and by the common presence of <i>Myristica globosa</i> subsp. <i>muelleri</i> and/or <i>Archontophoenix alexandrae</i> in the subcanopy or canopy, and the usual presence of <i>Argyrodendron actinophyllum</i> in the canopy or as emergents. The most similar RE however is 8.12.19 which has a very similar species composition and tends to occur with (and grade into) 8.12.1b. The best way to distinguish these regional ecosystems is by landform, with moist gullies and sheltered aspects more likely to contain 8.12.19 whilst the ridges and spurs will contain 8.12.1b. May also be similar to 8.12.1a, but in this vegetation community <i>Myristica globosa</i> is either not present or is rare, and the higher altitude species <i>Acmena resa</i> and <i>Syzygium wesa</i> are much more common in 8.12.1a (absent or very low abundance in 8.12.1b). Another similar RE is 8.12.18 which tends to occur in lower altitude areas (including islands) which lack the frequent cloud and fog and therefore have a lower proportion of moisture loving species such as <i>Archontophoenix alexandrae</i>. Restricted to two patches in subregion 1. It is mapped on Mount Dryander approximately 15km east of Airlie Beach and on the Conway Range just south of Airlie Beach. A large proportion has been logged in the past and other threats include fungal disease (<i>Phytophthora</i>, <i>Armillaria</i>) and feral pigs.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 23000 ha; Remnant 2021 20000 ha
<b>VM class:</b>	Least concern
<b>Biodiversity status:</b>	No concern at present
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.12.2

**Description:** Evergreen notophyll to complex notophyll vine forest. Emergents may include *Argyrodendron actinophyllum* subsp. *diversifolium* (or *A. polyandrum* at lower altitudes) and *Toona ciliata*. Characteristic species of the canopy are *Argyrodendron actinophyllum* subsp. *diversifolium*, *A. polyandrum*, *Cryptocarya macdonaldii*, *Endiandra muelleri* subsp. *bracteata*, *Litsea leefeana*, *Diospyros pentamera*, *Pleioluma queenslandica*, *Mischarytera lautereriana* and *Cinnamomum oliveri*. The sub-canopy may contain species such *Olea paniculata*, *Cryptocarya macdonaldii*, *Dendrocnide photiniphylla*, *Podocarpus elatus*, *Diospyros pentamera* and *Steganthra laxiflora*. Lower tree and shrub layers typically include *Polyscias australiana*, *Wilkia macrophylla*, *Tapeinosperma pseudojambosa*, *Cordyline murchisoniae* and *Psychotria loniceroides*. The ground layer is usually very sparse, with scattered *Blechnum cartilagineum*, *Arachniodes aristata* and *Polia macrophylla*. Vines include *Cissus antarctica*, *Gynochthodes jasminoides*, *Ripogonum album* and *Melodinus australis*. Epiphytes which may be present are *Arthropteris tenella*, *Platyserium bifurcatum*, *Davallia pyxidata* and *Dendrobium speciosum*. Occurs on slopes, crests and ridges on rolling hills to very steep mountains of foothills, uplands and highlands. Geologies mapped as CPgfh (Finch Hatton Granite), CKr (Urannah Igneous Complex), CPpgg (Pisgah Igneous Complex), Pc/s (Carmila beds/s) and CPgpl (Palms Lookout Granodiorite). Early Cretaceous - Late Carboniferous acid, intermediate and basic plutonic rocks. Syenogranite. Not a Wetland. (BVG1M: 5b).

**Short description:** Evergreen notophyll to complex notophyll vine forest of uplands, highlands and foothills on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:** McDonald (1995), Group 9 (in part), 10

**Subregions:** 3, (2), (6)

**Protected areas:** Eungella NP, Crediton FR, Homevale NP, Bluff Hill NP, Kelvin NP, Connors FR, Pioneer Peaks NP, Mount Martin NP, Mount Ossa NP, Homevale RR, St Helens Gap CP, Andromache CP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.2: Habitat for threatened plant species *Trigonostemon inopinatus* and *Plectranthus granitico* species. Habitat for the near threatened plant species *Sarcotoechia heterophylla*. Also habitat for plant species at the southern limit of their range such as *Mischocarpus stipitatus*, *Acmena resa* and *Jasminum dallachii*, and at the northern limit of their range such as *Elaeocarpus kirtonii*, *Brunoniella spiciflora* and *Alyxia magnifolia*, also for restricted species such as *Cyperus* sp. (Eungella NP P.R.Sharpe+ 5052) and poorly known flora species such as *Alyxia magnifolia*, *Dictymia brownii*, *Dendrobium gracilicaule*, *Calamus radicalis*, *Hedraianthera porphyropetala* and *Carex horsfieldii*. Habitat for significant fauna species including Eungella Honeyeater and Eungella Tinker Frog (Liem's Frog) which are both listed as "Near Threatened" under the Queensland Nature Conservation Act 1992 and the Eungella Day Frog which is list as "Endangered".

**Comments:** 8.12.2: This is a major upland rainforest type which often occurs as a mosaic with the vegetation community 8.12.1a on the main Clarke Range. Tends to occur on slightly lower, less cloudy/misty situations than 8.12.1a, with a much lower proportion of high altitude species such as *Acmena resa* and *Syzygium wesa*. Archontophoenix species (though sometimes present), are not as consistently dominant as in 8.12.1a. Differs from 8.12.3a which (occurs at lower altitudes and has correspondingly lower rainfall) by the common dominance of *Argyrodendron actinophyllum* (*A. polyandrum* and *A. trifoliolatum* are more common in 8.12.3a) and species such as *Cryptocarya macdonaldii*, *Endiandra muelleri* subsp. *bracteata* (in 8.12.3a species such as *Cleistanthus dallachyanus* and *Falcata toona* are usually prominent). The vegetation community 8.12.3b is much sparser and occurs on cliffs, and 8.12.3c is a southern (subregion 4) gully community dominated by species such as *Harpullia pendula* and *Alectryon tomentosus*. Distinguished from 8.12.19 by the much less prominent presence of *Myristica globosa* subsp. *muelleri*, and from 8.12.18 by occurring more inland and lacking species such as *Argyrodendron* sp. (Whitsundays W.J.McDonald+ 5831) and *Dissiliaria indistincta*, which are common in 8.12.18. Occurs in subregion 3, along ranges from Mount Quandong (west of Proserpine) in the north, to the Connors Range (west of Clairview) in the south. Found most commonly on Clarke Range in Eungella National Park. The condition of this regional ecosystem is overall poor - many areas have been logged and/or burnt, resulting in a simplification of structure.

**Estimated extent:**<sup>1</sup> Pre-clearing 34000 ha; Remnant 2021 31000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:**

## Regional ecosystem 8.12.3

**Description:** Evergreen to semi-evergreen, notophyll to microphyll, vine forest to vine thicket. Emergents may include *Araucaria cunninghamii* and *Argyrodendron polyandrum*. The canopy is typically dominated by *Cleistanthus dallachyanus*, *Argyrodendron trifoliolatum*, *Argyrodendron polyandrum*, *Falcataria toona*, *Harpullia pendula*, *Alectryon tomentosus*, *Euroschinus falcatus*, *Pleiogynium timorense* and *Cryptocarya hypospodia*. Lower tree layers may include *Bosistoa medicinalis*, *Aidia racemosa*, *Aphananthe philippinensis*, *Gossia bidwillii*, *Mallotus philippensis*, *Amorphospermum antilogum* and *Aglaia brownii*. Shrubs include *Bosistoa medicinalis*, *Alyxia ruscifolia*, *Capparis arborea* and *Eugenia reinwardtiana*. The ground layer is very sparse, with species such as *Adiantum hispidulum*, *Lastreopsis tenera* and *Alpinia caerulea*. The most common vines are *Melodorum leichhardtii*, *Cissus oblonga* and *Smilax australis*. Epiphytes such as *Asplenium australasicum* and *Dendrobium discolor* are sometimes present. Includes cliffs and boulder patches with an open, stunted microphyll tall shrubland dominated by *Archidendropsis thozetiana*, *Strychnos psilosperma*, *Acacia spirorbis* subsp. *solandri*, *Pleiogynium timorense*, *Diospyros geminata* and *Ficus rubiginosa*. Occurs on slopes, ridges, gullies and crests on undulating low hills to steep mountains of foothills and uplands. Geologies mapped include Pla (Carmila Beds), CKr (Urannah Igneous Complex), Pc/s (Carmila beds/s), Plz (Lizzie Creek Volcanics) and Pc/v (Carmila beds/v). Early Cretaceous - Late Carboniferous undivided acid, intermediate and minor basic plutonic rocks. Includes pyroclastics. Not a Wetland. (BVG1M: 5b).

Vegetation communities in this regional ecosystem include:

8.12.3a: Evergreen notophyll to microphyll vine forest. Emergents may include *Araucaria cunninghamii*, *Argyrodendron polyandrum*, *Flindersia schottiana*, *Alstonia scholaris* and *Falcataria toona*. The canopy is dominated by species such as *Cleistanthus dallachyanus*, *Argyrodendron trifoliolatum*, *Argyrodendron polyandrum*, *Falcataria toona* and *Backhousia citriodora*. Other canopy species are *Pleiogynium timorense*, *Cryptocarya hypospodia*, *Cryptocarya triplinervis*, *Flindersia schottiana*, *Acmenosperma claviflorum*, *Dendrocide photiniphylla*, *Diospyros hebecarpa* and *Cordia dichotoma*. Lower tree layers may be dominated by *Bosistoa medicinalis*, *Aidia racemosa*, *Aphananthe philippinensis*, *Gossia bidwillii*, *Mallotus philippensis*, *Amorphospermum antilogum*, *Neisosperma kilneri*, *Alangium polysmoides* subsp. *tomentosum* and *Drypetes deplanchei*. Shrubs typically include *Bosistoa medicinalis*, *Alyxia ruscifolia*, *Capparis arborea*, *Eugenia reinwardtiana* and *Memecylon pauciflorum*. The ground layer is very sparse, with species such as *Adiantum hispidulum*, *Lastreopsis tenera*, *Alpinia caerulea* and *Oplismenus aemulus*. The most common vines are *Melodorum leichhardtii*, *Cissus oblonga*, *Smilax australis* and *Trophis scandens*. Epiphytes such as *Asplenium australasicum* and *Dendrobium discolor* are sometimes present. Occurs on slopes, ridges, gullies and crests on undulating low hills to steep mountains of foothills and uplands. Geologies mapped include Pla (Carmila Beds), CKr (Urannah Igneous Complex), Pc/s (Carmila beds/s), Plz (Lizzie Creek Volcanics) and Pc/v (Carmila beds/v). Early Cretaceous - Late Carboniferous undivided acid, intermediate and minor basic plutonic rocks. Includes pyroclastics. Not a Wetland. (BVG1M: 5b).

8.12.3b: Semi-evergreen microphyll vine thicket. The canopy is broken due to areas of bare rock and rocky cliff. Upper stratum species include *Archidendropsis thozetiana*, *Strychnos psilosperma*, *Acacia spirorbis* subsp. *solandri*, *Pleiogynium timorense*, *Diospyros geminata* and *Ficus rubiginosa*. A shrub layer is present, consisting of species such as *Strychnos psilosperma*, *Atalaya rigida*, *Actephila sessilifolia*, *Myrsine variabilis* and *Psydrax odorata*. The ground layer is sparse but diverse given the range of microhabitats (open areas, boulder crevices, cliffs, sheltered shady areas etc.) and includes *Cyperus enervis*, *Drynaria sparsisora*, *Ancistrachne uncinulata*, *Cheilanthes sieberi* subsp. *sieberi*, *Coleus diversus*, *Dinebra decipiens*, *Paspalidium gracile* and *Dianella caerulea*. Vines such as *Cissus oblonga*, *Jasminum didymum*, *Melodorum leichhardtii* and *Trophis scandens* are usually present. Epiphytes and lithophytes such as *Pyrrosia confluens* var. *dielsii* and *Dockrillia* spp. are usually present. Occurs on exposed, often north-east facing, cliffs and slopes, on steep mountains of foothills and uplands, on Mesozoic to Proterozoic igneous rocks. Geologies mapped are Mainly CKr (Urannah Igneous Complex), Kgbm/g (Ben Mohr Igneous Complex/g) and Pla (Carmila Beds). Early Cretaceous - Late Carboniferous acid, intermediate and basic plutonic rocks. Numerous dykes. Includes monzogranite, lithic sandstone and siltstone. Not a Wetland. (BVG1M: 7a).

8.12.3c: Evergreen to semi-evergreen, notophyll to microphyll vine forest to vine thicket. Emergents are sometimes present, such as *Cryptocarya hypospodia*, *Ficus rubiginosa* and *Ficus virens*. The canopy is dominated by species such as *Harpullia pendula*, *Alectryon tomentosus*, *Euroschinus falcatus*, *Mallotus philippensis*, *Planchonella pohlmaniana* and *Aphananthe philippinensis*. *Archontophoenix* spp. may be common in gullies. The sub-canopy may include *Aglaia brownii*, *Acronychia laevis*, *Elaeodendron melanocarpum*, *Gossia bidwillii*, *Arytera divaricata*, *Aidia racemosa*, *Chionanthus ramiflorus*, *Drypetes deplanchei*, *Alangium polysmoides* subsp. *tomentosum* and *Sterculia quadrifida*. There may be a very sparse shrub or lower tree layer including species such as *Cordyline murchisoniae*, *Pipturus argenteus*, *Alpinia caerulea*, *Alyxia ruscifolia*, *Psydrax lamprophylla* and *Psydrax odorata*. The ground layer is very sparse and typically includes *Adiantum hispidulum*, *Gymnostachys anceps*, *Adiantum aethiopicum* and *Microsorium punctatum*. The most common vines are *Cissus oblonga*, *Parsonia velutina*, *Smilax australis* and *Flagellaria indica*. Epiphytes such as *Drynaria rigidula* and *Dendrobium discolor* are sometimes present. Occurs in gullies and on exposed ridges, crests and upper slopes. Geologies

mapped as PKg, RKvp (Peninsula Range Volcanics), PKgb (Bayfield Granite), PKgp (Pyri Pyri Granite) and PKdm (Double Mountain Volcanics). Early Cretaceous - Late Permian quartz diorite, granite, pyroclastic crystal tuff, rhyolite flows, agglomerate and adamellite. Not a Wetland. (BVG1M: 5b).

<b>Short description:</b>	Evergreen to semi-evergreen, notophyll to microphyll, vine forest to vine thicket of foothills and uplands on Mesozoic to Proterozoic igneous rocks
<b>Supplementary descriptions:</b>	
<b>Subregions:</b>	3, 2, (4), (11.2), (11.14), (6), (5)
<b>Protected areas:</b>	Eungella NP, Crediton FR, Kelvin NP, Bluff Hill NP, Pioneer Peaks NP, Mount Martin NP, Kelvin FR, Mount Ossa NP, Cape Hillsborough NP, West Hill NP, Homevale NP, Connors FR, Andromache CP, Homevale RR, Mount Abbot NP (S), Mount Blarney CP, Skull Knob CP, Yuwi Paree Toolkoon NP, St Helens Gap CP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	<p>8.12.3: Potential habitat for NCA listed species: <i>Actephila bella</i>, <i>Callicarpa thozetii</i>, <i>Graptophyllum excelsum</i>, <i>Graptophyllum ilicifolium</i>, <i>Hernandia bivalvis</i>, <i>Neisosperma kilneri</i>, <i>Parsonsia larcomensis</i>, <i>Coleus eungellaensis</i>, <i>Rhodamnia glabrescens</i>, <i>Ristantia waterhousei</i>, <i>Trigonostemon inopinatus</i>, <i>Xylosma ovata</i>.</p> <p>8.12.3a: Habitat for endangered plant species <i>Callicarpa thozetii</i> and the vulnerable plant species <i>Actephila championiae</i>, <i>Actephila bella</i>, <i>Graptophyllum ilicifolium</i>, <i>Neisosperma kilneri</i>, <i>Ristantia waterhousei</i>, <i>Trigonostemon inopinatus</i>. Habitat for the near threatened plant species <i>Brachychiton compactus</i>, <i>Hernandia bivalvis</i>, <i>Rhodamnia glabrescens</i>, <i>Xylosma ovata</i> and <i>Graptophyllum excelsum</i>. Habitat for <i>Gossia pubiflora</i> which is endemic to the Conway Range and Proserpine area, and <i>Larsenaikia jardinei</i> which is also of very limited distribution. Also habitat for poorly known species including <i>Ehretia</i> sp. (Whitfield Range R.Jago 17) and <i>Heterostemma acuminatum</i>. Habitat for threatened fauna include Rufous Owl, endemic leaf-tail Geckos and Proserpine Rock Wallaby which is listed as "Endangered" in the Queensland Nature Conservation Act 1992. <i>Callicarpa thozetii</i> listed as "Endangered" in the Queensland Nature Conservation Act 1992.</p> <p>8.12.3b: Habitat for vulnerable plant species <i>Parsonsia larcomensis</i> and near threatened plant species <i>Xylosma ovata</i>. Also the northern range limit of <i>Brachychiton discolor</i>.</p> <p>8.12.3c: Habitat for the vulnerable plant species <i>Parsonsia larcomensis</i> and the near threatened plant species <i>Xylosma ovata</i>. Also habitat for plant species with a restricted distribution such as <i>Bowenia serrulata</i>, and species poorly known in the Central Queensland Coast bioregion such as <i>Cupaniopsis simulata</i> and <i>Gynochthodes canthoides</i>. Also northern limit of <i>Bouchardatia neurococca</i>.</p>



**Comments:**

8.12.3a: This is a major rainforest type which occurs mainly on the lower and mid-slopes of the main ranges and tends to occur downslope, or in slightly drier/less cloudy situations than 8.12.2, and subsequently lacks (or is not dominated by) the wetter species such as *Argyrodendron actinophyllum*, *Cryptocarya macdonaldii* and *Endiandra muelleri* subsp. *bracteata* (instead more likely to be dominated by *Argyrodendron polyandrum*, *A. trifoliolatum*, *Cleistanthus dallachyanus* and *Falcataria toona*). The vegetation community 8.12.3b is much sparser and occurs on cliffs, and 8.12.3c is a southern (subregion 4) gully community dominated by species such as *Harpullia pendula* and *Alectryon tomentosus*. Distinguished from 8.12.19 by the much less prominent presence of *Myristica globosa* subsp. *muelleri*, and from 8.12.18 by occurring more inland and lacking species such as *Argyrodendron* sp. (Whitsundays W.J.McDonald+ 5831) and *Dissiliaria indistincta*, which are common in 8.12.18. Occurs on the ranges to the north of Lake Proserpine, south to the Broadsound Range (30km south-east of St Lawrence). Also on the Polygon Range, in the Shoalwater Bay Training Area, subregion 4 and an outlier on Mount Abbott (50km south-west of Bowen). Condition ranges from very good to poor. Some areas have been subject to weed invasion by *\*Lantana camara* and *\*Passiflora suberosa*.

8.12.3b: Readily distinguished from all other land zone 12 ecosystems by the occurrence on cliffs with large open areas of rock, and by the dominance of stunted or shrubby rainforest species, often including *Archidendropsis thozetiana* and/or *Strychnos psilosperma*. Occurs in subregion 3 on Pine Mountain (25km west of Bloomsbury), from Mt Millar south to Mt Omega (west of the Bruce Highway between Bloomsbury and Calen), and at Ben Mohr (10km south of Mirani). Moderate condition. This ecosystem is vulnerable to weed invasion because it is very open. Common weeds include *\*Lantana camara*, *\*Solanum seaforthianum* and *\*Ageratum conyzoides*.

8.12.3c: Distinguished from other closed forest ecosystems on land zone 12 by a combination of occurring in subregion 4 only, and by being dominated by species other than *Argyrodendron* spp., such as *Harpullia pendula*, *Alectryon tomentosus* and *Euroschinus falcatus*. The most similar vegetation community in subregion 4 is 8.12.3a which is dominated by *Argyrodendron* spp. The other related vegetation community is 8.12.11 which occurs further east, in lower rainfall areas on islands and coastal headlands (and tends to be dominated more by *Sersalisia sericea*, *Alectryon connatus* and *Drypetes deplanchei*). Occurs in subregion 4 in the Peninsula Range and the Polygon Range areas, within the Shoalwater Bay Military Training Area. It is also found in the Coast Range area, west of Corio Bay. *\*Lantana camara* is present in many areas.

**Estimated extent:**<sup>1</sup> Pre-clearing 67000 ha; Remnant 2021 62000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:**

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## Regional ecosystem 8.12.4

**Description:** *Eucalyptus grandis* open forest (25-40m tall). *Corymbia intermedia* is a common associated species in the canopy, and *Eucalyptus portuensis* is also occasionally present. Other species sometimes present may include *E. resinifera*, *C. trachyphloia* and *E. tereticornis*. The secondary tree layer may be sclerophyll dominated with species such as *Allocasuarina littoralis*, *A. torulosa*, *Banksia integrifolia* subsp. *compar*, *Lophostemon suaveolens* and *Acacia melanoxylon*. Alternatively many areas have a secondary tree layer with a high proportion of rainforest species including *Glochidion ferdinandi*, *Cassinia subtropica*, *Mackinlaya macrosciadea*, *Rhodomyrtus trineura*, *Polyalthia nitidissima*, *Scolopia braunii*, and *Livistona australis*. A tertiary tree layer is often present consisting of species similar to the secondary tree layer. A very sparse to sparse shrub layer is often present, with species such as *Glochidion ferdinandi*, *Pteridium esculentum*, *Acacia melanoxylon* and *Rhodomyrtus trineura* subsp. *trineura*. The ground layer is usually mid-dense, consisting of a diverse array of grasses, herbs and ferns, often including *Imperata cylindrica*, *Ottolochloa nodosa*, *Calochlaena dubia*, *Panicum simile*, *Pteridium esculentum*, *Oplismenus burmanni*, *Desmodium rhytidophyllum*, *Hibbertia scandens*, *Dianella caerulea*, *Hardenbergia violacea*, *Sorghum nitidum* forma *aristatum*, *Gahnia aspera*, *Blechnum cartilagineum*, *Microlaena stipoides*, *Themeda triandra* and *Veronica plebeia*. Occurs slopes, ridges and crests on rolling hills to steep mountains, mainly above 600m. Geologies mapped include CKr (Urannah Igneous Complex), CPgpl (Palms Lookout Granodiorite), Cpgu (Urannah Batholith), CPgsc (Stony Creek Granite) and CPn. Early Cretaceous - Late Carboniferous acid, intermediate and basic plutonic rocks. Includes granodiorite to tonalite. Not a Wetland. (BVG1M: 8a).

**Short description:** *Eucalyptus grandis* open forest of wet uplands on Mesozoic to Proterozoic igneous rocks (predominantly granite)

**Supplementary descriptions:** Bean (1992b), Vegetation type e.g. - Wet sclerophyll forest

**Subregions:** 3

**Protected areas:** Eungella NP, Crediton FR

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.4: Habitat for the threatened plant species *Ozothamnus eriocephalus*. Habitat for a number of species restricted to the narrow, high-altitude zone on the Clarke Range, which otherwise only occur in south-eastern Queensland and high altitudes of the Wet Tropics. These include *Eucalyptus grandis*, *Glossodia major*, *Livistona australis*, *Desmodium gunnii*, *Glycine microphylla*, *Hardenbergia violacea*, *Veronica plebeia*, *Caladenia fuscata*, *Pterostylis taurus*, *Pterostylis nutans*, *Pterostylis baptistii*, *Desmodium varians*, *Geranium homeanum*, *Marsdenia lloydii*, *Microlaena stipoides*, *Plantago debilis*, *Senecio prenanthoides*, *Microtis parviflora* and *Viola hederacea*. Eucalypt forest with rainforest understorey are an important ecotonal habitat for fauna. Significant habitat for Powerful Owl listed as "Vulnerable" in the Queensland Nature Conservation Act 1992.

**Comments:** 8.12.4: A naturally restricted regional ecosystem, some of which has been cleared from the Crediton area. Tends to develop a rainforest understorey in the absence of fire, although fire impacts are poorly understood. Distinguished from all other ecosystems in the Central Queensland Coast bioregion by the dominance or co-dominance of *Eucalyptus grandis*. Occurs only in subregion 3 as a fairly narrow broken band in the Eungella National Park from Urannah Creek, south to Mt Bruce near Crediton. Also found at Blue Mountains, 30km south-west of Sarina. Ranges from moderately good to poor. Almost all examples have been logged with resulting reduction in size and form of canopy trees. Logging and grazing has exacerbated weed invasion, with current problem weeds including \**Lantana camara*, \**Triumfetta pilosa* and \**Sporobolus jacquemontii*.

**Estimated extent:**<sup>1</sup> Pre-clearing 4000 ha; Remnant 2021 3000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

## Regional ecosystem 8.12.5

**Description:** *Eucalyptus portuensis* and/or *E. exserta* and/or *Corymbia trachyphloia* and/or *E. fibrosa* open forest to low open woodland (to closed scrub). *Eucalyptus portuensis* is the most frequent dominant species, whilst *E. exserta* and *C. trachyphloia* are often subdominant or codominant. *Lophostemon confertus* or *E. fibrosa* are occasionally dominant. *Corymbia intermedia* is often present and sometimes codominant. Other associated canopy species may include *E. crebra*, *Syncarpia glomulifera* and *E. suffulgens*. There is frequently a sparse to very sparse secondary tree layer dominated by species such as *Allocasuarina torulosa*, *Lophostemon confertus*, *Acacia flavescens*, *A. aulacocarpa*, *A. falcata* and *Banksia integrifolia* subsp. *compar*. A sparse to very sparse shrub layer

is usually present, and dominant species may include *Acacia flavescens*, *A. falcata*, *Grevillea banksii*, *Allocasuarina torulosa*, *Jacksonia scoparia* and *Xanthorrhoea latifolia* subsp. *latifolia*. The ground layer is most often dominated by species such as *Themeda triandra*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Sorghum nitidum* forma *aristatum*, *Heteropogon triticeus*, *Ottochloa nodosa* and *Mnesithea rottboellioides*. Occurs on slopes, ridges and crests on undulating low hills, rolling mountains and steep hills of foothills and uplands, on Mesozoic to Proterozoic igneous rocks. Geology mapped as Pc/v (Carmila beds/v), PKgb (Bayfield Granite), RKvp (Peninsula Range Volcanics), PKgp (Pyri Pyri Granite) and Kp (Proserpine Volcanics). Early Cretaceous - Late Permian rhyolitic to dacitic volcanoclastic rocks and leucocratic biotite granite. Not a Wetland. (BVG1M: 9d).

Vegetation communities in this regional ecosystem include:

8.12.5a: *Lophostemon confertus* and/or *Eucalyptus portuensis* (or *E. exserta*) open forest to closed scrub (5-38m tall). Other occasional co-dominant or associated species include *Corymbia trachyphloia*, *Acacia spirorbis* subsp. *solandri*, *E. drepanophylla* and *Acacia falcata*. Examples consisting of low dense stands of *Lophostemon* spp. have no (or very sparse) lower tree or shrub layers, whilst taller examples may have a secondary tree layer of species including *Lophostemon confertus*, *Acacia falcata*, *E. portuensis*, *Alphitonia excelsa* and *Corymbia trachyphloia*. Shrub layers when present, are very sparse to sparse and may be dominated by *Xanthorrhoea latifolia* subsp. *latifolia*, *Acacia fimbriata*, *Bursaria tenuifolia*, *Acacia falcata*, *Breynia oblongifolia*, *Cassinia quinquefaria* and *Melichrus adpressus*. The ground layer ranges from very sparse to mid-dense and may be dominated by species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Sorghum nitidum* forma *aristatum*, *Themeda triandra*, *Mnesithea rottboellioides* and *Eremochloa bimaculata*. Occurs on steep ridges, slopes and crests on rolling hills to steep mountains of foothills, uplands and highlands. Geologies mapped include Pc/v (Carmila beds/v), CKr (Urannah Igneous Complex), Pc/s (Carmila beds/s), Pla (Carmila Beds) and CPvI (Leura Volcanics). Early Cretaceous - Late Carboniferous acid, intermediate and basic plutonic rocks. Includes rhyolitic to dacitic volcanoclastic. Not a Wetland. (BVG1M: 28e).

8.12.5b: *Eucalyptus portuensis* and/or *E. exserta* and/or *Corymbia trachyphloia* and/or *E. fibrosa* open forest to low open woodland. *Eucalyptus portuensis* is the most frequent dominant species, whilst *E. exserta* and *C. trachyphloia* are often subdominant or codominant. *Eucalyptus fibrosa* is occasionally a dominant canopy tree. *Corymbia intermedia* is often present and sometimes codominant. Other associated canopy species may include *E. crebra*, *Syncarpia glomulifera*, *Lophostemon confertus* and *E. suffulgens*. There is frequently a sparse to very sparse secondary tree layer dominated by species such as *Allocasuarina torulosa*, *Lophostemon confertus*, *Acacia flavescens*, *A. aulacocarpa* and *Banksia integrifolia* subsp. *compar*. A sparse to very sparse shrub layer is usually present, and dominant species may include *Acacia flavescens*, *A. aulacocarpa*, *Lophostemon confertus*, *Grevillea banksii*, *Allocasuarina torulosa*, *Jacksonia scoparia* and *Xanthorrhoea latifolia* subsp. *latifolia*. The ground layer is most often dominated by species such as *Themeda triandra*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Macrozamia miquelii*, *Heteropogon triticeus*, *Ottochloa nodosa* and *Dianella caerulea*. Occurs on slopes, ridges and crests on undulating low hills, rolling mountains and steep hills of foothills and uplands, on Mesozoic to Proterozoic igneous rocks (subregion 4). Geologies mapped as PKgb (Bayfield Granite), RKvp (Peninsula Range Volcanics), PKgp (Pyri Pyri Granite) and PKdm (Double Mountain Volcanics). Early Cretaceous - Late Permian leucocratic biotite granite, biotite-hornblende adamellite and pyroclastic crystal tuff flows. Not a Wetland. (BVG1M: 9d).

8.12.5c: *Eucalyptus portuensis* open forest (8-35m tall). Other common subdominant species include *Corymbia intermedia* and *Lophostemon confertus*. Less prominent species in the canopy may sometimes include *E. drepanophylla*, *Acacia spirorbis* subsp. *solandri* and *Corymbia dallachiana*. There are often lower tree layers present, with typical species often including *Banksia integrifolia* subsp. *compar*, *Lophostemon confertus*, *Acacia disparrima* and *A. flavescens*. Where *Xanthorrhoea latifolia* subsp. *latifolia* forms a distinct shrub layer, the shrub layer is dense, otherwise where it is a part of the ground layer, the shrub layer is sparse to moderately dense, with other species sometimes including *Atractocarpus fitzalanii*, *Banksia integrifolia* subsp. *compar*, *Glochidion lobocarpum*, *Lepiderema punctulata*, *Pittosporum ferrugineum* and *Tephrosia brachyodon*. There is sometimes a lower shrub layer with species such as *Acrotriche aggregata* and *Xanthorrhoea latifolia* subsp. *latifolia*. The ground layer is very sparse to mid-dense and often includes *Xanthorrhoea latifolia* subsp. *latifolia*, *Walwhalleya subxerophila*, *Aristida spuria*, *Chrysopogon fallax*, *Heteropogon triticeus* and *Chionachne cyathopoda*. Slopes, ridges and crests on rolling rises to rolling mountains of lowlands, foothills and uplands of near coastal hills. Geologies mapped include Kp (Proserpine Volcanics), Pc/v (Carmila beds/v), PII (Airlie Volcanics) and Pc/s (Carmila beds/s). Early Cretaceous - Early Permian acid to intermediate pyroclastics and flows. Includes Rhyolite, andesite and rhyolitic to dacitic volcanoclastic rocks. Not a Wetland. (BVG1M: 9d).

**Short description:** *Eucalyptus portuensis* and/or *Lophostemon confertus* and/or *E. exserta* and/or *Corymbia trachyphloia* and/or *E. fibrosa* open forest on Mesozoic to Proterozoic igneous rocks

<b>Supplementary descriptions:</b>	Bailey et al. (2003), EAb-12, EA-12; Batianoff, Dillewaard and Franks (1997), Vegetation unit 24Ea; Bean (1992b), vegetation type Et (in part); Brushe et al. (in prep), Map units c55-12b, c63-12, c64-12, c65-12, c68-12, c69-12, c70-12b, c71-12, c90; Cumming (1997), Vegetation type 8; Forster and Barton (1995), Castle Tower, Bowenia; Pollock (1995a), Vegetation type Ea
<b>Subregions:</b>	3, 4, 1, (2), (11.14), (5)
<b>Protected areas:</b>	Conway NP, Eungella NP, Cape Palmerston NP, Dryander NP, Crediton FR, Kelvin FR, Kelvin NP, Conway CP, Homevale NP, Connors FR, Molle Islands NP, Conway West CP
<b>Extent in reserves:</b>	Medium
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	<p>8.12.5: Potential habitat for NCA listed species: <i>Grevillea venusta</i>, <i>Ozothamnus eriocephalus</i>, <i>Parsonsia larcomensis</i>.</p> <p>8.12.5a: Habitat for the threatened species <i>Ozothamnus eriocephalus</i> and the Glossy Black Cockatoo which are all listed in the Queensland Nature Conservation Act 1992. Habitat for a number of plant species restricted to the narrow, high-altitude zone on the Clarke Range, which otherwise only occur in south-eastern Queensland and high altitudes of the Wet Tropics. These include <i>Acacia falcata</i>, <i>Acacia fimbriata</i> and <i>Melichrus adpressus</i>, as well as other species poorly known in the Central Queensland Coast such as <i>Aristida vagans</i>, <i>Acacia penninervis</i>, <i>Banksia spinulosa</i>, <i>Monotoca scoparia</i> and <i>Tephrosia rufula</i>. <i>Acacia fimbriata</i> is uncommon in northern parts of the bioregion.</p> <p>8.12.5b: Habitat for the NCA listed plant species <i>Parsonsia larcomensis</i>, <i>Comesperma oblongatum</i> and <i>Grevillea venusta</i>. Habitat for plant species rarely recorded/poorly known in the bioregion including <i>Acacia falcata</i>, <i>A. leiocalyx</i> subsp. <i>leiocalyx</i>, <i>A. penninervis</i> var. <i>penninervis</i>, <i>Brachychiton bidwillii</i>, <i>Eucalyptus suffulgens</i>, <i>Melaleuca hemisticta</i>, <i>Daviesia umbellulata</i>, <i>Monotoca scoparia</i>, <i>Banksia spinulosa</i>, <i>Comesperma oblongatum</i>, <i>Dodonaea triquetra</i>, <i>Persoonia amaliae</i>, <i>Hibiscus splendens</i>, <i>Ricinocarpos ledifolius</i>, <i>Hibbertia velutina</i>, <i>Gompholobium pinnatum</i>, <i>Gymnostachys anceps</i>, <i>Schizaea bifida</i>, <i>Centratherum riparium</i>, <i>Chorizema parviflorum</i>, <i>Corybas barbarae</i>, <i>Dipodium variegatum</i>, <i>Dockrillia bowmanii</i>, <i>Solanum stelligerum</i> and <i>Hovea longipes</i>. Northern limit of <i>Astrotricha intermedia</i>, <i>Macrozamia miquelii</i>, <i>Bowenia serrulata</i>, <i>Phyllothea difformis</i> subsp. <i>smithiana</i>, <i>Comesperma esulifolium</i>, <i>Hovea clavata</i>, <i>Pomaderris ferruginea</i>, <i>Hibbertia vestita</i>, <i>Patersonia sericea</i> and <i>Schoenus vaginatus</i>.</p>

**Comments:**

8.12.5a: Distinguished from other vegetation communities and regional ecosystems by a combination of landscape position (steep upper slopes and spurs), the relatively dense stands of *Eucalyptus portuensis* and/or *L. confertus* (or occasionally *E. exserta*), and the occurrence on the Clarke Ranges away from the coast (as opposed to near-coastal ranges and islands). The vegetation community 8.12.5b may sometimes be similar but occurs in subregions 4 and 5 only (8.12.5a does not occur in subregions 4 and 5). The vegetation 8.12.5c is usually taller, and occurs on near coastal ranges at lower altitudes. Examples dominated by *Lophostemon confertus* may be similar to 8.12.10a but 8.12.5a lacks the co-dominance or subdominance of a variety of heath species. Distinguished from the 8.12.12 and 8.12.22 series and 8.12.32 by the clear dominance of *E. portuensis*, *L. confertus* or *E. exserta*, from the 8.12.14 and 8.12.29 series by the occurrence on the Clarke Ranges away from the coast (as opposed to islands and coastal headlands), and from 8.12.31a by the absence of *E. resinifera*. Occurs from Mt Challenger (north of Lake Proserpine), south to Tooloombah Creek in Broadsound Range (40km north-west of Marlborough). Relatively good due to the usual remoteness or difficult access. Grazing has impacted some areas. The weed *\*Lantana camara* is a problem in some areas. Other weeds include *\*Melinis minutiflora*, *\*Ageratum conyzoides* subsp. *conyzoides*, *\*Bidens bipinnata*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Mesosphaerum suaveolens*, *\*Sida rhombifolia*, *\*Stylosanthes* spp., and *\*Triumfetta rhomboidea*. Occasional areas are subject to removal of *Allocasuarina* spp. for pasture improvement purposes.

8.12.5b: Distinguished from other similar regional ecosystems and vegetation communities by a combination of occurring in subregion 4 only, occurring on the mainland (rather than on islands and headlands) and by being dominated by *E. portuensis* and/or *E. exserta* and/or *C. trachyphloia* and/or *E. fibrosa*. The vegetation community 8.12.31a may sometimes be similar but this occurs at slightly higher altitudes and always contains *E. resinifera*. The 8.12.7 series is related, but is always contains *C. citriodora* as a dominant to subdominant. Occurs in subregion 4 and 5 on Peninsular Range and Polygon Range in the Shoalwater Bay Military Training Area, and Coastal Range to the west of Corio Bay. Also found on Colcarra Range and Mt Solitude, south of Port Clinton. Some areas have been harvested for timber and/or grazed by cattle, but the condition of this ecosystem is generally good. *\*Lantana camara* is a problem in some places, and *\*Passiflora suberosa*, *\*P. pallida* and *\*Stachytarpheta jamaicensis* are sometimes prominent.

8.12.5c: The vegetation community 8.12.5b is often very similar but occurs in subregions 4 and 5 only (8.12.5a does not occur in subregions 4 and 5). The vegetation 8.12.5a is usually shorter, and occurs on mountainous ranges more inland (and usually higher altitudes). Examples dominated by *Lophostemon confertus* may be similar to 8.12.10a but 8.12.5a lacks the codominance or subdominance of a variety of heath species, and is usually much taller. Distinguished from the 8.12.12 and 8.12.22 series and 8.12.32 by the clear dominance of *E. portuensis*, and from 8.12.31a by the absence of *E. resinifera*. Can be similar to the 8.12.14 and 8.12.29 series but these are rarely dominated by *E. portuensis* and tend to be more stunted and further east on windswept islands. Occurs from north of Mount Dryander in Dryander National Park to Rocky Point in Conway National Park. Also found in an area south-west of Cape Palmerston from Mt Cutlack to Mosquito Hill. Generally good. Weed species recorded include *\*Passiflora suberosa*, *\*P. pallida* and *\*Melinis minutiflora*.

**Estimated extent:**<sup>1</sup> Pre-clearing 65000 ha; Remnant 2021 62000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:**

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## Regional ecosystem 8.12.6

**Description:** *Eucalyptus drepanophylla* woodland to open forest (8-32m tall). *Eucalyptus platyphylla* is sometimes codominant or present in the canopy. Other very occasional associated canopy species may include *Corymbia clarksoniana*, *Melaleuca viridiflora* var. *viridiflora*, *C. dallachiana* and *Lophostemon suaveolens*. Lower tree layers range from isolated plants to a sparse layer, with species often including *Corymbia dallachiana*, *Melaleuca viridiflora* var. *viridiflora*, *Acacia julifera* subsp. *julifera*, *Planchonia careya*, *Timonius timon* var. *timon*, *E. drepanophylla*, *C. clarksoniana*, *Alphitonia excelsa* and *Melaleuca nervosa*. There is sometimes a shrub layer consisting of isolated plants to a sparse layer, and including species such as *Cycas media* subsp. *media*, *Dodonaea triquetra*, *Flueggea virosa*, *Melaleuca viridiflora* var. *viridiflora*, *Acacia spirorbis* subsp. *solandri*, *Cycas media* subsp. *media*, *Hibiscus divaricatus*, *Acacia holosericea*, *Acacia leptocarpa*, *Glochidion lobocarpum* and *Xanthorrhoea* sp. The ground layer is grassy and dense to very sparse, and typical dominant and associated species may include *Themeda triandra*, *Heteropogon triticeus*, *Sorghum nitidum* forma *aristatum*, *Mnesithea rottboellioides*, *Eriachne* spp., *Lomandra longifolia*, *Aristida ingrata*, *Scleria brownii*, *Heteropogon contortus* and *Aristida utilis* var. *utilis*. Includes more open areas on steep exposed hillsides consisting of a shrubland of *Flueggea virosa* and *Jasminum didymum*. Occurs on slopes, ridges and crests on undulating rises to rolling hills steep low hills on lowlands, foothills and uplands. Geologies mapped include Pla (Carmila Beds), Kh (Hecate Granite), DCc (Campwyn Beds) and CKr (Urannah Igneous Complex). Early Cretaceous - Late Devonian acid to intermediate flows and pyroclastics. Includes lithic sandstone, siltstone, mudstone and conglomerate. Not a Wetland. (BVG1M: 9b).

Vegetation communities in this regional ecosystem include:

8.12.6a: *Eucalyptus drepanophylla* and *E. platyphylla* woodland to open forest (15-32m tall). *E. platyphylla* may sometimes be absent in the canopy but then is always present in the secondary tree layer. Emergents of *E. drepanophylla* are occasionally present. Other very occasional associated canopy species may include *Corymbia clarksoniana*, *Melaleuca viridiflora* var. *viridiflora*, *Eucalyptus tereticornis* and *Lophostemon suaveolens*. Lower tree layers range from isolated plants to a sparse layer, with species often including *Corymbia dallachiana*, *Melaleuca viridiflora* var. *viridiflora*, *Planchonia careya*, *Timonius timon* var. *timon*, *E. drepanophylla*, *C. clarksoniana*, *Alphitonia excelsa* and *Melaleuca nervosa*. The shrub layer consists of isolated plants to a very sparse layer, and may include *Melaleuca viridiflora* var. *viridiflora*, *Acacia spirorbis* subsp. *solandri*, *Cycas media* subsp. *media*, *Hibiscus divaricatus*, *Acacia holosericea*, *Acacia leptocarpa* and *Glochidion lobocarpum*. A lower shrub layer is occasionally present, with species sometimes including *Xanthorrhoea* sp., *Coelospermum reticulatum* and *Wikstroemia indica*. The ground layer is grassy and dense to sparse, and typical dominant and associated species may include *Themeda triandra*, *Heteropogon triticeus*, *Schizachyrium pseudeulalia*, *Sorghum nitidum* forma *aristatum*, *Mnesithea rottboellioides*, *Heteropogon contortus*, *Eremochloa bimaculata*, *Cymbopogon* spp. and *Imperata cylindrica*. Occurs on slopes, ridges and crests on undulating rises to rolling hills on lowlands, foothills and uplands. Geologies mapped include Pla (Carmila Beds), Kh (Hecate Granite), DCc (Campwyn Beds), CKr (Urannah Igneous Complex) and Cud. Early Cretaceous - Late Devonian acid to intermediate flows and pyroclastics. Includes lithic sandstone, siltstone, mudstone and conglomerate. Not a Wetland. (BVG1M: 9b).

8.12.6b: *Eucalyptus drepanophylla* woodland (8-15m tall). *E. drepanophylla* is often the only canopy species, or there may occasionally be associated species such as *Corymbia clarksoniana* and *C. dallachiana* forming a very minor component of the canopy. There is often a very sparse to sparse secondary tree layer, with typical species including *Eucalyptus drepanophylla*, *Acacia julifera* subsp. *julifera* and *A. leptostachya*. The shrub layers if present are very sparse to sparse, with typical species often including *Flueggea virosa*, *Alphitonia excelsa*, *Acacia leptocarpa*, *Xanthorrhoea* sp., *Jasminum didymum*, *Indigofera pratensis* and *Grewia savannicola*. The ground layer is grassy and ranges from very sparse to mid-dense, with dominants often including *Eriachne* spp., *Lomandra longifolia*, *Aristida ingrata*, *Scleria brownii*, *Heteropogon contortus*, *Heteropogon triticeus*, *Aristida utilis* var. *utilis*, *Panicum larcomianum*, *Themeda triandra* and *Mnesithea rottboellioides*. Includes more open areas on steep exposed hillsides consisting of a shrubland of *Flueggea virosa* and *Jasminum didymum*. Occurs on slopes, ridges and crests on undulating low hills, rolling hills and steep low hills of lowlands and foothills. Many areas have rock close to the surface and rock outcrops. Geologies mapped include PKg, Cle (Edgumbe Beds), PKd and PII (Airlie Volcanics). Early Cretaceous - Late Carboniferous acid to intermediate pyroclastics and flows. Includes leucogranite, microgranite, diorite, shale, greywacke, limestone and quartz diorite. Not a Wetland. (BVG1M: 13c).

**Short description:** *Eucalyptus drepanophylla* +/- *E. platyphylla* +/- *Corymbia clarksoniana* woodland to open forest on low to medium hills on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:** Batianoff, Dillewaard and Franks (1997), Vegetation unit 26 (in part); Forster and Barton (1995), Glassford; PM64; Pollock (1996), Vegetation type Ede and Gsd; Warrien and Lavarack (in prep), Vegetation unit 5h

**Subregions:** 2, 3, 6, (1), (11.2)

<b>Protected areas:</b>	Dryander NP, Gloucester Island NP, Andromache CP, Eungella NP, Skull Knob CP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	<p>8.12.6: Potential habitat for NCA listed species: <i>Glossocardia orthochaeta</i>, <i>Solanum graniticum</i>.</p> <p>8.12.6a: Habitat for several species which are poorly known in the Central Queensland Coast bioregion, or locally rare, including <i>Mitrasacme connata</i>, <i>Alysicarpus schomburgkii</i>, <i>Haloragis aspera</i>, <i>Murdannia gigantea</i>, <i>Ophioglossum reticulatum</i> and <i>Polygala exsuarrosa</i>.</p> <p>8.12.6b: Habitat for the endangered <i>Solanum graniticum</i>. Also habitat for several species which are poorly known from the Central Queensland Coast bioregion, including <i>Vigna</i> sp. (Station Creek R.J.Lawn CQ3284), <i>Aristida ingrata</i>, <i>Cajanus scarabaeoides</i> var. <i>scarabaeoides</i> and <i>Digitaria nematostachya</i>. Habitat for the Northern Quoll (Pollock, 1995) which is listed as "Endangered" in the Queensland Nature Conservation Act 1992.</p>
<b>Comments:</b>	<p>8.12.6a: Distinguished from 8.12.6b by the co-dominance or subdominance of <i>Eucalyptus platyphylla</i> (which is rare or absent in 8.12.6b). The 8.12.12 series may sometimes be similar, but other species (beside <i>E. drepanophylla</i> and <i>E. platyphylla</i>) tend to co-dominate. The 8.12.20 series is similar in species composition but occurs in low lying areas bordering on land zone 3 (as opposed to definite hills). The 8.12.29 and 8.12.14 series are occasionally similar but tend to have other species co-dominating besides <i>E. drepanophylla</i> and <i>E. platyphylla</i>, tend to be lower/more windswept, and occur mainly on islands and near coastal headlands (8.12.6a occurs on the mainland). Occurs in subregion 2, 3 and 6. Mapped from Yeates Creek (20km south-east of Bowen), south to the Proserpine Dam area, and then south-east to Sand Bay, (north-west of Mackay). Many areas are heavily invaded by <i>*Lantana camara</i>, which may form a dense shrub layer. Also <i>*Themeda quadrivalvis</i> is very common in some places. Weed invasions may have been exacerbated by cattle grazing. Other problem weeds include <i>*Stylosanthes scabra</i>, <i>*Stachytarpheta jamaicensis</i>, <i>*Sida rhombifolia</i>, <i>*Melinis repens</i>, <i>*Passiflora suberosa</i>, <i>*P. pallida</i>, <i>*Sporobolus jacquemontii</i>, <i>*Triumfetta rhomboidea</i>, <i>*Ageratum conyzoides</i> subsp. <i>conyzoides</i>, <i>*Passiflora foetida</i>, <i>*Centrosema pubescens</i>, <i>*Hyparrhenia rufa</i>, <i>*Mimosa pudica</i> and <i>*Sporobolus natalensis</i>.</p> <p>8.12.6b: Distinguished from 8.12.6a by the lack of <i>E. platyphylla</i> (which is dominant or co-dominant in 8.12.6a). The 8.12.12 series may sometimes be similar, but other species (beside <i>E. drepanophylla</i>) tend to co-dominate. The 8.12.20 series is sometimes similar but occurs in low lying areas bordering on land zone 3 (as opposed to definite hills). The 8.12.29 and 8.12.14 series are sometimes similar but tend to have other species co-dominating besides <i>E. drepanophylla</i>, tend to be lower/more windswept, and occur mainly on islands and near coastal headlands (8.12.6b occurs on the mainland). Occurs from the southern side of the mountains on Cape Gloucester, east to George Point and south to Gregory River (east of Mt Dryander). Also found on the east side of Gloucester Island and on Saddleback Island. Relatively poor - many areas are suffering from severe weed invasion, in particular by <i>*Lantana camara</i> (especially thick at the northern end of the Dryander Range), <i>*Bothriochloa pertusa</i> and <i>*Stachytarpheta jamaicensis</i>. Other common weed species include <i>*Melinis repens</i>, <i>*Sida cordifolia</i>, <i>*Passiflora suberosa</i>, <i>*P. pallida</i>, <i>*Stylosanthes scabra</i>, <i>*Triumfetta rhomboidea</i>, <i>*Sida rhombifolia</i>, <i>*Sporobolus jacquemontii</i>, <i>*Bidens bipinnata</i> and <i>*Stylosanthes hamata</i>. Weed invasion and spread has probably been exacerbated by cattle grazing.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 68000 ha; Remnant 2021 48000 ha
<b>VM class:</b>	Least concern
<b>Biodiversity status:</b>	No concern at present
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.12.7

**Description:** *Corymbia citriodora* open forest to woodland. Subdominant or codominant canopy species often include *Eucalyptus portuensis*, *E. exserta*, *E. drepanophylla*, *E. crebra*, whilst *C. intermedia* and *C. trachyphloia* may occur as associated species. In drier, more western areas *E. drepanophylla* (or *E. crebra* in the south) may be dominant. Stands of *E. melanophloia* may also occur in drier parts. A secondary tree layer of *Banksia integrifolia* subsp. *compar*, *Acacia* spp. and *Allocasuarina* spp. may be present, and *Lophostemon confertus* occurs on shallower soils. A sparse shrub layer of *Xanthorrhoea latifolia* subsp. *latifolia*, *Jacksonia scoparia*, *Persoonia amaliae* and *Coelospermum reticulatum* may be present. The ground layer is usually dominated by species such as *Themeda triandra*, *Eremochloa bimaclata*, *Sorghum nitidum* forma *aristatum*, *Heteropogon triticeus*, *H. contortus*, *Lomandra longifolia*, *Xanthorrhoea latifolia* subsp. *latifolia* and *Chrysopogon fallax*. Occurs on slopes, ridges, plateaus and crests on undulating hills to steep mountains of foothills, uplands and highlands, on Mesozoic to Proterozoic igneous rocks. Contains minor areas of Tertiary acid volcanics (land zone 8). Geologies mapped include Cvw (Whelan Creek Volcanics), CPgpg (Pisgah Igneous Complex), Pc/s (Carmila beds/s), Cvm (Mountain View Volcanics) and CPvl (Leura Volcanics). Early Permian - Late Carboniferous crystal-rich (feldspar and locally quartz) and generally lithics-poor. Not a Wetland. (BVG1M: 10b).

Vegetation communities in this regional ecosystem include:

8.12.7a: *Corymbia citriodora* and *Eucalyptus portuensis* open forest to woodland (12-27m tall). *Corymbia trachyphloia* and *C. intermedia* are occasional subdominants, whilst *E. drepanophylla*, *E. tereticornis* and *E. exserta* may be associated canopy species. There is often a very sparse to mid-dense secondary tree layer, with typical species often including *C. trachyphloia*, *E. portuensis*, *C. citriodora*, *E. drepanophylla* and *Lophostemon confertus*. There is occasionally a very sparse lower tree layer including species such as juvenile eucalypts, *Banksia integrifolia* subsp. *compar*, *Vachellia bidwillii*, *A. leptocarpa* and *Allocasuarina littoralis*. The shrub layer when present consists of isolated plants or a very sparse layer, with typical species including *Xanthorrhoea latifolia* subsp. *latifolia*, *Persoonia amaliae*, *Acacia leptocarpa*, *Breynia oblongifolia*, *Jacksonia scoparia* and *Cycas media*. The ground layer ranges from very sparse to mid-dense, with common dominants often including *Themeda triandra*, *Eremochloa bimaclata*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Heteropogon triticeus*, *Aristida* spp., *Chrysopogon fallax*, *Imperata cylindrica*, *Sorghum nitidum* forma *aristatum* and *Pteridium esculentum*. Occurs on slopes, ridges, plateaus and crests on undulating hills to steep mountains of foothills, uplands and highlands. Geologies mapped are Cvw (Whelan Creek Volcanics), CPgpg (Pisgah Igneous Complex), Pc/s (Carmila beds/s), Cvm (Mountain View Volcanics) and CPgjo (Johnstone Creek Igneous Complex). Early Permian - Late Carboniferous crystal-rich (feldspar and locally quartz). Not a Wetland. (BVG1M: 10b).

8.12.7b: *Corymbia citriodora* woodland to open forest. Codominant to associated canopy species usually include *Eucalyptus crebra* and/or *E. portuensis*. Other associated species may include *Corymbia intermedia*, *E. exserta* and *C. trachyphloia*. There is often a very sparse to sparse secondary tree layer consisting of species such as *Lophostemon confertus*, *Acacia flavescens*, *A. aulacocarpa*, *Planchonia careya* and *A. julifera* subsp. *curvinervia*. There is usually a very sparse to sparse shrub layer with species such as *Lophostemon confertus*, *Coelospermum reticulatum*, *Acacia crassa* subsp. *longicoma* and *Jacksonia scoparia*. The ground layer is dominated by species such as *Heteropogon contortus*, *Xanthorrhoea latifolia* subsp. *latifolia*, *H. triticeus*, *Themeda triandra*, *Eremochloa bimaclata*, *Cymbopogon* spp. and *Hardenbergia violacea*. Occurs on slopes, ridges and crests (often in drier areas) on undulating hills to rolling mountains of foothills and uplands, on Mesozoic to Proterozoic igneous rocks. Contains minor areas of Tertiary acid volcanics (land zone 8), (subregion 4). Geologies mapped include PKdm (Double Mountain Volcanics), PKgp (Pyri Pyri Granite) and RKvp (Peninsula Range Volcanics). Early Cretaceous - Late Permian dacitic crystal tuff, lithic, vitric and lapilli tuff, muscovite-biotite granite and hornblende-biotite adamellite. Not a Wetland. (BVG1M: 10b).

8.12.7c: *Eucalyptus drepanophylla* low woodland to open forest (6-20m tall). *Corymbia citriodora* may sometimes be codominant in the canopy. Other occasional associated species in the canopy may include *E. melanophloia*, *C. trachyphloia*, *E. exserta*, *C. erythrophloia*, *E. portuensis* and *E. platyphylla*. There is occasionally a sparse to mid-dense secondary tree layer of *Lophostemon confertus*, or a very sparse secondary tree layer consisting of scattered juveniles of canopy species as well as occasional *Lophostemon confertus*, *C. clarksoniana*, *C. dallachiana*, *Callitris endlicheri* and *Alphitonia excelsa*. The shrub layer ranges from very sparse to dense, and when dense is often dominated by *Lophostemon confertus*. Other species may include *Acacia leptostachya*, *Bursaria incana*, *Dodonaea viscosa*, *E. exserta*, *Xanthorrhoea* sp., *Dodonaea viscosa*, *Jacksonia scoparia*, *Persoonia amaliae*, *Persoonia falcata*, *Cycas media* subsp. *media*, *Acacia decora* and *Wikstroemia indica*. The ground layer is often dominated by *Eremochloa bimaclata*, with other common dominants and associated species including *Heteropogon contortus*, *Bothriochloa decipiens* var. *decipiens*, *Arundinella setosa*, *Chrysopogon fallax*, *Themeda triandra*, *Eragrostis brownii* and *Heteropogon triticeus*. Occurs on slopes, ridges and crests (often in drier western areas) on rolling to steep mountains of foothills and uplands. Soil is often shallow, and rock outcrops are common. Geologies mapped include CPvl (Leura Volcanics), Cvw (Whelan Creek Volcanics), Cpgu (Urannah Batholith), CKr (Urannah Igneous Complex) and CPgsd (Strathdee Granodiorite). Early Cretaceous - Late Carboniferous undivided acid, intermediate and minor basic plutonic rocks. Not a Wetland. (BVG1M: 10b).



<b>Short description:</b>	Corymbia citriodora +/- Eucalyptus portuensis +/- E. drepanophylla (or E. crebra) open forest on hill slopes and undulating plateaus on Mesozoic to Proterozoic igneous rocks
<b>Supplementary descriptions:</b>	Bean (1992b), Vegetation type Ec (in part); Brushe et al. (in prep), Map units c55-12a, c66-12, c70-12a
<b>Subregions:</b>	3, (4), (11.12), (11.2), (6), (2), (11.14)
<b>Protected areas:</b>	Homevale NP, Eungella NP, Crediton FR, Homevale RR
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	<p>8.12.7: Potential habitat for NCA listed species: Callicarpa thozetii, Ozothamnus eriocephalus, Coleus eungellaensis.</p> <p>8.12.7a: Habitat for endangered plant species Callicarpa thozetii. Potential habitat for the vulnerable plant species Ozothamnus eriocephalus. Habitat for a number of species restricted to the narrow, high-altitude zone on the Clarke Range, which otherwise only occur in SE Queensland and high altitudes of the Wet Tropics. These include Hardenbergia violacea and Desmodium varians. Also habitat for some other species poorly known in the Central Queensland Coast bioregion such as Opercularia diphylla, Persoonia amaliae, Goodenia rotundifolia and Tephrosia purpurea var. sericea. Habitat for arboreal mammals including Yellow Bellied Gliders and Koalas.</p> <p>8.12.7b: Habitat for species poorly known in the CQC bioregion such as Brachychiton bidwillii.</p> <p>8.12.7c: Habitat for a number of species restricted to the narrow, high-altitude zone on the Clarke Range, which otherwise only occur in south-eastern Queensland and high altitudes of the Wet Tropics. These include Hardenbergia violacea and Desmodium varians. Also habitat for some other species poorly known in the Central Queensland Coast bioregion such as Opercularia diphylla and Persoonia amaliae.</p>
<b>Comments:</b>	<p>8.12.7a: Very similar to 8.12.7b but 8.12.7b occurs only in subregion 4 (8.12.7a is only in subregion 3). Distinguished from 8.12.7c by the co-dominance or subdominance of other species besides Corymbia citriodora and Eucalyptus drepanophylla. Distinguished from all other regional ecosystems and vegetation communities on land zone 12 by the presence of C. citriodora as a dominant, subdominant or associated species in the canopy. Occurs in subregion 3, extensive from Reedy Creek (south-west of Proserpine Dam) in the Clarke Range to Campbell Range (35km south of St Lawrence) in the south. Generally reasonably good although a history of selective timber harvesting and cattle grazing have had an impact, causing a reduction in tree density and representation of larger trees, and contributing to the spread of weeds.</p> <p>8.12.7b: Very similar to 8.12.7a and 8.12.7c, but these occur only in subregion 3 (8.12.7b is only in subregion 4). Distinguished from all other regional ecosystems and vegetation communities on land zone 12 by the presence of Corymbia citriodora as a dominant or codominant species in the canopy. Occurs in subregion 4, within the Shoalwater Bay Military Training Area. Mapped in the Polygon Range and Normanby Range to the west of Shoalwater Bay and also in the Peninsular Range area to the west of Island Head Creek. Generally reasonably good although a history of selective timber harvesting and cattle grazing have had an impact, causing a reduction in tree density and representation of larger trees, and contributing to the spread of weeds.</p> <p>8.12.7c: Can be very similar to 8.12.7b but 8.12.7b occurs only in Subregion 4 (8.12.7c is only in Subregion 2). Distinguished from 8.12.7a by the co-dominance or subdominance of Eucalyptus drepanophylla or E. exserta or Corymbia trachyphloia. Distinguished from all other regional ecosystems and vegetation communities on land zone 12 by its position in the landscape (far western edge of the bioregion) and the common presence of typical western edge (or high altitude) species such as C. citriodora, E. melanophloia, C. erythrophloia, Callitris endlicheri and Persoonia amaliae. Occurs on the western edge of subregion 3, from Reedy Creek (west of Proserpine Dam) in the north to Tooloombah Creek in Broadsound Range (40km west of Marlborough) to the south. Ranges from excellent in more remote areas, to average in areas that are more heavily grazed or accessed by timber harvesters. The weed *Lantana camara is a problem in some areas, whilst ground stratum weeds include *Ageratum conyzoides subsp. conyzoides and *Sporobolus jacquemontii.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 189000 ha; Remnant 2021 181000 ha
<b>VM class:</b>	Least concern
<b>Biodiversity status:</b>	No concern at present
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.12.8

**Description:** *Eucalyptus montivaga* open forest (25-40m tall). Co-dominant to associated species in the canopy may include *Corymbia intermedia*, *Eucalyptus resinifera* and *E. acmenoides*. There is often a sparse to very sparse secondary tree layer dominated by *Allocasuarina littoralis* (or *A. torulosa*), with other associated species often including *Banksia integrifolia* subsp. *compar* and juvenile *Eucalyptus* spp. and *Corymbia* spp. from the canopy. The shrub layer is sparse (to isolated plants) and may include species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Glochidion* sp., *Acacia disparrima* subsp. *disparrima*, *Pittosporum ferrugineum* and *Banksia integrifolia* subsp. *compar*. The ground layer tends to be very sparse to sparse, and often includes *Imperata cylindrica*, *Pteridium esculentum*, *Desmodium rhytidophyllum*, *Sorghum nitidum* forma *aristatum*, *Hardenbergia violacea*, *Adiantum hispidulum*, *Calochlaena dubia*, *Oplismenus burmanni*, *Ranunculus lappaceus* and *Themeda triandra*. Occurs on plateaus, ridges, upper slopes and crests on rolling mountains, mainly above 700m. Geologies mapped include CPn, CPgpl (Palms Lookout Granodiorite), CKgu and CPgu (Urannah Batholith) and Kg/d. Early Cretaceous - Late Carboniferous biotite granite, hornblende, biotite granite to granodiorite, hornblende granodiorite to tonalite, biotite and gabbro. Not a Wetland. (BVG1M: 8b).

**Short description:** *Eucalyptus montivaga* open forest on plateaus and ridges of high ranges on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:** Bean (1992b) Vegetation type Ea.

**Subregions:** 3

**Protected areas:** Eungella NP, Crediton FR

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.8: Habitat for the threatened plant species *Ozothamnus eriocephalus* and *Coleus eungellaensis*. Habitat for Powerful Owl and Glossy Black Cockatoo. Important habitat for arboreal mammals. Northern limit of *Eucalyptus montivaga*. Habitat for a number of herbaceous species that are locally rare (restricted to the higher altitudes) and are more typical of southern cooler climates. These include *Hardenbergia violacea*, *Ranunculus lappaceus*, *Desmodium gunnii*, *Botrychium australe*, *Geranium homeanum*, *Hydrocotyle acutiloba*, *Lagenophora stipitata*, *Plantago debilis*, *Poa labillardierei* var. *labillardierei*, *Pterostylis nutans*, *Veronica plebeia*, *Clematis glycinoides*, *Mentha diemenica*, *Senecio prenanthoides* and *Viola hederacea*.

**Comments:** 8.12.8: Distinguished from all other regional ecosystems in the Central Queensland Coast bioregion by the dominance (to subdominance) of *E. montivaga*. Scattered on mountains from Dicks Tableland south-east to Eungella Dam and on a peak north of Running Creek in Connors Range (20km west of Sarina). Subject to timber harvesting which may have long-term detrimental effects given the very restricted nature of this regional ecosystem (restricted to relatively small patches on ridgelines at high altitude). Weed species include *\*Hypochaeris radicata*, *\*Bidens bipinnata* and *\*Lantana camara*.

**Estimated extent:**<sup>1</sup> Pre-clearing 2000 ha; Remnant 2021 2000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.12.9

**Description:** *Eucalyptus tereticornis* woodland to open forest (18-30m tall). *Corymbia intermedia* and/or *Lophostemon suaveolens* can sometimes be codominant in the canopy. Other occasional associated canopy species may include *E. drepanophylla*. A secondary tree layer of *Allocasuarina littoralis* or *A. torulosa*, *Banksia integrifolia* subsp. *compar*, and *Timonius timon* var. *timon* is sometimes present. Some areas have a secondary tree layer consisting of rainforest species. Shrubs may be absent or may form a sparse layer, with occasional scattered *Xanthorrhoea latifolia* subsp. *latifolia*, and other species such as *Myrsine variabilis*, *Glochidion apodogynum*, *Trema tomentosa*, *Cycas media* and *Breynia oblongifolia*. The ground layer is usually mid-dense and grassy, and often includes species such as *Imperata cylindrica*, *Themeda triandra*, *Chionachne cyathopoda*, *Centella asiatica*, *Dichondra repens*, *Oplismenus burmanni*, *Sorghum nitidum* forma *aristatum*, *Microlaena stipoides*, *Carex inversa*, *Pteridium esculentum*, *Eremochloa bimaclata* and *Mnesithea rottboellioides*. Occurs on gently undulating slopes and open depressions on rolling mountains of foothills and uplands. Geologies mapped include Cvm/b (Mountain View Volcanics/b), CPgu (Urannah Batholith), Cgda (Dacey Granite) and Pc/s (Carmila beds/s). Early Permian - Late Carboniferous porphyritic to locally aphyric basalt and andesite, biotite monzogranite and biotite-hornblende granite. Not a Wetland. (BVG1M: 9c).

**Short description:** *Eucalyptus tereticornis* +/- *Corymbia intermedia* +/- *Lophostemon suaveolens* woodland on undulating uplands on Mesozoic to Proterozoic igneous rocks

### Supplementary descriptions:

**Subregions:** 3, (11.2)

**Protected areas:** Crediton FR, Kelvin FR, Homevale RR, Kelvin NP, Eungella NP, Homevale NP

**Extent in reserves:** Low

**Wetland:** Not a Wetland

**Special values:** 8.12.9: Important habitat for arboreal mammals and Powerful Owl, Rufus Owl, Glossy Black Cockatoo. Currently known to contain a number of herbaceous species that are locally rare (restricted to the higher altitudes and are more typical of southern cooler climates). This includes *Carex inversa* (northern limit), *Dichondra repens*, *Desmodium gunnii*, *Mentha diemenica*, *Plantago debilis*, *Veronica plebeia*, *Viola betonicifolia* subsp. *betonicifolia* (northern limit), *Brachyscome paludicola* (northern limit), *Desmodium varians*, *Dichelachne montana* (northern limit), *Hardenbergia violacea*, *Microlaena stipoides*, *Poa labillardierei* var. *labillardierei* and *Ranunculus lappaceus*. Habitat for several other species poorly known from the Central Qld Coast bioregion, including *Cyperus leiocaulon*, *Eremophila debilis*, *Haloragis aspera* and *Hyparrhenia filipendula*.

**Comments:** 8.12.9: Distinguished from all other land zone 12 regional ecosystems by the combination of dominance of *Eucalyptus tereticornis* and occurrence at moderate to high altitudes on the main Great Dividing Range. Occurs in subregion 3 from Mt Flat Top (40km west of Lethebrook), south to Mount Mysie in the Broadsound Range (30km south-west of St Lawrence). Sugar cane is beginning to expand into the ranges of the Central Queensland Coast, and this regional ecosystem is likely to be targeted for clearing due to the fertile soils and gently undulating landscape. Large areas of this regional ecosystem have already been cleared, whilst many of the remaining areas are heavily grazed and/or logged. Some areas have been heavily invaded by *\*Bothriochloa pertusa* (Indian couch) and a variety of *\*Paspalum* spp. The weed *\*Lantana camara* is also a severe problem in some areas. Other common problem weeds include *\*Themeda quadrivalvis*, *\*Sporobolus jacquemontii*, *\*Sporobolus* spp., *\*Ageratum conyzoides* subsp. *conyzoides*, *\*Axonopus fissifolius*, *\*Bidens bipinnata*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Mecardonia procumbens*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Eleusine indica* and *\*Urena lobata*. This regional ecosystem is a major source of timber for the Central Queensland Coast. This regional ecosystem experiences poor regeneration in grazed stands, especially after logging.

**Estimated extent:**<sup>1</sup> Pre-clearing 30000 ha; Remnant 2021 20000 ha

**VM class:** Least concern

**Biodiversity status:** Of concern

**Biodiversity status notes:** Highly disturbed and subject to high cover of perennial non-native grasses at most known locations.

## Regional ecosystem 8.12.10

**Description:** *Leptospermum neglectum* and/or *L. polygalifolium* and/or *Acacia aulacocarpa* and/or *A. julifera* subsp. *curvinervia* and/or *Lophostemon confertus* and/or *Allocasuarina littoralis* and/or *Banksia integrifolia* subsp. *compar* dwarf closed shrubland to low woodland (0.3-3.5m tall). Associated species in the canopy or as emergents may include *Banksia robur*, *Dodonaea viscosa*, *Melaleuca hemisticta*, *Eucalyptus exserta*, *Grevillea banksii*, *Banksia spinulosa* var. *spinulosa*, *Corymbia trachyphloia*, *Gahnia sieberiana* and *Xanthorrhoea latifolia* subsp. *latifolia*. Other species present in shrub, lower shrub and ground layers may include *Xanthorrhoea latifolia* subsp. *latifolia*, *Lepidosperma laterale*, *Caustis recurvata*, *Dampiera ferruginea*, *Acrotriche aggregata*, *Pomaderris ferruginea*, *Acacia falcata*, *Entolasia marginata*, *Gompholobium pinnatum*, *Mirbelia rubiifolia*, *Sprengelia sprengelioides*, *Hibbertia vestita*, *Comesperma esulifolium*, *Hovea clavata*, *Bertya sharpeana*, *Hibbertia cistoidea*, *Eriachne* spp., *Goodenia rotundifolia*, *Laxmannia gracilis* and *Schoenus melanostachys*. Occurs on ridges, crests, upper slopes and plateaus on rolling to steep mountains of foothills and uplands of Cretaceous-Tertiary acid to intermediate volcanics, and Mesozoic to Proterozoic igneous rocks. Geologies mapped as RKvp (Peninsula Range Volcanics), PKgb (Bayfield Granite) and PKgp (Pyri Pyri Granite). Early Cretaceous - Late Permian pyroclastic crystal tuff. Tgj (Jukes Granite) and Tb. Early Tertiary - Late Tertiary hypersolvus granite and olivine basalt. Not a Wetland. (BVG1M: 28e).

Vegetation communities in this regional ecosystem include:

8.12.10a: *Leptospermum neglectum* and/or *L. polygalifolium* and/or *Acacia aulacocarpa* and/or *A. julifera* subsp. *curvinervia* and/or *Lophostemon confertus* dwarf open shrubland to closed scrub (to low woodland) (0.8-3m tall). Associated species in the canopy or as emergents may include *Dodonaea viscosa*, *Corymbia trachyphloia*, *Melaleuca hemisticta*, *Eucalyptus exserta*, *Grevillea banksii* and *Banksia spinulosa* var. *spinulosa*. Other species present in canopy, shrub, or lower shrub layers may include *Pomaderris ferruginea*, *Acacia falcata*, *Dampiera ferruginea*, *Hibbertia vestita*, *Comesperma esulifolium*, *Hovea clavata*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Bertya sharpeana*, *Hibbertia cistoidea*, *Leucopogon cuspidatus*, *Pultenaea retusa*, *Pityrodia salviifolia* and *Styphelia piliflora*. The ground layer is dominated by species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Eriachne* spp., *Goodenia rotundifolia*, *Laxmannia gracilis*, *Schoenus melanostachys*, *Lomandra confertifolia* subsp. *pallida* and *Aristida warburgii*. Occurs on ridges, crests, upper slopes and plateaus on rolling to steep mountains of foothills and uplands of Cretaceous-Tertiary acid to intermediate volcanics, and Mesozoic to Proterozoic igneous rocks. Geologies mapped as RKvp (Peninsula Range Volcanics), PKgb (Bayfield Granite) and PKgp (Pyri Pyri Granite). Early Cretaceous - Late Permian pyroclastic crystal tuff. Tgj (Jukes Granite) and Tb. Early Tertiary - Late Tertiary hypersolvus granite and olivine basalt. Not a Wetland. (BVG1M: 28e).

8.12.10b: *Allocasuarina littoralis* and/or *Banksia integrifolia* subsp. *compar* and/or *Leptospermum polygalifolium* dwarf closed shrubland (to closed heath) to tall open shrubland (0.3-3.5m tall). Associated species in the upper and shrub layers often include *Banksia robur*, *Banksia spinulosa* var. *spinulosa*, *Acacia aulacocarpa*, *Eucalyptus exserta*, *Grevillea banksii*, *Gahnia sieberiana*, *Corymbia intermedia* and *Xanthorrhoea latifolia* subsp. *latifolia*. The ground layer is sometimes the dominant layer, and is dominated by heath species. These often include *Xanthorrhoea latifolia* subsp. *latifolia*, *Lepidosperma laterale*, *Caustis recurvata*, *Dampiera ferruginea*, *Acrotriche aggregata*, *Entolasia marginata*, *Gompholobium pinnatum*, *Mirbelia rubiifolia*, *Sprengelia sprengelioides*, *Persoonia virgata*, *Hibbertia vestita*, *Pseudanthus orientalis*, *Styphelia flexifolia*, *Lomandra confertifolia*, *Monotoca scoparia* and *Pimelea linifolia*. Slopes, ridges and crests on rolling to steep mountains of foothills and uplands, on Mesozoic to Proterozoic igneous rocks. Geologies are mapped as RKvp (Peninsula Range Volcanics) and PKgb (Bayfield Granite). Early Cretaceous - Late Permian pyroclastic crystal tuff, rhyolite flows, agglomerate, leucocratic biotite granite and biotite-hornblende adamellite. Probably occurs on seepage areas or areas with impeded drainage. Not a Wetland. (BVG1M: 29b).

<b>Short description:</b>	<i>Leptospermum</i> spp. and/or <i>Acacia</i> spp. and/or <i>Lophostemon confertus</i> and/or <i>Allocasuarina littoralis</i> and/or <i>Banksia integrifolia</i> shrubland on plateaus of Cretaceous-Tertiary acid to intermediate volcanics and Mesozoic to Proterozoic igneous rocks
<b>Supplementary descriptions:</b>	Bean (1992a), Vegetation type K; Bean (1992b), Vegetation type Sh; Brushe et al. (in prep), Map units c91, c92
<b>Subregions:</b>	4, 3, (11.2), (5), (11.14)
<b>Protected areas:</b>	Homevale NP, Pioneer Peaks NP
<b>Extent in reserves:</b>	Medium
<b>Wetland:</b>	Not a Wetland

<b>Special values:</b>	<p>8.12.10: Potential habitat for NCA listed species: <i>Bertya sharpeana</i>, <i>Sannantha papillosa</i>.</p> <p>8.12.10a: Habitat for endangered plant species <i>Sannantha papillosa</i> and <i>Kunzea sericothrix</i>, near threatened plant species <i>Bertya sharpeana</i>, <i>Melaleuca pearsonii</i> and <i>Cerbera dumicola</i>. It is also the only known habitat for <i>Zieria cephalophila</i>. Also habitat for species which are poorly known in the Central Queensland Coast bioregion including <i>Acacia penninervis</i> var. <i>penninervis</i>, <i>Melaleuca hemisticta</i>, <i>Styphelia piliflora</i>, <i>Banksia spinulosa</i> var. <i>spinulosa</i>, <i>Acacia falcata</i>, <i>Brachychiton bidwillii</i>, <i>Hovea longipes</i>, <i>Hibbertia cistoidea</i>, <i>Melichrus adpressus</i>, <i>Monotoca scoparia</i>, <i>Pultenaea retusa</i>, <i>Patersonia glabrata</i>, <i>Schoenus melanostachys</i>, <i>Stylidium eglandulosum</i>, <i>Pomax umbellata</i>, <i>Digitaria breviglumis</i>, <i>Comesperma sphaerocarpum</i>, <i>Tetraria capillaris</i>, <i>Cyperus microcephalus</i> subsp. <i>microcephalus</i>, <i>Pultenaea spinosa</i>, <i>Digitaria diminuta</i> and <i>Laxmannia gracilis</i>. Also habitat for species at the northern edge of their range such as <i>Pomaderris ferruginea</i>, <i>Comesperma esulifolium</i>, <i>Hibbertia vestita</i>, <i>Hovea clavata</i>, <i>Mirbelia rubiifolia</i>, <i>Persoonia virgata</i>, <i>Sprengelia sprengelioides</i>, <i>Goodenia rotundifolia</i>, <i>Lepidosperma longitudinale</i>, <i>Lindsaea linearis</i> and <i>Acacia neobrachycarpa</i>.</p> <p>8.12.10b: Habitat for plant species which are poorly known in the Central Queensland Coast bioregion, including <i>Goodenia</i> sp. (Mt Castletower M.D.Crisp 2753), <i>Melaleuca hemisticta</i>, <i>Leucopogon flexifolius</i>, <i>Monotoca scoparia</i>, <i>Hibbertia velutina</i>, <i>Patersonia glabrata</i>, <i>Pultenaea retusa</i>, <i>Schizaea bifida</i>, <i>Tetraria capillaris</i>, as well as species at the northern limit of their range, including <i>Hibbertia vestita</i>, <i>Mirbelia rubiifolia</i>, <i>Persoonia virgata</i>, <i>Pseudanthus orientalis</i>, <i>Sprengelia sprengelioides</i>, <i>Comesperma esulifolium</i>, <i>Patersonia sericea</i>, <i>Phebalium woombye</i>, <i>Pomaderris ferruginea</i>, <i>Schoenus paludosus</i>, <i>Acianthus amplexicaulis</i> and <i>Philothea difformis</i> subsp. <i>smithiana</i>.</p>
<b>Comments:</b>	<p>8.12.10a: Similar in landscape position to 8.12.10b, though 8.12.10a occurs on a harder, rockier substrate with little soil, whilst 8.12.10b has a better soil development and has more heath species which are probably present due to impeded drainage or seepage conditions. Distinguished from all other regional ecosystems by the low structure and occurrence on exposed mountain tops and hilltops, inland from islands and headlands. Occurs in subregions 2 and 3 at Mt Jukes north-east of Kuttatubul, on peaks in Britton Range south of Crediton and east of Home Creek, Connors Range south-west of Carmila. Also occurs extensively on ranges in Subregion 4 within the Military Training area. Condition is good, though the vegetation is naturally exposed to extremes in temperature, strong winds and severe fires, which can dramatically change structure and sometimes species composition.</p> <p>8.12.10b: Similar in landscape position to 8.12.10a, though 8.12.10a occurs on a harder, rockier substrate with little soil, whilst 8.12.10b has a better soil development and has more heath species which are probably present due to impeded drainage or seepage conditions. Distinguished from all other regional ecosystems by the low structure and occurrence on exposed mountain tops and hilltops, inland from islands and headlands. Restricted to subregion 4 in the Shoalwater Bay Military Training Area. Present in the Peninsula Range to the west of Island Head Creek and Coast Range north-west of Corio Bay. Condition is good, though the vegetation is naturally exposed to extremes in temperature, strong winds and severe fires, which can dramatically change structure and sometimes species composition.</p>
<b>Estimated extent:<sup>1</sup></b>	Pre-clearing 2000 ha; Remnant 2021 2000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.12.11

**Description:** Semi-evergreen microphyll vine thicket. Emergents include *Araucaria cunninghamii* and *Falcata toona*. The canopy is often dominated by species such as *Cleistanthus dallachyanus*, *Mimusops elengi*, *Terminalia porphyrocarpa* and *Sersalisia sericea*. Other canopy species include *Drypetes deplanchei*, *Alectryon connatus*, *Acacia spirorbis* subsp. *solandri*, *Diospyros hebecarpa*, *Cupaniopsis anacardioides* and *Ganophyllum falcatum*. There is sometimes a lower tree layer, with species including *Cleistanthus dallachyanus*, *Aidia racemosa*, *Larsenaikia jardinei*, *Mallotus philippensis*, *Diospyros hebecarpa* and *Elaeodendron melanocarpum*. Typical vines are *Austrosteenisia blackii*, *Eustrephus latifolius* and *Cissus oblonga*. There is often a very sparse shrub layer, including *Eugenia reinwardtiana*, *Alyxia ruscifolia*, *Fitzalania heteropetala*, *Xylosma ovata* and *Medicosma obovata*. The ground layer is usually very sparse, with species such as *Drynaria sparsisora*, *Pseuderanthemum variabile*, *Clematicissus opaca* and *Adiantum aethiopicum*. This ecosystem includes simple stands of *Araucaria cunninghamii* with minimal lower tree or shrub layers. Also includes very small areas of *Pisonia grandis* shrubland to open forest on some islands. Occurs on slopes, ridges, crests and gullies on undulating hills to steep mountains of lowlands and foothills of islands and headlands. Geologies mapped as Kw and Kc (Whitsunday Volcanics), PII (Airlie Volcanics), Kp (Proserpine Volcanics) and Kg. Early Cretaceous - Early Permian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Carbonaceous arkosic conglomerate. Not a Wetland. (BVG1M: 5b).

Vegetation communities in this regional ecosystem include:

8.12.11a: Semi-evergreen microphyll vine thicket. Emergents include *Araucaria cunninghamii*, *Falcata toona*, *Terminalia porphyrocarpa* and *Argyrodendron polyandrum*. The canopy is often dominated by *Cleistanthus dallachyanus*, *Mimusops elengi*, *Terminalia porphyrocarpa* and *Euroschinus falcatus*. Other canopy species include *Acacia spirorbis* subsp. *solandri*, *Diospyros hebecarpa*, *Cupaniopsis simulata*, *Ganophyllum falcatum*, *Argyrodendron polyandrum* and *Macropteranthes fitzalanii*. There is sometimes a lower tree layer, with species including *Cleistanthus dallachyanus*, *Aidia racemosa*, *Drypetes deplanchei*, *Larsenaikia jardinei*, *Mallotus philippensis*, *Diospyros hebecarpa*, *Elaeodendron melanocarpum* and *Sersalisia sericea*. The most common vines are *Austrosteenisia blackii*, *Cissus oblonga*, *Pandorea pandorana* and *Trophis scandens*. There is often a very sparse shrub layer, including *Eugenia reinwardtiana*, *Alyxia ruscifolia*, *Fitzalania heteropetala*, *Cleistanthus dallachyanus*, *Medicosma obovata* and *Memecylon pauciflorum*. The ground layer is usually very sparse, with species such as *Drynaria sparsisora*, *Pseuderanthemum variabile*, *Clematicissus opaca* and *Aneilema acuminatum*. This ecosystem includes simple stands of *Araucaria cunninghamii* with minimal lower tree or shrub layers. Also includes very small areas of *Pisonia grandis* shrubland to open forest on some islands. Occurs on slopes, ridges, crests and gullies on undulating hills to steep mountains of lowlands and foothills of islands and headlands. Geologies mapped as Kw and Kc (Whitsunday Volcanics), PII (Airlie Volcanics), Kp (Proserpine Volcanics) and Kg. Early Cretaceous - Early Permian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Carbonaceous arkosic conglomerate. Not a Wetland. (BVG1M: 5b).

8.12.11c: Semi-evergreen microphyll vine thicket. Emergents such as *Araucaria cunninghamii*, *Falcata toona*, *Euroschinus falcatus* and *Ficus* spp. are sometimes present. Canopy dominants typically include *Sersalisia sericea*, *Alectryon connatus* and *Drypetes deplanchei*. Other canopy species and lower tree layers may include *Polyalthia nitidissima*, *Acronychia laevis*, *Cupaniopsis anacardioides*, *Diospyros geminata*, *Exocarpos latifolius*, *Psydrax odorata*, *Acacia disparrima* subsp. *disparrima*, *Gossia bidwillii* and *Sterculia quadrifida*. A very sparse to sparse shrub layer may be present, with species such as *Xylosma ovata*, *Alyxia ruscifolia*, *Micromelum minutum* and *Psychotria polioctemma*. Vines are common and include *Eustrephus latifolius*, *Hoya australis* subsp. *australis*, *Smilax australis*, *Trophis scandens* subsp. *scandens* and *Clematicissus opaca*. The ground layer is typically very sparse to sparse (sometimes dense in patches) with species including *Gahnia aspera*, *Adiantum aethiopicum*, *Dianella caerulea*, *Pseuderanthemum variabile*, *Microsorium punctatum*, *Drynaria sparsisora* and *Hypoestes floribunda*. Occasional epiphytes include *Dendrobium discolor* and *Dockrillia bowmanii*. This ecosystem includes simple stands of *A. cunninghamii* with minimal lower tree or shrub layers. Occurs on slopes, ridges, crests and gullies on undulating low hills to steep low hills of lowlands and foothills of islands and headlands. Geologies mapped as RKvp (Peninsula Range Volcanics), Kw (Whitsunday Volcanics), Pg/b, SDh (Mount Holly beds) and Ki. Early Cretaceous - Late Silurian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Includes pyroclastic crystal tuff. Not a Wetland. (BVG1M: 5b).

**Short description:** Semi-evergreen microphyll vine thicket +/- *Araucaria cunninghamii* on islands and coastal headlands on Mesozoic to Proterozoic igneous rocks and Tertiary volcanics

**Supplementary descriptions:** Bailey et al. (2000), R-1-8512, R-1-94, 8HVS-12; Batianoff (1995a) Vegetation Units 1 and 2; Batianoff (1996); 4b; Batianoff, Dillewaard and Franks (1997), Vegetation Units 28, 32, 33; Bean 1991, Vegetation type 2; Brushe et al. (in prep), Map units c93\_12, c85\_12, c93, c94\_12; Kemp (2009), Cp, H, Vsh, Vs, Vsg, Vsn; McDonald (1995), Group 5 (in part); Queensland Herbarium (2008) Hvs\_12, Mvf\_12; Warrien and Lavarack (in prep.), Vegetation type 4a (in part).

**Subregions:** 1, 2, 4, (6), (5), (11.14), (11.2)

<b>Protected areas:</b>	Conway NP, Whitsunday Islands NP, Dryander NP, Molle Islands NP, Northumberland Islands NP, South Cumberland Islands NP, Gloucester Island NP, Broad Sound Islands NP, Percy Isles NP, Smith Islands NP, Cape Hillsborough NP, Conway CP, Brampton Islands NP, Middle Percy Island CP, Lindeman Islands NP, Capricorn Coast NP, Keppel Bay Islands NP, Keppel Bay Islands NP (S), Repulse Islands NP, Holbourne Island NP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	<p>8.12.11: Potential habitat for NCA listed species: <i>Berrya rotundifolia</i>, <i>Bertya pedicellata</i>, <i>Brachychiton compactus</i>, <i>Medicosma obovata</i>, <i>Neisosperma kilneri</i>, <i>Samadera bidwillii</i>, <i>Solanum sporadotrichum</i>.</p> <p>8.12.11a: Habitat for vulnerable plant species <i>Capparis batianoffii</i>, <i>Medicosma obovata</i>, <i>Omphalea celata</i> and <i>Neisosperma kilneri</i>, and near threatened species <i>Brachychiton compactus</i>. Habitat for species with a restricted range including <i>Homalium</i> sp. (South Molle Island J.A.Gresty AQ208995), <i>Gossia pubiflora</i>, <i>Larsenaikia jardinei</i> and <i>Dissiliaria indistincta</i>, and species poorly known from the Central Queensland Coast bioregion such as <i>Tetrastigma thorsborneorum</i>, <i>Acalypha eremorum</i>, <i>Cassia brewsteri</i> and <i>Cupaniopsis simulata</i>. Important habitat for the fauna species <i>Petrogale persephone</i> (Proserpine rock-wallaby) which is listed as "Endangered" in the Queensland Nature Conservation Act 1992.</p> <p>8.12.11c: Habitat for vulnerable plant species <i>Comesperma oblongatum</i> and the near threatened plant species <i>Xylosma ovata</i>. Also potential habitat for vulnerable plant species <i>Berrya rotundifolia</i> which has been recorded on Middle Percy Island. Northern range limit of <i>Brachychiton bidwillii</i>. Habitat for species poorly known in the Central Queensland Coast bioregion such as <i>Cordyline petiolaris</i>.</p>
<b>Comments:</b>	<p>8.12.11a: Distinguished from 8.12.11c by the occurrence in Subregion 2 only (8.12.11c is in Subregion 4 only). Grades into 8.12.18 from which it can be distinguished by being dominated by species such as <i>Cleistanthus dallachyanus</i>, <i>Mimusops elengi</i> and <i>Terminalia porphyrocarpa</i>, as opposed to <i>Argyrodendron</i> spp., and <i>Dissiliaria indistincta</i>. The RE 8.12.18 is a better developed rainforest, in slightly more sheltered conditions, whilst 8.12.11a tends to occur on harsher, often more exposed sites. Distinguished from other land zone 12 rainforest regional ecosystems by the combination of occurring on islands (or headlands) and the microphyll dominated leaf composition of the canopy. Occurs in subregions 1, 2 and 3. It is present in coastal areas from Dingo Beach to Cape Conway, and at Cape Hillsborough. Also found on many islands from Holbourne Island, north of Bowen to Red Clay Island, west of Carmila. Generally in good condition. Threatened by fires in hot conditions, and more open examples are sometimes invaded by <i>*Lantana camara</i>. Vulnerable to cyclone damage. On many islands, goats have caused considerable damage to shrub and ground layers, probably affecting seedling establishment. In some areas, goat grazing has left the ground so bare that soil erosion has occurred.</p> <p>8.12.11c: This vegetation community is distinguished from 8.12.11a by the more common presence of <i>Alectryon connatus</i>, <i>Polyalthia nitidissima</i> and <i>Xylosma ovata</i>, and the usual absence of <i>Cleistanthus dallachyanus</i>, <i>Croton arnhemicus</i> and <i>Eugenia reinwardtiana</i>. Also 8.12.11c occurs in subregion 4 only, whilst 8.12.11a occurs in subregions 1-3. Distinguished from 8.12.18 by being dominated by species such as <i>Sersalisia sericea</i>, <i>Alectryon connatus</i> and <i>Drypetes deplanchei</i>, as opposed to <i>Argyrodendron</i> spp., and <i>Dissiliaria indistincta</i>. The RE 8.12.18 is a better developed rainforest, in slightly more sheltered conditions, whilst 8.12.11a tends to occur on harsher, often more exposed sites. Distinguished from other land zone 12 rainforest regional ecosystems by the combination of occurring on islands (or headlands) and the microphyll dominated leaf composition of the canopy. Present in mainland coastal areas of subregion 5, from the mouth of Island Head Creek to Cape Manifold. Also occurs on a number of islands, including the Percy Island Group, Duke Islands, and a number of others around Shoalwater Bay. Generally in good condition. Threatened by fires in hot conditions, and more open examples are sometimes invaded by <i>*Lantana camara</i> and <i>*Passiflora suberosa</i>, <i>*P. pallida</i>. Vulnerable to cyclone damage.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 16000 ha; Remnant 2021 16000 ha
<b>VM class:</b>	Least concern
<b>Biodiversity status:</b>	No concern at present
<b>Biodiversity status notes:</b>	Under review

## Regional ecosystem 8.12.12

**Description:** *Eucalyptus tereticornis* and/or *E. platyphylla* and/or *Lophostemon suaveolens* and/or *Corymbia* spp. open forest to woodland (occasionally closed forest) (3-20m tall) with several other canopy co-dominants or subdominants often present, which may include *E. drepanophylla*, *E. tereticornis*, *C. tessellaris* and *E. portuensis*. Other occasional canopy species may include *C. clarksoniana*, *C. erythrophloia* and *Lophostemon confertus*. There is sometimes a secondary tree layer present (ranging from very sparse to dense) which may be dominated by species such as *Lophostemon confertus*, *Acacia spirorbis* subsp. *solandri*, *Acacia disparrima* subsp. *disparrima*, *Eucalyptus* spp. and *Corymbia* spp., or sometimes a suite of pioneering rainforest species. A shrub layer (1-4m tall) is frequently present and may include *Acacia* spp., *Cycas media* subsp. *media* and *Xanthorrhoea latifolia*. The ground layer may be dominated by species such as *Themeda triandra*, *Imperata cylindrica*, *Mnesithea rottboellioides* and *Sorghum nitidum* forma *aristatum*. Occurs on slopes, ridges and crests on gently undulating rises, undulating low hills and rolling rises and mountains of foothills and uplands, on Mesozoic to Proterozoic igneous rocks. Geologies mapped include Pc/s (Carmila beds/s), Cgmi (Mia Mia Igneous Complex), CKr (Urannah Igneous Complex), Cvm (Mountain View Volcanics) and Pc/v (Carmila beds/v). Early Permian - Late Carboniferous undivided acid, intermediate and minor basic plutonic rocks. Siltstone. Not a Wetland. (BVG1M: 9c).

Vegetation communities in this regional ecosystem include:

8.12.12a: *Corymbia intermedia* and/or *Eucalyptus platyphylla* open forest to woodland (occasionally closed forest) (12-25m tall) with several other canopy co-dominants or subdominants always present, which may include *E. drepanophylla*, *E. tereticornis*, *C. tessellaris* and *E. portuensis*. Other occasional canopy species may include *C. clarksoniana*, *C. erythrophloia* and *Lophostemon* spp. There is sometimes a secondary tree layer present (ranging from very sparse to dense) which may be dominated by species such as *Lophostemon confertus*, *Acacia spirorbis* subsp. *solandri*, *Eucalyptus* spp. and *Corymbia* spp., or sometimes a suite of pioneering rainforest species. A shrub layer (1-4m tall) is frequently present forming a sparse (to very sparse) cover, with typical species including *Cycas media* subsp. *media*, *Xanthorrhoea latifolia* and *Glochidion lobocarpum*. The ground layer is grassy and usually dominated by species such as *Themeda triandra*, *Imperata cylindrica*, *Mnesithea rottboellioides* and *Sorghum nitidum* forma *aristatum*. Occurs on slopes and crests of undulating low hills formed on Mesozoic to Proterozoic igneous rocks (subregions 2 and 3). Geologies are mainly Pc/s (Carmila beds/s), Cgmi (Mia Mia Igneous Complex), CKr (Urannah Igneous Complex), Cvm (Mountain View Volcanics) and Pc/v (Carmila beds/v). Early Permian - Late Carboniferous undivided acid, intermediate and minor basic plutonic rocks. Not a Wetland. (BVG1M: 9d).

8.12.12b: *Eucalyptus tereticornis* and/or *E. platyphylla* and/or *Lophostemon suaveolens* woodland to open forest (to low woodland to low open forest) (3-27m tall). The most frequent species which occur as codominant or associated canopy trees include *Corymbia intermedia*, *E. crebra* and *E. portuensis*. Less frequent associated canopy species are *C. clarksoniana*, *C. tessellaris*, *E. exserta*, *C. trachyphloia*, *C. erythrophloia* and *L. confertus*. There is often a very sparse to mid-dense secondary tree layer dominated by species such as *Allocasuarina torulosa*, *Lophostemon* spp., *Acacia disparrima* subsp. *disparrima* and juvenile canopy species. A very sparse to sparse shrub layer is often present, and typical dominant species may include *Acacia disparrima* subsp. *disparrima*, *Lophostemon confertus*, *Alphitonia excelsa*, *Allocasuarina torulosa*, *Planchonia careya* and *Melaleuca viridiflora* var. *viridiflora*. The ground layer is very sparse to mid-dense and often dominated by species such as *Sorghum nitidum* forma *aristatum*, *Xanthorrhoea latifolia* subsp. *latifolia* (this may sometimes be part of the shrub layer), *Themeda triandra* and *Heteropogon* spp. Occurs on slopes, ridges and crests on undulating low hills to steep hills of lowlands and foothills on Mesozoic to Proterozoic igneous rocks. Geologies mapped include PKgb (Bayfield Granite), RKvp (Peninsula Range Volcanics), PKg, Ccs (Shoalwater Formation) and PKdm (Double Mountain Volcanics). Early Cretaceous - Late Carboniferous leucocratic biotite granite, biotite-hornblende adamellite and pyroclastic crystal tuff. Not a Wetland. (BVG1M: 9c).

8.12.12d: *Corymbia clarksoniana* woodland to open forest (8-30m tall). Common associated to codominant species may include *C. tessellaris*, *Eucalyptus platyphylla*, *C. dallachiana*, *E. drepanophylla*, *E. tereticornis* and *Allocasuarina littoralis*. (The canopy often consists of a mixture of several *Corymbia* and/or *Eucalyptus* species). *Corymbia intermedia* may occasionally be present. *Eucalyptus tereticornis* is an occasional emergent. A secondary tree layer is sometimes present, usually consisting of *Corymbia* spp. and *Eucalyptus* spp. as well as species such as *Acacia flavescens*, *Planchonia careya*, *Timonius timon* var. *timon*, *Allocasuarina littoralis* and *Acacia spirorbis* subsp. *solandri*. Occasionally a rainforest species pioneering layer is present. A very sparse (to isolated plants) to mid-dense shrub layer (1-3.3m tall) is commonly present, with species including *Acacia flavescens*, *Glochidion lobocarpum*, *Planchonia careya*, *Tabernaemontana orientalis* and *Ficus opposita*. The ground layer is grassy, and is commonly dominated by species such as *Imperata cylindrica*, *Themeda triandra*, *Chionachne cyathopoda* and *Sorghum nitidum* forma *aristatum*. Occurs on slopes, ridges and crests on gently undulating rises, undulating low hills, rolling rises and foothills of mountains, on Mesozoic to Proterozoic igneous rocks. Geologies are mainly PKg, PII (Airlie Volcanics), Cle (Edgecumbe Beds), Kw (Whitsunday Volcanics) and Kp (Proserpine Volcanics). Early Cretaceous - Early Carboniferous acid to intermediate pyroclastics and flows. Includes Leucogranite, microgranite and volcanoclastic rocks. Not a Wetland. (BVG1M: 9c).



<b>Short description:</b>	Eucalyptus tereticornis and/or Corymbia spp. and/or E. platyphylla and/or Lophostemon suaveolens woodland to open forest on hill slopes on Mesozoic to Proterozoic igneous rocks
<b>Supplementary descriptions:</b>	Bailey et al. (2003) ECa-12, 8H-12, ET-12; Batianoff, Dillewaard and Franks (1997), Vegetation unit 27; Bean (1992b), Vegetation type Og; Bean (1992d), Vegetation type F and L; Brushe et al. (in prep), Map units c62-12, 62-12, c70-12d, c55-12d; Pollock (1996), Vegetation type: Ept and Ets; Queensland Herbarium (2008) Ehcew_12, Eof_12; Warrien and Lavarack (in prep), Vegetation unit 5d (in part), 5e(in part), 5g, 6i (in part)
<b>Subregions:</b>	3, 2, 4, (6), (1), (11.14), (5)
<b>Protected areas:</b>	Eungella NP, Dryander NP, Mount Martin NP, Gloucester Island NP, Percy Isles NP, Bluff Hill NP, Kelvin FR, Pioneer Peaks NP, Cape Palmerston NP, Crediton FR, Mount Ossa NP, South Cumberland Islands NP, Kelvin NP, Andromache CP, Cape Hillsborough NP, Middle Percy Island CP, Broad Sound Islands NP, Conway NP, Lindeman Islands NP, Mount Blarney CP, Capricorn Coast NP, Repulse Islands NP, Connors FR, Byfield NP, Whitsunday Islands NP
<b>Extent in reserves:</b>	Medium
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	<p>8.12.12: Habitat for the Northern Quoll (Pollock, 1995) which is listed as "Endangered" under the Environment Protection and Biodiversity Conservation Act 1999. Also Koala habitat.</p> <p>8.12.12a: Potential habitat for the endangered plant species Callicarpa thozetii.. Higher altitude examples of this ecosystem are potential habitat for the vulnerable plant species Ozothamnus eriocephalus.</p> <p>8.12.12b: Habitat for Bowenia serrulata which is restricted to the Shoalwater area. Also for Hardenbergia violacea which is rare in northern parts of CQC (more typical of southern cooler climates). Also habitat for Ottochloa gracillima, Swainsona galegifolia and Scleria terrestris which are poorly known in the Central Queensland Coast bioregion, and Schoenus maschalinus, Macrozamia miquelii and Cryptostylis erecta which are at the northern limit of their range.</p> <p>8.12.12d: Stunted, sparse coastal headland examples of this vegetation community are habitat for threatened plant species Solanum graniticum (endangered) and Solanum sporadotrichum (near threatened).</p>

**Comments:**

8.12.12a: Distinguished from most other land zone 12 regional ecosystems by being dominated by a mixture of at least three or four eucalypts, usually including *Corymbia intermedia*. The most similar RE is 8.12.12d which is more coastal, where *C. intermedia* is replaced by *C. clarksoniana*. Also very similar is 8.12.12b which is most easily distinguished by occurring in subregion 4 only (8.12.12a does not occur in subregion 4). Also similar is 8.12.22 which occurs in more southern parts of subregion 2 and 3 in slightly drier areas, and tends to include a different suite of species including *Eucalyptus drepanophylla*, *C. trachyphloia*, *C. clarksoniana*, *E. exserta* and *C. dallachiana*. The regional ecosystems 8.12.9 and 8.12.25 are always dominated by *E. tereticornis*, and the regional ecosystems 8.12.5 (a, b, c) are always dominated by *E. portuensis*. Extensive in mountainous areas from Mount McGuire (north of Proserpine Dam) in the north, to Carmila Creek (5km west of Carmila) in the south. Some areas are heavily weed invaded (particularly in areas with a history of cattle and horse grazing such as Crediton State Forest) and have been selectively harvested for timber. Other areas remain in good condition. The worst weed species are *\*Themeda quadrivalvis*, *\*Sporobolus* spp., *\*Stylosanthes* spp., *\*Lantana camara*, *\*Stachytarpheta jamaicensis*, *\*Urena lobata*, *\*Mimosa pudica* and *\*Chamaecrista rotundifolia*. Sometimes encroached upon by rainforest pioneer species understorey in absence of fire.

8.12.12b: Distinguished from most other land zone 12 regional ecosystems by being the only RE in subregion 4 on land zone 12 which occurs away from wind-sheared coastal headlands, and which is dominated or codominated by *E. tereticornis*, *E. platyphylla* or *Lophostemon suaveolens*. The most similar regional ecosystems are 8.12.12a and 8.12.12d which mainly occur in subregions 1 and 2 (8.12.12b occurs only in subregion 4). (8.12.12d occurs in northern parts of subregion 4 but is on islands). Restricted to subregion 4. Occurs in the Polygon Range, Colcarra Range and Peninsula Range of the Shoalwater Bay Military Training Area. Also mapped to the west of Corio Bay. Good to moderate condition overall, though it is vulnerable to weed invasion on the better soils. Common weed species include *\*Lantana camara*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Triumfetta rhomboidea*, *\*Megathyrsus maximus*, *\*Melinis minutiflora*, *\*Opuntia stricta*, *\*Passiflora foetida* and *\*Ipomoea cairica*. Sometimes encroached upon by rainforest pioneer species understorey in absence of fire.

8.12.12d: Distinguished from most other land zone 12 regional ecosystems by a dominance of *Corymbia clarksoniana* and/or mixture of at least three or four eucalypts, usually including *Corymbia clarksoniana*. The most similar RE is 8.12.12a which occurs more inland (slopes of the main mountain range of the great divide), where *C. clarksoniana* is frequently replaced by *C. intermedia*. Also very similar are 8.12.12b which are most easily distinguished by occurring in inland parts of subregion 4 only (8.12.12d does not occur in subregion 4 except on some northern islands). The regional ecosystems 8.12.6a and 8.12.6b occupy a similar habitat niche and are closely related but are always dominated by *Eucalyptus drepanophylla* (or *E. drepanophylla* and *E. platyphylla*). Also similar is 8.12.22 which tends to include a different suite of species including *E. drepanophylla*, *C. trachyphloia*, *C. clarksoniana*, *E. exserta* and *C. dallachiana*. The regional ecosystems 8.12.9 and 8.12.25 are always dominated by *E. tereticornis*, and the regional ecosystems 8.12.5 (a, b, c) are always dominated by *E. portuensis*. Coastal hilly areas, from Cape Gloucester to Mount Julian near Proserpine in the north, and Mt Hayden, 12km north-east of Sarina in the south. Also found on many islands including Gloucester, Hayman, St Bees and Keswick Islands. Condition is poor in areas that have been heavily grazed (which usually suffer from ground layer weed invasion or alteration of species composition) and/or harvested for timber. Some parts have been heavily invaded by *Lantana*. Other examples (usually furthest from human influence) are in relatively good condition. The most common weeds include *\*Lantana camara*, *\*Stachytarpheta jamaicensis*, *\*Triumfetta rhomboidea*, *\*Ageratum conyzoides* subsp. *conyzoides*, *\*Passiflora suberosa*, *\*P. pallida* and *\*Passiflora foetida*. Sometimes encroached upon by rainforest pioneer species understorey in absence of fire. Fringe areas may be damaged by cane fires.

**Estimated extent:**<sup>1</sup> Pre-clearing 124000 ha; Remnant 2021 89000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:**

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## Regional ecosystem 8.12.13

**Description:** Themeda triandra and/or Imperata cylindrica and/or Chionachne cyathopoda tussock grassland to closed tussock grassland (0.3-0.7m tall), or Xanthorrhoea latifolia subsp. latifolia dwarf open shrubland to open heath (0.3 - 2m tall). Includes minor areas of recent incursion by Timonius timon var. timon and/or Macaranga involucreta var. mallotoides shrubland to closed scrub (to low closed forest to low open forest) (1.5-5m tall). Themeda triandra is the most common dominant species in this ecosystem and often forms the majority of the ground cover. Other associated species may include Heteropogon triticeus, H. contortus, Lomandra longifolia, Flemingia parviflora and Sorghum nitidum forma aristatum. Includes minor areas (especially in subregions 4 and 5) of open heath to closed heath (forming a very low wind-swept canopy of 0.2 to 0.4m). May include occasional emergents or clumps of Banksia integrifolia subsp. compar, Pandanus spp. and rainforest spp. Occurs on slopes, crests and ridges of headlands and islands (especially east and south-east facing slopes and peninsulas), on undulating low hills to rolling hills of lowlands and foothills, on Mesozoic to Proterozoic igneous rocks, and Tertiary acid to intermediate volcanics. Geologies mapped include Kw (Whitsunday Volcanics), RKvp (Peninsula Range Volcanics), DCvc (Campwyn Volcanics), SDh (Mount Holly beds) and PII (Airlie Volcanics). Early Cretaceous - Late Silurian waterlaid acid to intermediate air-fall pyroclastics and minor pyroclastic flows. Not a Wetland. (BVG1M: 32b).

Vegetation communities in this regional ecosystem include:

8.12.13a: Themeda triandra and/or Imperata cylindrica and/or Chionachne cyathopoda tussock grassland to closed tussock grassland (0.3-0.7m tall), or Xanthorrhoea latifolia subsp. latifolia dwarf open shrubland to open heath (0.3 - 2m tall). Occasional emergents may include Banksia integrifolia subsp. compar, Pandanus spp. and rainforest spp. Themeda triandra is the most common dominant species in this ecosystem and often forms the majority of the ground cover. Other associated species may include Heteropogon triticeus, H. contortus, Lomandra longifolia, Flemingia parviflora, Chrysopogon fallax, Alloteropsis semialata, Panicum effusum, Glycine tomentella, Crotalaria montana, Dianella spp. and Sorghum nitidum forma aristatum. Includes minor areas (especially in subregions 4 and 5) of open heath to closed heath (forming a very low wind-swept canopy of 0.2 to 0.4m) with dominant species often including Xanthorrhoea latifolia subsp. latifolia, Grevillea banksii, Allocasuarina littoralis, Dodonaea lanceolata, Leptosema oxylobioides, Lithomyrtus obtusa, Pomaderris canescens, Pseudanthus orientalis and Chorizema parviflorum. Occurs on slopes, crests and ridges of headlands and islands (especially east and south-east facing slopes and peninsulas), on undulating low hills to rolling hills of lowlands and foothills, on Mesozoic to Proterozoic igneous rocks, and Tertiary acid to intermediate volcanics. Geologies mapped include Kw (Whitsunday Volcanics), RKvp (Peninsula Range Volcanics), DCvc (Campwyn Volcanics), SDh (Mount Holly beds) and PII (Airlie Volcanics). Early Cretaceous - Late Silurian waterlaid acid to intermediate air-fall pyroclastics and minor pyroclastic flows. Not a Wetland. (BVG1M: 32b).

8.12.13b: Timonius timon var. timon and/or Macaranga involucreta var. mallotoides shrubland to closed scrub (to low closed forest to low open forest) (1.5-5m tall). Pittosporum ferrugineum is sometimes a codominant or prominent canopy species. Other occasional canopy species may include Acacia spirorbis subsp. solandri, Bursaria tenuifolia, Neolitsea brassii, Glochidion lobocarpum and Macaranga tanarius. Other rainforest pioneering species may occasionally be present. A lower shrub layer is sometimes present, consisting of similar species to the upper layer. The ground layer is grassy, and dominated by species such as Chionachne cyathopoda, Imperata cylindrica and Sorghum nitidum forma aristatum. Occurs on slopes, ridges and crests (of headlands and islands) on rolling low hills, steep low hills and rolling hills of lowlands and foothills, on Mesozoic to Proterozoic igneous rocks, and Tertiary acid to intermediate volcanics. The main geology types are Kw (Whitsunday Volcanics), Kg and PII (Airlie Volcanics). Early Cretaceous - Early Permian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Includes leucocratic alkali granite, granophyre and quartz syenite. Not a Wetland. (BVG1M: 28e).

8.12.13x1: Bare rock with scattered shrubs and low trees. Occurs on slopes, ridges and crests (of headlands and islands) on Mesozoic to Proterozoic igneous rocks, and Tertiary acid to intermediate volcanics. The main geology types are Kw (Whitsunday Volcanics), Kg and PII (Airlie Volcanics). Early Cretaceous - Early Permian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Includes leucocratic alkali granite, granophyre and quartz syenite. Not a Wetland. (BVG1M: 29a).

**Short description:** Tussock grassland, or Xanthorrhoea latifolia shrubland, including areas recently colonised by Timonius timon var. timon shrubland, on slopes of islands and headlands, on Mesozoic to Proterozoic igneous rocks and Tertiary acid to intermediate volcanics

**Supplementary descriptions:** Bailey et al. (2003), 8HG-12, R-1-7412; Batianoff, Dillewaard and Franks (1997), Vegetation unit 21, 22 (in part); Brushe et al. (in prep), Map units 80, c74-12; Cumming (1997), Vegetation type 30; Kemp (2009) Ga, Gal, Sx, Gim, Gam, Gi, Gil, Gila, Fli, Fla, Ste, St; Queensland Herbarium (2008), Hgl\_12, Hcp\_12; Warrien and Lavarack (in prep), Vegetation unit 8a, 8b, 6d, 6h

**Subregions:** 2, 1, 5, 4, (6), (11.14)

<b>Protected areas:</b>	Northumberland Islands NP, South Cumberland Islands NP, Molle Islands NP, Whitsunday Islands NP, Percy Isles NP, Brampton Islands NP, Smith Islands NP, Gloucester Island NP, Lindeman Islands NP, Broad Sound Islands NP, Cape Palmerston NP, Repulse Islands NP, Dryander NP, Holbourne Island NP, Yuwi Paree Toolkoon NP, Keppel Bay Islands NP, Keppel Bay Islands NP (S), Capricorn Coast NP, West Hill NP, Cape Hillsborough NP, Middle Percy Island CP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	<p>8.12.13: Habitat for vulnerable plant flora species <i>Comesperma oblongatum</i>. There is no evidence that any of the grasslands had a tree cover in pre-clearing times. Important habitat for ground orchids.</p> <p>8.12.13a: Habitat for vulnerable plant species <i>Comesperma oblongatum</i>. Also habitat for several species which are poorly known from the Central Qld Coast area including, <i>Caladenia catenata</i>, <i>Chorizema parviflorum</i>, <i>Digitaria diffusa</i>, <i>Ophioglossum reticulatum</i> and <i>Zornia areolata</i>. Also habitat for a number of species at the northern limit of their range including <i>Hovea clavata</i>, <i>Phyllota phyllicoides</i>, <i>Pseudanthus orientalis</i> and <i>Zornia areolata</i>. This ecosystem most likely owes its existence to a combination of extreme windshear/salt-spray effects and a low surface rock content ensuring that it is not fire protected (Brennan 1986). It is therefore naturally restricted to exposed parts of islands and headlands. It is possible that burning by people in the Whitsundays may have maintained some of the grasslands for thousands of years. Some areas of grasslands on islands are being colonised by either <i>Timonius timon</i> var. <i>timon</i> shrubland, or vine thicket, however most grassland boundaries appear to be stable. There is no evidence that any of the grasslands had a tree cover in pre-clearing times.</p> <p>8.12.13b: Habitat for <i>Dichanthium setosum</i> which is listed as "Vulnerable" under the Environment Protection and Biodiversity Conservation Act 1999.</p>
<b>Comments:</b>	<p>8.12.13a: Structurally similar to 8.11.9, but often with substantial floristic differences, and occurring on land zone 12. Distinguished from all other regional ecosystems and vegetation communities on Land Zone 12 by the combination of occurrence on islands and headlands, and the structure (grassland, or shrubland of <i>Xanthorrhoea</i>, or a very low dwarf heathland &lt; 0.4m tall). (Heath examples are closely related to 8.12.29c, but are included in 8.12.13a when they are less than 0.4m tall at which point they are usually indistinguishable from 8.12.13a on aerial photography.). Occurs on many islands throughout the bioregion. Also found on the mainland at Grimston Point north of Airlie Beach, Blacks Beach at Mackay, Freshwater Point east of Sarina, Cape Palmerston and on the coast between Island Head Ck and Cape Manifold. Some of the island and headland grasslands remain in excellent condition, however, many have been heavily impacted by cattle, sheep, horses and especially goats. Heavy grazing appears to be directly linked to changes in species dominance, for example, many parts of 8.12.13a on St. Bees Island (grazed heavily by feral goats) are now dominated by the grasses <i>Aristida personata</i>, <i>A. spuria</i> and <i>A. queenslandica</i> var. <i>dissimilis</i>. Several weeds are a serious threat to this ecosystem, including <i>*Stachytarpheta jamaicensis</i>, <i>*Lantana camara</i>, <i>*Centrosema molle</i>, <i>*Bidens pilosa</i>, <i>*Megathyrsus maximus</i> and <i>*Melinis repens</i>. <i>*Themeda quadrivalvis</i> is known to occur on the Lindeman Island airstrip and is potentially a serious threat. Other currently less serious but often prominent weeds include <i>*Ageratum conyzoides</i> subsp. <i>conyzoides</i>, <i>*Opuntia stricta</i>, <i>*Passiflora foetida</i>, <i>*Tridax procumbens</i>, <i>*Triumfetta rhomboidea</i> and <i>*Dichanthium annulatum</i>.</p> <p>8.12.13b: This vegetation community usually represents a recent (within the last few decades or years) woody incursion into grasslands. It is possible that certain burning regimes would return this community to 8.12.13a. Distinguished from all other regional ecosystems on the same land zone by the dominance of <i>Timonius timon</i> var. <i>timon</i> and <i>Macaranga involucreta</i> var. <i>mallotoides</i>. Occurs on islands from Saddleback Island near Dingo Beach in the north to Digby Island (45km east of Cape Palmerston), in the south. Also mapped on the mainland at Grimston Point north of Airlie Beach. Compromised by weed invasion on some islands. Common problem weeds include <i>*Centrosema molle</i>, <i>*Lantana camara</i>, <i>*Bidens pilosa</i>, <i>*Melinis repens</i>, <i>*Ageratum conyzoides</i> subsp. <i>conyzoides</i> and <i>*Stachytarpheta jamaicensis</i>.</p> <p>8.12.13x1: Often close to seaward zone on continental islands. May form extensive area on some exposed islands e.g. High Peak Island. Occurs on many islands throughout the bioregion. Also found on the mainland at Grimston Point north of Airlie Beach, Blacks Beach at Mackay, Freshwater Point east of Sarina, Cape Palmerston and on the coast between Island Head Ck and Cape Manifold.</p>
<b>Estimated extent:<sup>1</sup></b>	Pre-clearing 5000 ha; Remnant 2021 5000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.12.14

**Description:** *Eucalyptus drepanophylla* and/or *E. crebra* and/or *E. exserta* and/or *Acacia spirorbis* subsp. *solandri* and/or *Lophostemon confertus* closed forest to open shrubland (1-28m tall). Associated canopy species may include *Corymbia intermedia*, *C. clarksoniana*, *Acacia leptostachya*, *E. tereticornis*, *Allocasuarina littoralis* and *C. trachyphloia*. There is occasionally a very sparse to mid-dense lower tree layer of *Acacia spirorbis* subsp. *solandri*, *Lophostemon confertus*, *Allocasuarina littoralis* and *C. clarksoniana*, or there may be a layer of pioneering vine thicket species. A very sparse to mid-dense shrub layer is often present, dominated by species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Larsenaikia jardinei*, *Drypetes deplanchei*, *Dodonaea lanceolata* var. *subsessilifolia*, *Grevillea banksii*, *Alyxia spicata*, *Acacia simsii* and *Sersalisia sericea*. The ground layer is very sparse to mid-dense and is commonly dominated by species such as *Themeda triandra*, *Gahnia aspera*, *Scleria sphacelata*, *Lomandra longifolia*, *Eustrephus latifolius*, *Dianella caerulea*, *Heteropogon triticeus*, *H. contortus*, *Xanthorrhoea latifolia* subsp. *latifolia* and *Imperata cylindrica*. Occurs on slopes, ridges and crests on undulating rises to rolling hills of lowlands and foothills of islands and headlands, on Mesozoic to Proterozoic igneous rocks and Tertiary acid to intermediate volcanics (land zone 8). Geologies mapped as Kw (Whitsunday Volcanics), Kg, PII (Airlie Volcanics), Kp (Proserpine Volcanics) and RKvp (Peninsula Range Volcanics). Early Cretaceous - Late Permian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Not a Wetland. (BVG1M: 9c).

Vegetation communities in this regional ecosystem include:

8.12.14a: *Eucalyptus drepanophylla* and/or *E. exserta* open forest to shrubland (3-18m tall). Associated canopy species may include *Lophostemon confertus*, *Acacia spirorbis* subsp. *solandri*, *A. leptostachya*, *Corymbia intermedia* and *C. clarksoniana*. There is occasionally a very sparse to sparse lower tree layer of *A. spirorbis* subsp. *solandri*, *Allocasuarina littoralis* and *C. clarksoniana*, or there may be a layer of pioneering rainforest species. A very sparse to mid-dense shrub layer is often present, dominated by species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Larsenaikia jardinei*, *Drypetes deplanchei*, *Dodonaea lanceolata* var. *subsessilifolia*, *Pseudanthus ligulatus* subsp. *ligulatus*, *Alyxia spicata*, *Acacia simsii* and *Sersalisia sericea*. The ground layer is very sparse to mid-dense and is commonly dominated by species such as *Themeda triandra*, *Lomandra longifolia*, *Gahnia aspera*, *Scleria sphacelata*, *Eustrephus latifolius*, *Dianella caerulea*, *Heteropogon triticeus*, *H. contortus*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Imperata cylindrica* and *Pandorea pandorana*. Occurs on exposed slopes, ridges and crests on undulating rises to rolling hills of lowlands and foothills of islands, on Mesozoic to Proterozoic igneous rocks, and Tertiary acid to intermediate volcanics. Geologies are mainly Kw (Whitsunday Volcanics), Kg, PII (Airlie Volcanics), Kp (Proserpine Volcanics) and DCc (Campwyn Beds). Early Cretaceous - Late Devonian waterlaid acid to intermediate air-fall pyroclastics. Th (Cape Hillsborough Beds) Tertiary acid volcanics. Not a Wetland. (BVG1M: 9c).

8.12.14b: *Acacia spirorbis* subsp. *solandri* closed forest to open shrubland (1-18m tall). Occasional associated canopy species may include *Eucalyptus exserta*, *E. tereticornis*, *E. drepanophylla* and *Acacia leptostachya*. There is sometimes a very sparse to sparse lower tree layer (often including rainforest species) dominated by species such as *Lophostemon confertus*, *Mallotus philippensis*, *Larsenaikia jardinei*, *Allocasuarina littoralis*, *Psydrax odorata*, *Drypetes deplanchei*, *Mallotus philippensis*, *Neolitsea brassii* and *Alphitonia excelsa*. There is often a very sparse shrub layer with dominants including *Acacia spirorbis* subsp. *solandri*, *Alyxia spicata*, *Acronychia laevis*, *Dodonaea lanceolata* var. *subsessilifolia* and *Drypetes deplanchei*. The ground layer is usually very sparse and dominated by species such as *Scleria sphacelata*, *Gahnia aspera*, *Drynaria rigidula*, *Oplismenus* spp., *Themeda triandra*, *Ancistrachne uncinulata*, *Dianella caerulea*, *Clematicissus opaca* and *Xanthorrhoea latifolia* subsp. *latifolia*. Occurs on slopes, ridges and crests on undulating low hills to rolling hills of lowlands and foothills of islands and headlands on Mesozoic to Proterozoic igneous rocks, and Tertiary acid to intermediate volcanics. Geology mapped as Kw and Ki (Whitsunday Volcanics), Kg, PII (Airlie Volcanics) and Kp (Proserpine Volcanics). Early Cretaceous - Early Permian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Includes leucocratic alkali granite. Not a Wetland. (BVG1M: 28e).

8.12.14c: *Lophostemon confertus* closed forest to tall shrubland (3.5-28m tall). The canopy is often exclusively *L. confertus*, however occasional associated species may include *Eucalyptus exserta*, *E. tereticornis*, *E. drepanophylla* and *Acacia spirorbis* subsp. *solandri*. There is sometimes a very sparse to mid-dense lower tree layer dominated by species such as *Lophostemon confertus*, *Mallotus philippensis*, *Pittosporum ferrugineum*, *Acronychia laevis*, *Neolitsea brassii* and *Acacia leptostachya*. There may be a very sparse to dense shrub layer consisting of species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Cycas media*, *Dodonaea lanceolata* var. *subsessilifolia*, *Pittosporum ferrugineum* and *Sersalisia sericea*. The ground layer is usually very sparse to sparse, consisting of species such as *Oplismenus* spp., *Imperata cylindrica*, *Scleria mackaviensis*, *Scleria sphacelata*, *Dianella caerulea*, *Flemingia parviflora*, *Eustrephus latifolius*, *Microsorium grossum*, *Lomandra* spp. and *Xanthorrhoea latifolia* subsp. *latifolia*. Occurs slopes, ridges and crests on undulating to rolling hills of lowlands and foothills of islands and headlands, on Mesozoic to Proterozoic igneous rocks. Contains minor areas of Tertiary acid to intermediate volcanics. Geology mapped as Kw (Whitsunday Volcanics), PKg, DCc (Campwyn Beds) and Kg. Early Cretaceous - Late Devonian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Includes leucogranite alkali granite, microgranite and granophyre. Not a Wetland.

(BVG1M: 28e).

8.12.14d: *Eucalyptus crebra* and/or *Lophostemon confertus* and/or *E. exserta* open forest to woodland (3-14m tall). Associated canopy species may include *Corymbia intermedia*, *C. clarksoniana*, *Acacia disparrima* subsp. *disparrima*, *Allocasuarina littoralis*, *C. trachyphloia* and *E. portuensis*. There are sometimes lower tree layers with species including *Acacia disparrima* subsp. *disparrima*, *Lophostemon confertus*, *A. flavescens*, *Allocasuarina* spp., *Banksia integrifolia* subsp. *compar* and *Grevillea banksii*. Rainforest species are sometimes prominent in these lower layers. There is sometimes a very sparse to sparse shrub layer of species such as *Lophostemon confertus*, *Grevillea banksii*, *Acacia disparrima* subsp. *disparrima*, *Dodonaea lanceolata* var. *subsessilifolia*, *Planchonia careya*, *Acacia crassa* subsp. *longicoma* and *Acacia leptocarpa*. The ground layer is sparse to very sparse, and common dominants may include *Themeda triandra*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Dianella caerulea*, *Eustrephus latifolius*, *Digitaria parviflora*, *Grewia latifolia* and *Entolasia stricta*. Occurs on slopes, ridges and crests on undulating low hills of lowlands and foothills, of islands and headlands, on Mesozoic to Proterozoic igneous rocks. Geology mapped as RKvp (Peninsula Range Volcanics) and Ccs (Shoalwater Formation). Early Cretaceous - Late Carboniferous pyroclastic crystal tuff, rhyolite flows, agglomerate, quartzose sandstone and mudstone; local quartz-muscovite-biotite schist. Not a Wetland. (BVG1M: 9c).

8.12.14x2b: [RE not in use]<sup>2</sup>: This vegetation community has been placed in RE 8.12.14. *Corymbia xanthope* open forest to low woodland to tall shrubland. *Acacia julifera* and *Eucalyptus drepanophylla* are common associated species in the canopy. Other occasional to common associated canopy species may include *Allocasuarina littoralis* and *Corymbia trachyphloia*. There is sometimes a secondary tree layer of *Allocasuarina littoralis* with occasional *Acacia julifera*. Rainforest pioneering species may sometimes be prominent. A shrub layer of *Xanthorrhoea latifolia* subsp. *latifolia* is usually present, with occasional *Dodonaea lanceolata* var. *subsessilifolia*, and *Leucopogon imbricatus*. The ground layer very sparse to sparse and may include *Gahnia aspera*, *Themeda triandra*, *Aristida spuria*, *Scleria mackaviensis*, *Brunoniella australis*, *Eriachne pallescens*, *Lomandra multiflora*, *Camptacra barbata*, *Eustrephus latifolius*, *Stephania japonica*, *Cyanthillium cinereum*, *Entolasia stricta* and *Hardenbergia violacea*. Slopes on undulating rises to rolling low hills of lowlands and foothills of islands, on serpentinite. Very rocky substrate with minimal soil. Not a Wetland. (BVG1M: 9c).

8.12.14x2c: [RE not in use]<sup>2</sup>: This vegetation community is now mapped as 8.11.12. *Eucalyptus crebra* and/or *E. exserta* and/or *Corymbia clarksoniana* and/or *Lophostemon confertus* and/or *Corymbia trachyphloia* low woodland to open forest (2.5-15m tall). Occasional to common associated canopy species may include *Corymbia dallachiana*, *Acacia disparrima* subsp. *Disparrima*, *Lophostemon suaveolens*, *Corymbia intermedia*, *Melaleuca nervosa* and *Acacia julifera*. There is sometimes a secondary tree layer which may be dominated by species such as *Lophostemon confertus*, *Acacia* spp. And *Petalostigma pubescens*. There is often a shrub layer, and dominant species may include *Lophostemon confertus*, *Alphitonia excelsa*, *Acacia julifera* and *Lophostemon suaveolens*. The ground layer may be dominated by species such as *Xanthorrhoea latifolia* subsp. *Latifolia*, *Entolasia stricta*, *Themeda triandra*, *Eustrephus latifolius*, *Dodonaea lanceolata* var. *subsessilifolia* and *Lomandra* spp. Occurs on slopes, ridges and crests on undulating rises to rolling low hills of lowlands and foothills of islands and headlands, on metamorphic rocks. Not a Wetland. (BVG1M: 9c).

<b>Short description:</b>	<i>Eucalyptus drepanophylla</i> and/or <i>E. crebra</i> and/or <i>E. exserta</i> and/or <i>Acacia spirorbis</i> subsp. <i>solandri</i> and/or <i>Lophostemon confertus</i> low woodland on islands and headlands, on Mesozoic to Proterozoic igneous rocks, and Tertiary acid to intermediate volcanics
<b>Supplementary descriptions:</b>	Bailey et al. (2003), Ec; Batianoff (1995a), Vegetation community 4A, 4E+ and 5; Batianoff (1996), Vegetation unit 6a and 6b(Ee); Batianoff, Dillewaard and Franks (1997), Vegetation unit 23c (in part), 25; Bean (1991), Vegetation type 3; Brushe et al. (in prep), Map units c60_12, c87_12; Kemp (2009), Ac, AcEtfv; Pollock (1995a), vegetation Type As (in part); Warriren and Lavarack (in prep), Vegetation unit 5a (in part), 5h (in part), 5e (in part), 6a (in part), 6e
<b>Subregions:</b>	1, 2, (4), (5), (6)
<b>Protected areas:</b>	Whitsunday Islands NP, Lindeman Islands NP, South Cumberland Islands NP, Dryander NP, Brampton Islands NP, Smith Islands NP, Percy Isles NP, Cape Hillsborough NP, Broad Sound Islands NP, Molle Islands NP, Gloucester Island NP, Conway NP, Newry Islands NP, Middle Percy Island CP, Repulse Islands NP, Conway CP, Northumberland Islands NP, Pioneer Peaks NP, Keppel Bay Islands NP (S)
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland

<b>Special values:</b>	<p>8.12.14: Potential habitat for NCA listed species: <i>Berrya rotundifolia</i>, <i>Corymbia xanthope</i>, <i>Solanum graniticum</i>, <i>Solanum sporadotrichum</i>.</p> <p>8.12.14a: Stunted, sparse island and coastal headland examples of this vegetation community are habitat for endangered species <i>Solanum graniticum</i>. Also habitat of <i>Pseudanthus ligulatus</i> subsp. <i>Ligulatus</i> which is uncommon in the bioregion.</p> <p>8.12.14b: Possible habitat for the threatened plant species <i>Berrya rotundifolia</i>, which has been recorded on Calder Island.</p> <p>8.12.14d: Habitat for the NCA listed plant species <i>Xylosma ovata</i> and <i>Comesperma oblongatum</i>. Habitat for species which are poorly known from the Central Queensland Coast bioregion including <i>Brachychiton bidwillii</i>, <i>Grewia latifolia</i>, <i>Schizaea dichotoma</i> and <i>Seringia lanceolata</i>, as well as species at the northern limit of their range such as <i>Comesperma esulifolium</i>, <i>Persoonia virgata</i> and <i>Mirbelia rubiifolia</i>.</p> <p>8.12.14x2b: Habitat for the highly restricted vulnerable plant species <i>Corymbia xanthope</i>. Northern limit of <i>Leucopogon imbricatus</i>. <i>Serpentinite</i> is rare in the bioregion.</p> <p>8.12.14x2c: Habitat for species which are locally uncommon or at the limits of their range, including <i>Acacia juncifolia</i>, <i>Melaleuca hemisticta</i>, <i>Parsonsia eucalyptophylla</i>, <i>Jacksonia scoparia</i>, <i>Marsdenia brevis</i> and <i>Xanthorrhoea pumilio</i>.</p>
<b>Comments:</b>	<p>8.12.14: Vegetation community 8.12.14x2b has been amalgamated into this RE.</p> <p>8.12.14a: Can be similar to vegetation communities 8.12.6a and 8.12.6b which are also dominated by <i>Eucalyptus drepanophylla</i>, however 8.12.6a and 8.12.6b tend to be taller, with a more open canopy or sub-canopy and a more heavily grass dominated (instead of mixed sedge, grass and herb dominated) ground layer. Also 8.12.14a is only found on islands (or some headlands where it tends to be codominated by <i>Lophostemon confertus</i> or <i>Acacia spirorbis</i> subsp. <i>solandri</i>) whereas 8.12.6a and 8.12.6b are only found on the mainland. the vegetation community 8.12.12d may sometimes be similar but <i>Corymbia clarksoniana</i> (and/or other eucalypt species) will be a prominent feature in the canopy. The vegetation community 8.12.14d is very similar but occurs in subregions 4 and 5 only (8.12.14a is in subregions 1 and 2 only). The vegetation communities 8.12.14b and 8.12.14c are very closely related to 8.12.14a, but 8.12.14b is <i>Acacia spirorbis</i> subsp. <i>solandri</i> dominated and 8.12.14c is <i>Lophostemon confertus</i> dominated. Occurs on many islands from Gloucester Island to the Bedwell Island Group 40km east of Carmila. Widespread on some continental islands e.g. Broad Sound Island group. It occurs on the mainland at Double Bay, Shute Haven, Pinnacle Rock at Ball Bay, Cape Hillsborough and at The Leap north of Mackay. Most examples are in good condition probably due to the shallow soil/harsh environment which makes it difficult for weeds to establish. Many sites may not have been burnt for a long time. Weed species recorded include <i>*Lantana camara</i>, <i>*Passiflora suberosa</i>, <i>*P. pallida</i>, <i>*Ageratum conyzoides</i> subsp. <i>conyzoides</i>, <i>*Stachytarpheta jamaicensis</i> and <i>*Triumfetta rhomboidea</i>.</p> <p>8.12.14b: The vegetation community 8.12.14d can be similar but occurs in subregions 4 and 5 only (8.12.14b is in subregions 1 and 2 only). The vegetation communities 8.12.14a and 8.12.14c are very closely related to 8.12.14b, but 8.12.14a is <i>Eucalyptus</i> spp. or <i>Corymbia</i> spp. dominated, and 8.12.14c is <i>Lophostemon confertus</i> dominated. Occurs on islands in subregions 1 and 2, from Hook Island in the Whitsunday group south to Keswick Island (30km north-east of Mackay). Also mapped in mainland coastal areas between Dingo Beach and Airlie Beach and on Round Head on Cape Conway. Most examples are in good condition probably due to the shallow soil/harsh environment which makes it difficult for weeds to establish. However some areas are infested with <i>*Lantana camara</i>. Other weeds commonly recorded include <i>*Passiflora suberosa</i>, <i>*P. pallida</i>, <i>*P. pallida</i>, <i>*Ageratum conyzoides</i> subsp. <i>conyzoides</i>, <i>*Stachytarpheta jamaicensis</i> and <i>*Passiflora foetida</i>.</p> <p>8.12.14c: Lower, shrubbier examples of this vegetation community are similar to 8.12.29b, however in 8.12.29b <i>Lophostemon confertus</i> ranges from an associated to a co-dominant species, whereas in 8.12.14c <i>Lophostemon confertus</i> is strongly dominant. The vegetation community 8.12.14d and 8.12.29c can be similar but occur in subregions 4 and 5 only (8.12.14c is in subregions 1 and 2 only). The vegetation communities 8.12.14a and 8.12.14b are very closely related to 8.12.14c, but 8.12.14a is <i>Eucalyptus</i> spp. or <i>Corymbia</i> spp. dominated, and 8.12.14b is <i>Acacia spirorbis</i> subsp. <i>solandri</i> dominated. Occurs on several islands from Gloucester Island and Hayman Island south to Scawfell Island about 50km east-north-east of Mackay. Also mapped in the Gloucester Point area to the west of Hideaway Bay on the mainland. Most examples are in good condition probably due to the shallow soil/harsh environment which makes it difficult for weeds to establish. However some areas have <i>*Lantana camara</i> infestation. Other weeds commonly recorded include <i>*Passiflora suberosa</i>, <i>*P. pallida</i>, <i>*Ageratum conyzoides</i> subsp. <i>conyzoides</i> and <i>*Triumfetta rhomboidea</i>.</p> <p>8.12.14d: Can be similar to vegetation communities 8.12.6a and 8.12.6b which are also dominated by <i>Eucalyptus drepanophylla</i>, however 8.12.6a and 8.12.6b tend to be taller, with a more open canopy or sub-canopy and a more heavily grass dominated (instead of mixed sedge, grass and herb dominated) ground layer. Also 8.12.14d is only found on islands and headlands in subregions 4 and 5 whereas</p>

8.12.6a and 8.12.6b are only found on the mainland in subregions 1 to 3. The vegetation community 8.12.12d may sometimes be similar but *Corymbia clarksoniana* will be a prominent feature in the canopy. The vegetation community 8.12.14a is very similar but occurs in subregions 1 and 2 only (8.12.14d is in subregions 4 and 5 only). The vegetation communities 8.12.14b and 8.12.14c are very closely related to 8.12.14d, but 8.12.14b is *Acacia spirorbis* subsp. *solandri* dominated and 8.12.14c is *Lophostemon confertus* dominated (and only occurs in subregions 1 and 2). Occurs in the Shoalwater Bay region, on the mainland coast between Reef Point (north of the mouth of Island Head Creek ) and Cape Manifold. Also found on Turn Island in the Broad Sound area (30km north east of Clairview). Most examples are in good condition probably due to the shallow soil/harsh environment which makes it difficult for weeds to establish. However some areas are heavily infested with *\*Lantana camara*. The weed *\*Passiflora suberosa*, *\*P. pallida* is also commonly recorded in this vegetation community.

8.12.14x2b: Distinguished from all other regional ecosystems by the presence of *Corymbia xanthope*. Mapped only on South Percy Island, but may also occur on other offshore islands. Has been heavily grazed by goats and is therefore probably suffering the effects of erosion, and the reduction in cover (and possible elimination) of the most palatable shrubs and ground layer species. Some weeds are present, including *\*Lantana camara* and *\*Passiflora suberosa*, *\*P. pallida*.

8.12.14x2c: Distinguished from all other sclerophyll metamorphic (land zone 11) regional ecosystems by the low stature, and occurrence on headlands and islands in positions receiving high wind and salt-spray exposure. Occurs in subregions 4 and 5. Mapped at Sabina Point, Akens Island, Clara Island and Swan Island in Shoalwater Bay. Also found in coastal areas at Port Clinton and Freshwater Bay (north of Cape Manifold) and on the Keppel Isles. Usually reasonably good due to isolation and harsh rocky, wind and salt-exposed environment. Occasional weeds include *\*Lantana camara*, *\*Passiflora suberosa*, *\*P. pallida* and *\*Melinis minutiflora*.

**Estimated extent:**<sup>1</sup> Pre-clearing 17000 ha; Remnant 2021 17000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:**

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## Regional ecosystem 8.12.16

**Description:** Deciduous to semi-evergreen microphyll vine thicket. Deciduous examples are a low closed forest to closed scrub, and occur in the driest areas. These areas commonly include emergents of *Brachychiton australis*, *B. rupestris*, *Pleiogynium timorense*, *Ficus rubiginosa* and *Gyrocarpus americanus*, and have a canopy with species including *Backhousia angustifolia*, *Diospyros humilis*, *Flindersia australis*, *Notelaea microcarpa*, *Archidendropsis thozetiana*, *Diospyros geminata*, *Atalaya rigida*, *Gossia bidwillii*, *Alectryon connatus*, *A. diversifolius*, *Alphitonia excelsa* and *Bridelia leichhardtii*. Shrub layers may include *Alyxia ruscifolia*, *Carissa ovata*, *Croton phebaloides* and *Abutilon oxycarpum* var. *oxycarpum*, and the ground layer is very sparse to sparse and consists of species such as *Solanum stelligerum*, *Ancistrachne uncinulata*, *Doryopteris concolor* and *Hypoestes floribunda*. Vines are very common, and often include *Glossocarya hemiderma*, *Cissus reniformis* and *Stigmaphyllon timoriense*. Semi-evergreen examples of this ecosystem tend to be dominated by species such as *Drypetes deplanchei* and *Gossia bidwillii*, and often have emergents of *Araucaria cunninghamii*. Occurs on lopes, gullies, ridges and crests on rolling mountains of foothills and uplands, of the very dry to dry rainfall zone, on the western edge of the bioregion. Geologies mapped as Cvb (Broadsound Range Rhyolite), CPvl (Leura Volcanics), CPgsc (Stony Creek Granite), Cvw (Whelan Creek Volcanics) and Pr (Connors Arch). Early Permian - Late Carboniferous dacitic to rhyolitic ignimbrite and trachyandesite to dacite lava. Not a Wetland. (BVG1M: 7a).

**Short description:** Deciduous to semi-evergreen microphyll vine thicket +/- *Brachychiton* spp. +/- *Araucaria cunninghamii* emergents of foothills and uplands (western areas) on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:** McDonald (1995), Group 2

**Subregions:** 3, 11.2, 11.12

**Protected areas:** Homevale NP, Mount Abbot NP (S), Homevale RR

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.16: Habitat for near threatened plant species *Solanum sporadotrichum*. Also habitat for some species which are poorly known in the Central Queensland Coast bioregion such as *Cayratia japonica*, species at the southern edge of their range such as *Melodorum crassipetalum* and *Wrightia versicolor*, species at the northern edge of their range such as *Acalypha capillipes* and *Brachychiton rupestris*. Also habitat for a whole suite of species which are common further west but rare in the Central Queensland Coast bioregion, such as *Backhousia angustifolia*, *Diospyros humilis*, *Notelaea microcarpa*, *Alectryon diversifolius* and others.

**Comments:** 8.12.16: Distinguished from most other rainforest regional ecosystems on land zone 12 by occurring well inland and by being dominated by microphyll species. Closest to RE 8.12.3a which tends to occur in moister rainfall zones and which is usually notophyll dominated. Close affinities with araucarian microphyll rainforest of northern Southeast Queensland bioregion. Occurs in western parts of subregion 3. Mostly between the Denham Range (south of Credition) and Campbell Range 50km west of Marlborough. Also found on a hill near the Proserpine Dam and as an outlier near Mount Abbott (55km south-west of Bowen). This ecosystem is geographically restricted, and is very vulnerable to fire in dry times which can lead to irreversible damage and decline. Invasion from *Lantana camara* poses a threat as it makes the ecosystem more fire prone. Current condition of stands is not well known.

**Estimated extent:**<sup>1</sup> Pre-clearing 4000 ha; Remnant 2021 4000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.12.17

**Description:** Evergreen microphyll to notophyll mossy forest. Common species in the canopy are *Cryptocarya densiflora*, *C. glaucescens*, *C. grandis*, *C. vulgaris*, *Acmena resa*, *Endiandra discolor*, *Balanops australiana*, *Endiandra muelleri* subsp. *bracteata* and *Archontophoenix cunninghamiana*. sub-canopy (and occasionally canopy) trees include *Beilschmiedia collina*, *Polyosma alangiacea*, *Endiandra discolor*, *Sloanea langii*, *Syzygium cryptophlebium*, *Polyosma rhytophloia*, *Synoum glandulosum* and *Litsea leefeana*. Lower tree and shrub layers commonly include *Alyxia magnifolia*, *Cordyline murchisoniae*, *Wilkiea macrophylla*, *Cyathea rebecca* and *Myrsine porosa*. Epiphytes and lithophytes are common, and include *Asplenium australasicum*, *Bulbophyllum newportii* and *Platyserium bifurcatum*. Vines may include *Arthropteris tenella*, *Smilax glycyphylla*, *Hypserpa decumbens* and *Melodinus australis*. Mosses are often common and conspicuous, especially on tree branches. The ground layer is very sparse and may be dominated by species such as *Exocarya scleroides*, *Blechnum cartilagineum*, *Lomandra spicata* and *Adiantum silvaticum*. Occurs on ridges, upper slopes, plateaus and crests on rolling hills to steep mountains of foothills to highlands. Geologies mapped as CKr (Urannah Igneous Complex), CPgfh (Finch Hatton Granite), Pc/s (Carmila beds/s), Kw (Whitsunday Volcanics) and Kp (Proserpine Volcanics). Early Cretaceous - Late Carboniferous acid, intermediate and basic plutonic rocks. Numerous dykes. Not a Wetland. (BVG1M: 6b).

Vegetation communities in this regional ecosystem include:

8.12.17a: Evergreen microphyll mossy forest to thicket. Common species in the canopy are *Cryptocarya densiflora*, *Cryptocarya glaucescens*, *Archontophoenix cunninghamiana*, *Helicia glabriflora*, *Cinnamomum oliveri* and *Balanops australiana*. sub-canopy (and occasionally canopy) trees include *Beilschmiedia collina*, *Polyosma alangiacea*, *Polyosma rhytophloia*, *Synoum glandulosum*, *Bleasdalea bleasdalei*, *Diospyros pentamera*, *Litsea leefeana* and *Mischocarpus macrocarpus*. Typical lower tree and shrub species are *Alyxia magnifolia*, *Cordyline murchisoniae*, *Wilkiea macrophylla*, *Cyathea rebecca* and *Myrsine porosa*. Epiphytes and lithophytes are common, and include *Asplenium australasicum*, *Bulbophyllum newportii* and *Platyserium bifurcatum*. The most common vines are *Arthropteris tenella*, *Smilax australis*, *Smilax glycyphylla*, *Cissus penninervis* and *Embelia australiana*. Mosses are often conspicuous, especially on tree branches. The ground layer is very sparse and may be dominated by species such as *Exocarya scleroides*, *Lomandra spicata*, *Adiantum silvaticum* and *Carex brunnea*. Occurs on slopes, ridges, plateaus and crests on rolling to steep mountains of uplands and highlands on Mesozoic to Proterozoic igneous rocks. Geologies mapped mainly as CKr (Urannah Igneous Complex), CPgfh (Finch Hatton Granite), Pc/s (Carmila beds/s) and KgsW (Swayneville Granite). Early Cretaceous - Late Carboniferous acid, intermediate and basic plutonic rocks. Includes biotite syenogranite and siltstone. Not a Wetland. (BVG1M: 6b).

8.12.17b: Evergreen notophyll mossy closed forest. There may be emergents such as *Acmena resa*, *Sloanea macbrydei* and *Argyrodendron actinophyllum* subsp. *diversifolium*. The canopy may be dominated by species such as *Acmena resa*, *Endiandra discolor*, *Balanops australiana*, *Syzygium papyraceum*, *Elaeocarpus eumundi*, *Pleioloma queenslandica*, *Cryptocarya corrugata* and *Syzygium johnsonii*. The sub-canopy typically includes *Endiandra discolor*, *Balanops australiana*, *Syzygium cryptophlebium*, *Synoum glandulosum* and *Diospyros pentamera*. Lower strata may contain species such as *Cyathea rebecca*, *Tasmannia insipida*, *Calamus australis* and *Alyxia ruscifolia*. Occasional ground layer species include *Blechnum cartilagineum*, *Carex horsfieldii* and *Adiantum hispidulum*. Epiphytes such as *Platyserium bifurcatum*, *Tmesipteris truncata*, *Drynaria rigidula* and *Dendrobium speciosum* are present. Mosses are often common and conspicuous, especially on tree branches. Vines sometimes present are *Hypserpa decumbens*, *Smilax glycyphylla*, *Dioscorea transversa*, *Flagellaria indica* and *Melodinus australis*. Occurs on slopes, gullies, crests and ridges on rolling mountains of foothills and uplands. Geologies mapped as PKgb (Bayfield Granite), CKr (Urannah Igneous Complex) and Pla (Carmila Beds). Early Cretaceous - Late Carboniferous undivided acid, intermediate and minor basic plutonic rocks. Includes Leucocratic biotite granite and biotite-hornblende adamellite. Not a Wetland. (BVG1M: 6b).

8.12.17c: Evergreen microphyll fern forest. Common species in the canopy are *Cryptocarya grandis*, *Cryptocarya vulgaris*, *Argyrodendron* sp. (Whitsundays W.J.McDonald+ 5831), *Endiandra muelleri* subsp. *bracteata*, *Xanthophyllum octandrum*, *Elaeocarpus grandis*, *Elaeocarpus eumundi*, *Calophyllum australianum* and *Ptychosperma elegans*. sub-canopy species may include *Sloanea langii*, *Litsea leefeana*, *Antidesma erostre*, *Backhousia citriodora*, *Archidendron grandiflorum*, *Chionanthus ramiflorus* and *Neolitsea brassii*. Species in the lower strata include *Antirhea tenuiflora*, *Calamus australis*, *Cordyline murchisoniae*, *Myrsine porosa*, *Wilkiea macrophylla* and *Polyscias australiana*. The ground layer is very sparse with species such as *Lastreopsis poecilophlebia*. Common vines are *Melodinus australis*, *Pandorea jasminoides*, *Ripogonum album*, *Rourea brachyandra* and *Smilax australis*. Occurs on ridges, upper slopes, plateaus and crests on rolling hills and mountains of foothills and uplands. Geologies mapped as Kw and Kc (Whitsunday Volcanics), Kp (Proserpine Volcanics) and PII (Airlie Volcanics). Early Cretaceous - Early Permian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Includes rhyolite and andesite. Not a Wetland. (BVG1M: 6b).

**Short description:** Evergreen microphyll to notophyll mossy forest to thicket of ridges and plateaus on highlands to foothills on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:**

<b>Subregions:</b>	3, 1, 4
<b>Protected areas:</b>	Eungella NP, Conway NP, Kelvin NP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	<p>8.12.17: Potential habitat for NCA listed species: <i>Asplenium normale</i>, <i>Parsonsia larcomensis</i>, <i>Coleus eungellaensis</i>.</p> <p>8.12.17a: Habitat for vulnerable plant species <i>Dryopteris sparsa</i>, <i>Asplenium normale</i>, <i>Phlegmariurus tetrastichoides</i>, <i>Phlegmariurus varius</i> and the near threatened plant species <i>Sarcotoechia heterophylla</i>, <i>Elaphoglossum callifolium</i> and <i>Acronychia eungellensis</i>. Potential habitat for vulnerable plant species <i>Trigonostemon inopinatus</i>. Habitat for plant species at the northern limit of their range including <i>Alyxia magnifolia</i>, <i>Dendrobium schneiderae</i> and <i>Lomandra spicata</i>. Habitat for plant species at the southern limit of their range including <i>Cryptocarya densiflora</i>, <i>Polyosma alangiacea</i>, <i>Polyosma rhytophloia</i>, <i>Beilschmiedia collina</i>, <i>Bleasdalea bleasdalei</i>, <i>Mischocarpus macrocarpus</i>, <i>Mischocarpus stipitatus</i>, <i>Syzygium cryptophlebium</i>, <i>Acmena resa</i> and many others. Habitat for species poorly known from the bioregion including <i>Lenwebbia lasioclada</i>, <i>Exocarya scleroides</i>, <i>Bulbophyllum newportii</i>, <i>Liparis nugentiae</i>, <i>Syzygium erythroxum</i>, <i>Calanthe triplicata</i>, <i>Abrodictyum caudatum</i> and <i>Elaphoglossum callifolium</i>.</p> <p>8.12.17b: Habitat for threatened plant species <i>Parsonsia larcomensis</i>. Habitat for plant species which are poorly known in the bioregion including <i>Lenwebbia lasioclada</i>, <i>Syzygium papyraceum</i>, <i>Calanthe triplicata</i> and <i>Cymbidium suave</i>. Habitat for plant species at the southern end of their range including <i>Antidesma erostre</i>, <i>Sloanea macbrydei</i>, <i>Bleasdalea bleasdalei</i>, <i>Acmena resa</i>, <i>Syzygium cryptophlebium</i>, <i>Bubbia semecarpoides</i>, <i>Polyosma rhytophloia</i> and many more. Habitat for plant species at the northern limit of their range such as <i>Macrozamia miquelii</i>, <i>Alyxia magnifolia</i> and <i>Abrodictyum caudatum</i>.</p> <p>8.12.17c: Habitat for <i>Argyrodendron</i> sp. (Whitsundays W.J.McDonald+ 5831) which is restricted to the Conway Range, Gloucester Island and the northern Whitsunday islands. Also habitat for plant species at the southern limit of their range such as <i>Antidesma erostre</i> and <i>Antirhea tenuiflora</i>, and poorly known species such as <i>Jasminum dallachii</i>.</p>
<b>Comments:</b>	<p>8.12.17a: Distinguished from other microphyll rainforest regional ecosystems on land zone 12 by a combination of occurring on the main Clarke range (subregion 3) at moderate to high altitudes, and occurring in the cloudy moist to very wet rainfall zone (above 2000mm and often cloudy/misty). The vegetation community 8.12.17b is similar but tends to be more notophyll dominated. Occurs only in subregion 3, in the mountains at high altitude. It is found in Eungella National Park on Clarke Range, on Blue Mountain (30km south-west of Sarina) and in an area about 10km south of Sarina.</p> <p>8.12.17b: Distinguished from other microphyll rainforest regional ecosystems on land zone 12 by a combination of occurring on the main Clarke range (subregion 3) or in the Shoalwater area (subregion 4) at moderate altitudes, and occurring in the cloudy moist to cloudy wet rainfall zone (above 2000mm and often cloudy/misty). The vegetation community 8.12.17a is similar but tends to be more microphyll dominated. Occurs in subregion 3 in small isolated patches on Mount Hector and Mount Quandong south of the Proserpine Dam. Also occurring more extensively on Coast Range to the north-west of Corio Bay, within subregion 4.</p> <p>8.12.17c: Distinguished from other microphyll rainforest regional ecosystems on land zone 12 by a combination of occurring on the Conway Range only (subregion 1) at low to moderate altitudes (but along ridgelines and on plateaus) and occurring in the moist to wet rainfall zone (about 2000 to 2400mm). Occurs in subregion 1, entirely within Conway National Park, along the ranges from Mount Merkara (north of Shute Harbour), south to the tip of Cape Conway.</p>
<b>Estimated extent:<sup>1</sup></b>	Pre-clearing 5000 ha; Remnant 2021 5000 ha
<b>VM class:</b>	Of concern
<b>Biodiversity status:</b>	Of concern
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.12.18

**Description:** Semi-evergreen notophyll/microphyll to complex notophyll *Argyrodendron* spp. vine forest. Emergents are often present and may include *Araucaria cunninghamii*, *Argyrodendron polyandrum* and *Falcataria toona*. Canopy trees include species such as *Argyrodendron polyandrum*, *Argyrodendron* sp. (Whitsundays W.J.McDonald+ 5831), *Dissiliaria indistincta*, *Macropteranthes fitzalanii*, *Backhousia citriodora*, *Arytera* sp. (Dryander Creek P.R.Sharpe 4184), *Cleistanthus dallachyanus*, *Flindersia schottiana* and *Dendrocnide photiniphylla*. The sub-canopy typically contains species like *Aidia racemosa*, *Diospyros hebecarpa*, *Cryptocarya bidwillii*, *Cleistanthus dallachyanus*, *Dissiliaria indistincta*, *Dinosperma melanophloium*, *Cryptocarya triplinervis* and *Gossia bidwillii*. Lower tree and shrub layers may include *Drypetes deplanchei*, *Alyxia ruscifolia*, *Aglaia brownii*, *Memecylon pauciflorum* and *Fitzalania heteropetala*. The ground layer includes occasional *Drynaria sparsisora*, *Adiantum hispidulum* and *Dianella caerulea* var. *vannata*. Typical vines are *Melodorum leichhardtii*, *Austrosteenisia blackii* and *Trophis scandens*, and there are occasional epiphytes such as *Platyserium bifurcatum*. Occurs on slopes, ridges and crests on rolling low hills to rolling mountains of foothills and uplands of near coastal ranges and islands. Geologies mapped as Kp (Proserpine Volcanics), Pll (Airlie Volcanics), Kw and Kc (Whitsunday Volcanics) and Cle (Edgecumbe Beds). Early Cretaceous - Early Carboniferous acid to intermediate pyroclastics and flows. Includes rhyolite and andesite. Not a Wetland. (BVG1M: 5b).

**Short description:** Semi-evergreen notophyll/microphyll to complex notophyll *Argyrodendron* spp. vine forest +/- *Araucaria cunninghamii*, of foothills and uplands on near-coastal ranges and islands on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:** Kemp (2009), Vsa

**Subregions:** 1, (2), (6)

**Protected areas:** Conway NP, Dryander NP, Whitsunday Islands NP, Molle Islands NP, South Cumberland Islands NP, Conway West CP, Dryander FR, Conway CP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.18: Habitat for the threatened plant species *Medicosma obovata* and *Neisosperma kilneri*. Habitat for the near threatened plant species *Graptophyllum excelsum*, *Hernandia bivalvis*, *Rhodamnia glabrescens*, *Brachychiton compactus*, *Diteilis simmondsii*. Key habitat for *Dissiliaria indistincta* which is restricted to the Conway Ranges and ranges to the north of Proserpine, and for *Argyrodendron* sp. (Whitsundays W.J.McDonald+ 5831) which is endemic to the Conway Ranges and northern Whitsunday islands. Also habitat for many other plant species at range limits or which are poorly known in the bioregion. Habitat for Proserpine Rock Wallaby which is listed as "Endangered" in the Queensland Nature Conservation Act 1992.

**Comments:** 8.12.18: Differs from 8.12.1a, 8.12.1b and 8.12.19 by occurring in mostly lower altitude areas (including islands) which lack the frequent cloud and fog and therefore have a lower proportion of moisture loving species such as *Archontophoenix alexandrae* and *Myristica globosa* subsp. *muelleri*, and is much more likely to include species such as *Falcataria toona*, *Argyrodendron polyandrum*, *Argyrodendron* sp. (Whitsundays W.J.McDonald+ 5831), *Dissiliaria indistincta* and *Macropteranthes fitzalanii*. Grades into 8.12.11a, however 8.12.11a tends to be dominated by species such as *Cleistanthus dallachyanus*, *Mimusops elengi* and *Terminalia porphyrocarpa*, as opposed to *Argyrodendron* spp., and *Dissiliaria indistincta*. Also the RE 8.12.11a occur on harsher, often more exposed sites than 8.12.18. Occurs in subregion 1 from Hideaway Bay south to the Proserpine River, including Cape Conway on the mainland and also on many islands such as Whitsunday Island, Hook Island, Long Island, Keswick Island and Scawfell Island. Condition is mostly good, though many areas have been logged in the past and there is minor clearing. Weed invasion occurs in some places from tracks and other areas of disturbance. Cyclones periodically cause major structural changes.

**Estimated extent:**<sup>1</sup> Pre-clearing 27000 ha; Remnant 2021 26000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:**

## Regional ecosystem 8.12.19

**Description:** Semi-deciduous complex notophyll feather palm vine forest. *Argyrodendron actinophyllum* subsp. *diversifolium* may be prominent in the emergent layer or in the canopy. Other emergents may include *Alstonia scholaris*, *Terminalia sericocarpa*, *Cryptocarya hypospodia* and *Trema orientalis*. The canopy is typically dominated by species such as *Myristica globosa* subsp. *muelleri*, *Archontophoenix alexandrae*, *Acmenosperma claviflorum*, *Cryptocarya hypospodia*, *Endiandra cowleyana*, *Argyrodendron actinophyllum* subsp. *diversifolium*, *Beilschmiedia obtusifolia*, *Alstonia scholaris*, *Planchonella myrsinodendron* and *Dysoxylum alliaceum*. There is usually a sub-canopy of species such as *Archontophoenix alexandrae*, *Myristica globosa* subsp. *muelleri*, *Acmenosperma claviflorum*, *Dysoxylum alliaceum*, *Endiandra cowleyana*, *Alstonia scholaris* and *Ptychosperma elegans*. Lower tree and shrub may include *Myristica globosa* subsp. *muelleri*, *Archontophoenix alexandrae*, *Polyscias australiana*, *Diospyros hebecarpa*, *Ixora timorensis*, *Wilkiea macrophylla*, and *Cleidion javanicum*. The very sparse ground layer includes species such as *Alpinia caerulea*, *Blechnum cartilagineum* and *Polia macrophylla*. Common vines are *Melodinus australis*, *Rourea brachyandra* and *Cissus antarctica*, and epiphytes include *Asplenium australasicum* and *Platyserium bifurcatum*. Occurs in gullies and slopes on rolling hills and mountains of foothills and uplands. Geologies mapped as Kp (Proserpine Volcanics) and Pll (Airlie Volcanics). Early Cretaceous - Early Permian acid to intermediate pyroclastics and flows. Includes rhyolite and andesite. Not a Wetland. (BVG1M: 5b).

**Short description:** Semi-deciduous complex notophyll feather palm vine forest of sheltered gullies and slopes of foothills and uplands on Mesozoic to Proterozoic igneous rocks

### Supplementary descriptions:

**Subregions:** 3, 1, (2), (6)

**Protected areas:** Eungella NP, Conway NP, Dryander NP, Crediton FR, Bluff Hill NP, Pioneer Peaks NP, Mount Martin NP, Mount Ossa NP, Kelvin NP, Dryander FR, Conway West CP, St Helens Gap CP, Andromache CP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.19: Habitat for the threatened plant species *Trigonostemon inopinatus* and *Graptophyllum ilicifolium*. Habitat for the near threatened plant *Rhodamnia glabrescens*, *Sarcotoechia heterophylla*. Also habitat for plant species at their southern range limit such as *Dysoxylum papuanum*, *Gossia myrsinocarpa*, *Erycibe coccinea*, *Xylopiac maccraeae*, *Zanthoxylum nitidum*, *Tritaxis australiensis* and *Geophila repens*, and species at their northern range limit such as *Mezoneuron scortechinii* and *Bosistoa pentacocca*, species poorly known in the Central Queensland Coast bioregion such as *Marsdenia glandulifera*, *Corymborkis veratrifolia* and *Hedraianthera porphyropetala*, and species with restricted range such as *Gossia pubiflora*. Habitat for fruit pigeons and endemic leaf-tail geckoes.

**Comments:** 8.12.19: Distinguished from most other land zone 12 regional ecosystems by occurrence on the mainland, and by the common presence of *Myristica globosa* subsp. *muelleri* and/or *Archontophoenix alexandrae* in the subcanopy or canopy, and the usual presence of *Argyrodendron actinophyllum* in the canopy or as emergents. The most similar RE however is 8.12.1b which has a very similar species composition and tends to occur with and grade into 8.12.19. The best way to distinguish these regional ecosystems is by landform, with moist gullies and sheltered aspects more likely to contain 8.2.19 whilst the ridges and spurs will contain 8.12.1b. May be similar to 8.12.1a, but in this vegetation community *Myristica globosa* is either not present or is rare. Also 8.12.19 lacks the prominent presence of higher altitude species such as *Acmena resa* and *Syzygium wesa* which occur frequently in 8.12.1a. Occurs on ranges in subregions 1 and 3. Mapped in Dryander and Conway National Parks, along the Clarke and Connors Ranges from west of Cathu to 15km south of Crediton and in small patches south to Sarina. Some areas have been logged and some have been subject to clearing. Subject to pig damage.

**Estimated extent:**<sup>1</sup> Pre-clearing 14000 ha; Remnant 2021 13000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:** Under review

## Regional ecosystem 8.12.20

**Description:** *Eucalyptus platyphylla* and/or *E. drepanophylla* woodland to open forest (10-25m tall). Associated species in the canopy may include *E. crebra*, *Corymbia clarksoniana*, *C. intermedia*, *E. tereticornis* and *C. dallachiana*. A sparse to mid-dense secondary tree layer may include *Melaleuca viridiflora* var. *viridiflora*, *Allocasuarina torulosa*, *Acacia* spp., *Planchonia careya*, and juvenile *Eucalyptus* spp. and *Corymbia* spp. There is occasionally a very sparse shrub layer of species such as *Glochidion lobocarpum*. The ground layer is commonly dominated by *Themeda triandra*, *Xanthorrhoea* spp., *Imperata cylindrica*, *Heteropogon* spp., *Sorghum nitidum* forma *aristatum* and *Mnesithea rottboellioides*. Occurs on low gently undulating landscapes (grading into land zone 3 or land zone 5) on Mesozoic to Proterozoic igneous rocks. Geology is mapped as Pla (Carmila Beds), DCc (Campwyn Beds), Kh (Hecate Granite), Ple (Calen Coal Measures) and PKgb (Bayfield Granite). Early Cretaceous - Late Devonian acid to intermediate flows and pyroclastics. Includes massive dacite and andesite pyroclastics. Not a Wetland. (BVG1M: 9b).

Vegetation communities in this regional ecosystem include:

8.12.20a: *Eucalyptus drepanophylla* and/or *E. platyphylla* woodland to open forest (10-25m tall). *Corymbia clarksoniana* and *E. tereticornis* are common associated species in the canopy, and *E. tereticornis* may occasionally be dominant. Other less frequent canopy species may include *C. tessellaris* and *C. dallachiana*. Occasional emergents are present, typically *E. drepanophylla* or *E. tereticornis*. The sparse secondary tree layer ranges from isolated plants often including *Melaleuca viridiflora* var. *viridiflora*, *Acacia leptocarpa*, *Planchonia careya* (and juvenile *Eucalyptus* spp. and *Corymbia* spp.), to a mid-dense layer dominated by *Melaleuca viridiflora* var. *viridiflora*. There is occasionally a shrub layer consisting of isolated plants (or a very sparse layer), typically dominated by *Glochidion lobocarpum*. The ground layer is grassy, with dominants including *Mnesithea rottboellioides*, *Themeda triandra*, *Sorghum nitidum* forma *aristatum*, *Chrysopogon fallax*, *Heteropogon triticeus*, *Imperata cylindrica*, *H. contortus* and *Eremochloa bimaclata*. *Xanthorrhoea johnsonii* may occasionally be present. Occurs on low gently undulating landscapes (grading into land zone 3 or land zone 5) on Mesozoic to Proterozoic igneous rocks (subregions 2 and 6). Geology types mapped include Pla (Carmila Beds), DCc (Campwyn Beds), Kh (Hecate Granite) and Ple (Calen Coal Measures). Early Cretaceous - Late Devonian acid to intermediate flows and pyroclastics. Includes massive dacite and andesite pyroclastics and subordinate lavas. Not a Wetland. (BVG1M: 9b).

8.12.20c: *Eucalyptus platyphylla* woodland to open forest (10-25m tall). Associated canopy species may include *Corymbia intermedia* and *E. crebra*, and less frequently *C. trachyphloia*, *Lophostemon suaveolens*, *C. clarksoniana*, *C. tessellaris* and *E. tereticornis*. There is often sparse lower tree layer with species such as *Allocasuarina torulosa*, *Acacia disparrima* subsp. *disparrima* and *Lophostemon suaveolens*. There is sometimes a sparse shrub layer, with species such as *Allocasuarina torulosa*, *Planchonia careya* and *Alphitonia excelsa*. The ground layer may be dominated by *Themeda triandra*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Imperata cylindrica* and *Heteropogon contortus*. Occurs on colluvial slopes of undulating rises to rolling low hills of lowlands and foothills, on Mesozoic to Proterozoic igneous rocks (subregion 4). Geology is mapped as PKgb (Bayfield Granite), PKdm (Double Mountain Volcanics), Ccs (Shoalwater Formation) and RKvp (Peninsula Range Volcanics). Early Cretaceous - Late Carboniferous leucocratic biotite granite, biotite-hornblende adamellite and dacitic crystal tuff. Not a Wetland. (BVG1M: 9b).

- Short description:** *Eucalyptus drepanophylla* and/or *E. platyphylla* +/- *Corymbia* spp. +/- *E. crebra* woodland on low gently undulating landscapes on Mesozoic to Proterozoic igneous rocks
- Supplementary descriptions:** Bailey et al. (2003), EP-12; Brushe et al. (in prep), Map units c34-12
- Subregions:** 6, 2, (4), (3), (11.14), (11.2)
- Protected areas:** Newry Islands NP, Skull Knob CP, Eungella NP, Cape Hillsborough NP, Andromache CP
- Extent in reserves:** Low
- Wetland:** Not a Wetland
- Special values:** 8.12.20: Potential habitat for NCA listed species: *Callicarpa thozetii*.  
8.12.20a: Habitat for endangered plant species *Callicarpa thozetii*.  
8.12.20c: Habitat for endangered plant species *Callicarpa thozetii*. Habitat for species poorly known from within the Central Queensland Coast bioregion such as *Grewia latifolia*, and species at the northern limit of their range including *Jacksonia scoparia*.

**Comments:**

8.12.20: Extensively cleared for agriculture and pastoral lands.

8.12.20a: Very similar to 8.12.20c which occurs only in subregion 4, whilst 8.12.20a occurs in the northern subregions (1-3). Similar to vegetation communities 8.12.6a and 8.12.6b (and sometimes 8.12.12d and 8.12.22) from which it can be distinguished by occurring on low, gently undulating landscapes as opposed to hills. In the past it occurred from Yeates Ck (20km south-east of Bowen) to near Bucasia in North Mackay and also near Mt Christian (25km south of Sarina). In 2006 it is found in much smaller scattered areas from Yeates Ck to Bucasia. Poor to moderate condition overall, being highly fragmented, and many sites being heavily invaded by weeds such as *\*Lantana camara*, *\*Mimosa pudica*, *\*Sporobolus jacquemontii* (and other introduced *Sporobolus* spp.), *\*Triumfetta rhomboidea*, *\*Stylosanthes* spp., *\*Stachytarpheta jamaicensis*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Themeda quadrivalvis* and many others. Threatened by weed invasion, grazing by horses and cattle, further fragmentation, and recreational use.

8.12.20c: Very similar to 8.12.20a which occurs only in northern subregions (1-3) whilst 8.12.20c occurs only in subregion 4. Also similar to the 8.12.12 series (especially 8.12.12b) from which it can be distinguished by occurring on gently undulating footslopes as opposed to steeper hills, and by *E. platyphylla* always being present. Also similar to vegetation communities 8.12.6a and 8.12.6b (and sometimes 8.12.22) from which it can be distinguished by occurring on low, gently undulating landscapes as opposed to hills (and also these regional ecosystems only occur in northern subregions (1-3), whilst 8.12.20c only occurs in subregion 4). Occurs in subregion 4. There are 2 small patches in the Polygon Range area, within the Shoalwater Bay Military Training Area and another at the base of the hills to the west of Corio Bay. Very susceptible to weed invasion, with common problem species including *\*Passiflora suberosa*, *\*P. pallida*, *\*Melinis minutiflora*, *\*Megathyrsus maximus*, *\*Passiflora foetida*.

**Estimated extent:**<sup>1</sup> Pre-clearing 43000 ha; Remnant 2021 17000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:** Under review

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## Regional ecosystem 8.12.22

**Description:** Eucalyptus drepanophylla and/or Corymbia clarksoniana woodland to open forest. Common to occasional codominant to associated species may include C. erythrophloia, E. platyphylla, E. exserta, C. trachyphloia and C. intermedia. Other rare to occasional species in the canopy which may be present include C. dallachiana, E. portuensis, E. tereticornis and C. intermedia. Includes occasional low open stands of E. melanophloia. A secondary tree layer (or tall shrub layer) forming a very sparse to mid-dense layer (to isolated plants) may be dominated by species such as Lophostemon confertus, Acacia leptocarpa, Acacia flavescens, Alphitonia excelsa, Planchonia careya, Glochidion lobocarpum, Timonius timon var. timon, various Eucalyptus spp. and Corymbia spp., and pioneering rainforest species. There is often a very sparse shrub layer, and dominant species may include Xanthorrhoea latifolia subsp. latifolia, Dodonaea viscosa subsp. burmanniana, Dodonaea lanceolata var. subsessilifolia, Acacia leptocarpa, Glochidion lobocarpum, Breynia oblongifolia and Cycas media. The ground layer is typically dominated by species such as Themeda triandra, Xanthorrhoea latifolia subsp. latifolia, Gahnia aspera, Sorghum nitidum forma aristatum, Aristida personata, Heteropogon triticeus, Themeda triandra, Mnesithea rottboellioides, Chrysopogon fallax and Imperata cylindrica. Occurs on slopes, ridges and crests (often in drier areas) on undulating low hills, rolling mountains and steep hills of foothills and uplands, at low to moderate altitudes, in drier areas. Geology types mapped include Pc/v (Carmila beds/v), Pc/s (Carmila beds/s), Pva (Ametdale Volcanics), DCc (Campwyn Volcanics) and Cvw (Whelan Creek Volcanics). Early Permian - Late Devonian rhyolitic to dacitic volcanoclastic rocks, siltstone, mudstone and volcanolithic sandstone. Not a Wetland. (BVG1M: 13c).

**Short description:** Eucalyptus drepanophylla and/or Corymbia clarksoniana +/- C. erythrophloia +/- E. platyphylla +/- E. exserta +/- C. trachyphloia woodland on hills and ranges at low to moderate altitudes in drier areas

**Supplementary descriptions:** Batianoff, Dillewaard and Franks (1997), Vegetation units 26 and 27 (in part); Cumming (1997), Vegetation types 9, 11, 12, 14, 15

**Subregions:** 3, 2, (11.14), (11.12)

**Protected areas:** Cape Palmerston NP, Newry Islands NP, Broad Sound Islands NP, Mount Hector CP

**Extent in reserves:** Low

**Wetland:** Not a Wetland

**Special values:** 8.12.22: Habitat for the endangered plant species Cycas ophiolitica. Northern limit of Cycas ophiolitica.

**Comments:** 8.12.22: Closely related to vegetation community 8.12.12a but tends to occur in slightly drier (southern) areas, and often includes species such as Eucalyptus exserta, Corymbia trachyphloia and E. melanophloia which are much rarer in 8.12.12. Distinguished from the RE 8.12.20 by occurring on distinct hills as opposed to gently undulating areas close to alluvium. Occurs on the eastern side of the Connors Range in southern parts of subregion 3. Also in subregion 2 from Newry Island to an area 3km north of The Leap and from Hay Point to Hill Creek (just north of Carmila). Generally relatively good, though some areas are heavily invaded by \*Lantana camara. Other problem weed species include \*Passiflora suberosa, \*P. pallida.

**Estimated extent:**<sup>1</sup> Pre-clearing 52000 ha; Remnant 2021 44000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:**

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## Regional ecosystem 8.12.23

**Description:** Eucalyptus moluccana woodland to open forest. Common to occasional associated canopy species may include E. drepanophylla and Corymbia citriodora. Other occasional species in the canopy which may be present include E. portuensis, C. intermedia, E. tereticornis, Lophostemon suaveolens and E. exserta. There is rarely a secondary tree layer consisting of isolated trees of species similar to the canopy. The shrub layer is very sparse to absent, with species sometimes including Xanthorrhoea latifolia subsp. latifolia and Breynia oblongifolia. The ground layer is often sparse to very sparse, and common dominants include Eremochloa bimaclata, Themeda triandra, Chrysopogon fallax, Lomandra longifolia, Sarga leiocladum, Xanthorrhoea latifolia subsp. latifolia, and Flemingia parviflora. Occurs on undulating plateaus on rolling mountains of uplands and highlands, on Mesozoic to Proterozoic igneous rocks on the drier western edge of the bioregion. Geology types mapped include CKr (Urannah Igneous Complex), CPvl (Leura Volcanics), Kh (Hecate Granite) and Cvm (Mountain View Volcanics). Early Cretaceous - Late Carboniferous undivided acid, intermediate and minor basic plutonic rocks. Also Tb - mostly Tertiary olivine basalt. Not a Wetland. (BVG1M: 13d).

**Short description:** Eucalyptus moluccana woodland on elevated tablelands on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:** Bean (1992b), Vegetation type Ec (in part)

**Subregions:** 3

**Protected areas:** Eungella NP, Homevale RR, Homevale NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.23: Habitat for some species which are uncommon in the bioregion and are outliers from more southern or high altitude areas including Polygala japonica, Dichelachne micrantha, Hardenbergia violacea, Microlaena stipoides, Ranunculus lappaceus and Veronica plebeia. Important as habitat for Eucalyptus moluccana which is relatively uncommon in the bioregion. The Eungella Honeyeater, (listed as "Near Threatened" in the Queensland Nature Conservation Act 1992), feeds in this ecosystem (targeting E. moluccana) for a few weeks of the year before nesting. Also Koala habitat.

**Comments:** 8.12.23: Easily distinguished from all other vegetation communities on land zone 12 by the dominance of E. moluccana. Occurs in subregion 3 scattered on the western edge of the Clarke and Connors Range from Proserpine Dam to 35km south of St Lawrence. It is most extensive on Dick's Tableland and Connors Range west of St Lawrence. Has been subject to some selective timber harvesting. Most areas are grazed and southern examples are moderately degraded with some weed invasion. Common weed species include \*Sporobolus jacquemontii and \*Ageratum conyzoides subsp. conyzoides.

**Estimated extent:**<sup>1</sup> Pre-clearing 3000 ha; Remnant 2021 3000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.12.25

**Description:** Eucalyptus tereticornis woodland to open forest. E. tereticornis x platyphylla is a common associated species in the canopy. Other occasional species in the canopy may include Allocasuarina littoralis, Corymbia clarksoniana, E. platyphylla and C. tessellaris. Occasionally pioneering rainforest species may be co-dominants in the canopy. A secondary tree layer may be present, ranging from a mid-dense layer of Allocasuarina littoralis and/or Lophostemon confertus, to isolated plants of these species and others such as pioneering rainforest species. Occasionally there is a well-developed mid-dense pioneering rainforest layer. There may be a shrub layer of isolated plants mainly consisting of rainforest pioneering species. The ground layer is dominated by species such as Imperata cylindrica, Heteropogon contortus, Xanthorrhoea latifolia subsp. latifolia, Sorghum nitidum forma aristatum, Gahnia aspera, Lomandra longifolia, Sehima nervosum and Themeda triandra. Occurs slopes, ridges and crests of islands, on undulating to rolling hills of lowlands and foothills. Mesozoic to Proterozoic igneous rocks with geologies mapped including Kg, Kw (Whitsunday Volcanics) and DCc (Campwyn Beds). Early Cretaceous - Late Devonian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Includes leucocratic alkali granite, granophyre and quartz syenite. Not a Wetland. (BVG1M: 9c).

**Short description:** Eucalyptus tereticornis +/- E. tereticornis x E. platyphylla woodland on hillslopes of islands on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:** Batianoff (1996), Vegetation unit 6Eh, 6Et; Kemp (2009), Etf, Etfv, Etw, Etfvp; Warriën and Lavarack (in prep), Vegetation unit 5d (in part), 5e (in part), 6i (in part)

**Subregions:** 2, 1

**Protected areas:** South Cumberland Islands NP, Newry Islands NP, Smith Islands NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.25: A rare (< 1000ha) regional ecosystem. Habitat for the poorly known orchid Nervilia plicata. Habitat for Koalas on St Bees island where they have been introduced, but where they are considered to be a valuable population of an animal which is threatened elsewhere in Queensland.

**Comments:** 8.12.25: Most closely related to vegetation community 8.12.12d from which it is distinguished by the clear dominance of Eucalyptus tereticornis or E. tereticornis x platyphylla. Also closely related to 8.12.26 but Corymbia tessellaris is never a prominent feature of the canopy, and 8.12.25 tends to have a lower, more open canopy than 8.12.26. Distinguished from 8.12.9 by the occurrence on islands instead of upland mountains, and 8.12.20a and 8.12.20c by the occurrence on islands on definite hillslopes (as opposed to mainland in gently undulating areas), and 8.12.27a and 8.12.27b by the occurrence on islands instead of the mainland and the usual absence of Livistona decora. Occurs on Hayman Island in the north, Goldsmith Island, Rabbit Island, Keswick Island and St Bees Island in the south. Damaged by goats and possums on Hayman Island. Damaged by goats on St. Bees Island where the natural ground layer has been modified and Aristida spp. (Especially A. personata) have become very prominent. Grazing on these islands by domesticated animals as well as some species of native fauna that were introduced to the islands (animals that were not present at European arrival) has caused a substantial impact by changing the composition of lower tree, shrub and ground layers and by assisting the spread of weeds. Weeds that are commonly a problem in this ecosystem include \*Lantana camara, \*Stachytarpheta jamaicensis, \*Passiflora suberosa, \*P. pallida, \*Triumfetta rhomboidea, \*Melinis repens, \*Ageratum conyzoides subsp. conyzoides, \*Bidens bipinnata, \*Megathyrsus maximus and \*Passiflora foetida.

**Estimated extent:**<sup>1</sup> Pre-clearing 500 ha; Remnant 2021 500 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.12.26

**Description:** *Corymbia tessellaris* and/or *Eucalyptus tereticornis* open forest. Other occasional to rarely present species in the canopy may include *Acacia spirorbis* subsp. *solandri*, *Lophostemon confertus*, *Timonius timon* var. *timon*, *E. platyphylla*, *Albizia procera*, *C. intermedia*, *C. clarksoniana*, and *Melaleuca viridiflora* var. *viridiflora*. There are occasional emergents of *Araucaria cunninghamii*. There is often a sparse to dense secondary tree layer of rainforest species including *Pittosporum ferrugineum*, *Mallotus philippensis*, *Drypetes deplanchei*, *Sersalisia sericea*, *Jagera pseudorhus*, *Euroschinus falcatus* and *Cupaniopsis anacardioides*. A shrub layer is sometimes present and may include *Glochidion lobocarpum*, *Timonius timon* var. *timon*, *Planchonia careya*, *Acacia leptocarpa*, *Clerodendron longiflorum* var. *glabrum*, and juvenile rainforest species. The ground layer ranges from very sparse to mid-dense, and often includes *Xanthorrhoea latifolia* subsp. *latifolia*, *Sorghum nitidum* forma *aristatum*, *Imperata cylindrica*, *Themeda triandra*, *Sorghum nitidum* forma *aristatum*, *Eustrephus latifolius*, *Chionachne cyathopoda*, *Lomandra longifolia* and *Heteropogon triticeus*. Occurs on slopes, ridges and crests on gently undulating rises to rolling hills of lowlands and foothills. Geologies mapped include PII (Airlie Volcanics), Cle (Edgecumbe Beds), Kp (Proserpine Volcanics) and Kw (Whitsunday Volcanics). Early Cretaceous - Early Carboniferous acid to intermediate pyroclastics and flows. Includes rhyolite and andesite. Not a Wetland. (BVG1M: 9c).

**Short description:** *Corymbia tessellaris* and/or *Eucalyptus tereticornis* open forest on hillslopes of islands and near coastal areas on Mesozoic to Proterozoic igneous rocks and Tertiary acid to intermediate volcanics

**Supplementary descriptions:** Batianoff, Dillewaard and Franks (1997), Vegetation unit 27 (in part); Warrien and Lavarack (in prep), Vegetation unit 5d (in part), 5e (in part), 6i (in part)

**Subregions:** 1, 2, (4), (6)

**Protected areas:** Molle Islands NP, Dryander NP, Smith Islands NP, Brampton Islands NP, South Cumberland Islands NP, Whitsunday Islands NP, Northumberland Islands NP, Lindeman Islands NP, Conway NP, Percy Isles NP, Holbourne Island NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.26: Habitat for the endangered Proserpine Rock Wallaby and the near threatened plant species *Xylosma ovata*.

**Comments:** 8.12.26: Most closely related to vegetation community 8.12.12d from which it is distinguished by the clear dominance of *Eucalyptus tereticornis* or *E. tereticornis* x *platyphylla*. Also closely related to 8.12.25 but *Corymbia tessellaris* is a much more prominent feature of the canopy than 8.12.25, and 8.12.25 tends to have a lower, more open canopy than 8.12.26. Distinguished from 8.12.9 by the occurrence in near coastal lowlands and islands instead of upland mountains, and 8.12.20a and 8.12.20c by the occurrence on definite hillslopes (as opposed to low lying gently undulating areas), and 8.12.27a and 8.12.27b by the lack of *Livistona decora* as a prominent feature. Occurs on the mainland from Woodward Bay (10km south-west of Airlie Beach), south to the Proserpine River mouth and a patch just north of Mackay. It is also on many islands from North Molle to Curlew Island. Threats include clearing (many areas are rural residential zone) and fire exclusion (which is detrimental to survival of Proserpine Rock Wallaby). This ecosystem also appears to be particularly prone to weed invasion, with the worst species currently being *\*Lantana camara*, *\*Centrosema molle*, *\*Bidens pilosa* and *\*Megathyrsus maximus*. Other significant weeds include *\*Passiflora suberosa*, *\*P. pallida*, *\*Stachytarpheta jamaicensis*, *\*Triumfetta rhomboidea*, *\*Ageratum conyzoides* subsp. *conyzoides* and *\*Melinis repens*.

**Estimated extent:**<sup>1</sup> Pre-clearing 5000 ha; Remnant 2021 3000 ha

**VM class:** Of concern

**Biodiversity status:** Endangered

**Biodiversity status notes:** Highly disturbed and subject to high cover of perennial non-native grasses at most known locations.

## Regional ecosystem 8.12.27

**Description:** *Corymbia tessellaris* and/or *Eucalyptus tereticornis* open forest. Common associated to codominant species in the canopy include *C. intermedia* and *C. clarksoniana*. Other occasional associated species may include *Livistona decora*, *Albizia procera*, *E. drepanophylla*, *Lophostemon suaveolens*, *E. platyphylla*, *C. intermedia* x *C. clarksoniana*, *E. exserta*, and various rainforest pioneering species. *Livistona decora* is dominant to subdominant in the secondary tree layer. A minimal shrub layer consisting of isolated plants may be present. The ground layer is sparse to mid-dense, and dominant and associated species may include *Imperata cylindrica*, *Gahnia aspera*, *Digitaria* sp., *Mnesithea rottboellioides*, *Heteropogon contortus* and *Scleria mackaviensis*. Occurs on low hills on Mesozoic to Proterozoic igneous rocks. Not a Wetland. (BVG1M: 9c).

Vegetation communities in this regional ecosystem include:

8.12.27a: *Corymbia tessellaris* open forest. *Eucalyptus tereticornis* is a common associated species in the canopy. Other occasional to common canopy species include *Livistona decora*, *Corymbia clarksoniana* and *Albizia procera*. Secondary tree layers are most commonly dominated by *Livistona decora*, with other common to occasional species including *Corymbia tessellaris*, *Timonius timon* var. *timon*, *Jagera pseudorhus* var. *pseudorhus* and various rainforest pioneering species. A minimal shrub layer consisting of isolated plants may be present, with species sometimes including *Glochidion lobocarpum*, *Mallotus philippensis*, *Planchonia careya* and various juvenile rainforest pioneering species. The ground layer may include *Imperata cylindrica*, *Gahnia aspera*, *Scleria mackaviensis*, *Eustrephus latifolius* and *Flemingia parviflora*. Occurs on slopes and crests on rolling low hills of foothills and isolated small hills in alluvial plains. Geologies mapped include Pc/s (Carmila beds/s), Pc/v (Carmila beds/v), DCc (Campwyn Volcanics), Kgwu (Wundaru Granodiorite) and Kg/d. Early Cretaceous - Late Devonian siltstone and mudstone, volcanilithic sandstone, conglomerate and rhyolitic to dacitic volcanoclastic rocks. Not a Wetland. (BVG1M: 9c).

8.12.27b: *Corymbia intermedia* or *C. clarksoniana* open forest. Common associated canopy species may include *C. tessellaris* and *Eucalyptus tereticornis*. Sometimes *C. intermedia* (or *C. clarksoniana*) are subdominants with dominant *C. tessellaris* and/or *E. tereticornis*. Other occasional associated species in the canopy may include *E. drepanophylla*, *Livistona decora*, *Lophostemon suaveolens*, *Albizia procera*, *E. platyphylla*, *C. intermedia* x *C. clarksoniana* and *E. exserta*. The lower tree layers are mid-dense to very sparse, and dominated or co dominated by *Livistona decora*, with associated species sometimes including *Lophostemon suaveolens*, *Albizia procera*, *Timonius timon* var. *timon*, *Acacia spirorbis* subsp. *solandri*, *Bursaria incana*, *Planchonia careya*, *Melaleuca viridiflora* var. *viridiflora* and various pioneering rainforest species. A minimal shrub layer consisting of isolated plants may be present, with species sometimes including *Hibiscus heterophyllus*, *Livistona decora*, *Glochidion apodogynum*, *Bursaria incana*, *Cycas media* subsp. *media* and *Planchonia careya*. The ground layer is sparse to mid-dense, and dominant and associated species may include *Digitaria* sp., *Mnesithea rottboellioides*, *Heteropogon contortus*, *Scleria mackaviensis*, *Gahnia aspera* and *Oplismenus burmanni*. Occurs on slopes, ridges and crests on rolling low hills to rolling hills of lowlands and foothills. Geologies mapped include DCc (Campwyn Volcanics), Cvm (Mountain View Volcanics), CKgu/g (Urannah Batholith), Pc/s (Carmila beds/s) and Cvm/b (Mountain View Volcanics/b). Early Cretaceous - Late Devonian siltstone, mudstone and volcanilithic and pebbly sandstone. Not a Wetland. (BVG1M: 9c).

<b>Short description:</b>	<i>Corymbia tessellaris</i> and/or <i>Eucalyptus tereticornis</i> +/- <i>C. intermedia</i> +/- <i>C. clarksoniana</i> open forest with a secondary tree layer of <i>Livistona decora</i> on low hills on Mesozoic to Proterozoic igneous rocks
<b>Supplementary descriptions:</b>	Batianoff, Dillewaard and Franks (1997), Vegetation unit 27 (Et and Ct); Champion (1994), Unit A and Unit C
<b>Subregions:</b>	2, 3
<b>Protected areas:</b>	Cape Palmerston NP, Kelvin NP
<b>Extent in reserves:</b>	Low
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	8.12.27a: A naturally restricted ecosystem. 8.12.27b: A naturally restricted ecosystem.

**Comments:**

8.12.27a: Distinguished from 8.12.27b by the lack of *Corymbia intermedia* forming a co-dominant species in the canopy. Otherwise most closely related to RE 8.12.26 from which it can be distinguished by the prominent presence of *Livistona decora*. Also related to vegetation community 8.12.12d from which it is distinguished by the clear dominance of *Eucalyptus tereticornis* and *C. tessellaris* and the prominent *Livistona decora* layer. Also related to 8.12.25 but *C. tessellaris* is a much more prominent feature of the canopy and 8.12.25 lacks a prominent *Livistona decora* layer. Distinguished from 8.12.9 by the occurrence in near coastal low hills instead of upland mountains, and 8.12.20a and 8.12.20c by the occurrence on definite hillslopes (as opposed to low lying gently undulating areas). Occurs around Mackay, from Shoal Point south to the Pioneer River and west to Sugarloaf Peak. The total area has been greatly reduced since pre-clearing time, with only small scattered patches remaining in 2006. Very poor, with most remnant areas being small isolated fragments in a cleared landscape. Lack of burning could be a problem, though burning now probably accelerates weed invasion. Many remnants have been selectively cleared or have regrown from very old clearing. Many sites are almost completely dominated by introduced species in the ground layer. The worst weeds are currently *\*Megathyrsus maximus* and *\*Lantana camara*, with other common weeds including *\*Passiflora suberosa*, *\*P. pallida*, *\*Stachytarpheta jamaicensis*, *\*Triumfetta rhomboidea*, *\*Centrosema molle*, *\*Hyparrhenia rufa*, *\*Melinis minutiflora* and *\*Mimosa pudica*.

8.12.27b: Distinguished from 8.12.27a by the dominance or sub-dominance of *Corymbia intermedia* (or *C. clarksoniana*). Otherwise most closely related to RE 8.12.26 from which it can be distinguished by the prominent presence of *Livistona decora*. Also related to vegetation community 8.12.12d from which it can also be distinguished by the *Livistona decora* layer. Also related to 8.12.25 but 8.12.25 lacks a prominent *Livistona decora* layer. Distinguished from 8.12.9 by the occurrence in near coastal low hills instead of upland mountains, and 8.12.20a and 8.12.20c by the occurrence on definite hillslopes (as opposed to low lying gently undulating areas). Scattered from Eimeo in North Mackay south to the eastern side of Connors Range 10km west of Carmila. In the past there was an extensive area between Sarina and Hay Point, this has been reduced to smaller scattered patches in the present day. Relatively poor, with past habitat fragmentation resulting in weed incursion. Some remnants have been selectively cleared or have regrown from very old clearing. Problem weeds include *\*Lantana camara*, *\*Melinis repens*, *\*Melinis minutiflora*, *\*Megathyrsus maximus*, *\*Ageratum conyzoides* subsp. *conyzoides*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Hyparrhenia rufa* and *\*Tridax procumbens*.

**Estimated extent:<sup>1</sup>**

Pre-clearing 13000 ha; Remnant 2021 3000 ha

**VM class:**

Endangered

**Biodiversity status:**

Endangered

**Biodiversity status notes:**

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## Regional ecosystem 8.12.28

**Description:** Semi-evergreen microphyll vine forest to vine thicket. Emergents are sometimes present, such as *Araucaria cunninghamii*, *Euroschinus falcatus*, *Brachychiton compactus*, *Brachychiton australis* and *Falcata toona*. The canopy consists of species such as *Acacia fasciculifera*, *Cleistanthus dallachyanus*, *Brachychiton compactus*, *Pleiogynium timorense*, *Terminalia porphyrocarpa* and *Terminalia melanocarpa*. There may be a lower tree layer including species including *Cleistanthus dallachyanus*, *Croton arnhemicus*, *Drypetes deplanchei*, *Dendrocnide photiniphylla*, *Acacia fasciculifera*, *Brachychiton acerifolius*, *Planchonella pohlmiana* and *Gossia bidwillii*. A shrub and/or lower tree layer is usually present, typically *Psydrax odorata*, *Eugenia reinwardtiana*, *Atalaya rigida*, *Turraea pubescens*, *Archidendropsis thozetiana*, *Tabernaemontana orientalis* and *Capparis arborea*. The ground layer may include *Ancistrachne uncinulata*, *Drynaria sparsisora*, *Pseuderanthemum variabile* and *Aneilema acuminatum*. Vines are common, especially *Melodorum crassipetalum*, *Cissus oblonga*, *Smilax australis* and *Dioscorea transversa*. Epiphytes include *Dendrobium discolor* and *Platyserium bifurcatum*. Occurs on slopes, ridges and crests on rolling hills of foothills. Geologies mapped as PII (Airlie Volcanics) and Kp (Proserpine Volcanics). Early Cretaceous - Early Permian acid to intermediate pyroclastics and flows. Includes rhyolite and andesite. May include some basalt. Not a Wetland. (BVG1M: 5b).

**Short description:** Semi-evergreen microphyll *Acacia fasciculifera*, *Terminalia* spp., *Brachychiton* spp. vine forest to vine thicket of near-coastal foothills on volcanics (subregion 1)

**Supplementary descriptions:** McDonald (1995), Group 2

**Subregions:** 1, (6)

**Protected areas:** Dryander NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.28: Habitat for the near threatened plant species *Brachychiton compactus* and *Solanum sporadotrichum*. Also habitat for plant species which are poorly known in the Central Queensland Coast Bioregion such as *Brachychiton acerifolius*, *Phyllanthus microcladus*, *Sarcocylus hillii* and *Vincetoxicum grandiflorum*; northern range limit of *Monococcus echinophorus*; southern range limit of *Marsdenia tricholepis*, *Brackenridgea australiana* and *Tetrastigma thorsborneorum*, and habitat for plant species with restricted distribution such as *Homalium* sp. (South Molle Island J.A.Gresty AQ208995). Habitat for Proserpine Rock Wallaby listed as "Endangered" in the Queensland Nature Conservation Act 1992.

**Comments:** 8.12.28: Distinguished from other land zone 12 closed forest ecosystems by the presence of characteristic species such as *Brachychiton compactus*, *Acacia fasciculifera*, and *Brachychiton australis*, and by occurring only in subregion 1. Restricted to subregion 1 coastal areas from the northern parts of the Dryander range (4km north of Earlando) to Bluff Point (5km north-west of Airlie Beach). May occur on some of the northern islands. Reasonably good, though the ecosystem is at risk from tourist or housing developments (due to the near-coastal distribution adjacent to idyllic bays). The variable and low structure of this ecosystem naturally enables light to penetrate, and it is therefore vulnerable to weed invasion, and in most places by weeds such as *\*Lantana camara*, *\*Passiflora suberosa*, *\*P. pallida* and *\*Solanum seafortianum* are present. This ecosystem is also at risk from fire, especially due to the possibility of rapid *\*Lantana camara* encroachment during recovery (which subsequently makes ecosystem more flammable and at risk of hotter fires).

**Estimated extent:**<sup>1</sup> Pre-clearing 1000 ha; Remnant 2021 1000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.12.29

**Description:** *Allocasuarina littoralis* and/or *Lophostemon confertus* and/or *Acacia leptostachya* and/or *Acacia disparrima* subsp. *disparrima* and/or *Acacia julifera* subsp. *curvinervia* and/or *Grevillea banksii* open shrubland to closed scrub (0.4 -10m tall). The canopy is very variable in species composition and structure. In some areas (for example St. Bees Island) the canopy may be co-dominate with or subdominated by pioneering rainforest species such as *Neolitsea brassii* and *Acronychia laevis*. Other associated species sometimes include *Eucalyptus exserta*, *Corymbia intermedia*, *Melaleuca viridiflora* var. *viridiflora*, *C. dallachiana*, *E. drepanophylla* and *E. exserta*. Lower tree and shrub layers are often dominated by similar species to the canopy, as well as shrubs such as *Dodonaea lanceolata* var. *subsessilifolia*, *Denhamia disperma*, *Lithomyrtus obtusa* and *Xanthorrhoea latifolia* subsp. *latifolia*. The ground layer often includes *Xanthorrhoea latifolia* subsp. *latifolia*, *Themeda triandra*, *Dianella caerulea* and *Gahnia aspera*. Occurs on slopes, ridges, crests and small scarps on undulating rises, rolling hills and steep rises of lowlands and foothills of headlands and islands, on Mesozoic to Proterozoic igneous rocks,

and minor areas of Tertiary acid volcanics (land zone 8) to intermediate volcanics. Often has shallow soil with rock at the surface. Geologies mapped include Kw (Whitsunday Volcanics), PKg, RKvp (Peninsula Range Volcanics) and Kg. Th (Cape Hillsborough Beds). Early Cretaceous - Late Permian waterlaid acid to intermediate air-fall pyroclastics. Th (Cape Hillsborough Beds). Tertiary acid volcanics. Not a Wetland. (BVG1M: 28e).

Vegetation communities in this regional ecosystem include:

8.12.29a: *Allocasuarina littoralis* closed heath to closed forest (to open shrubland to low open forest) (1-7m tall). Other occasional associated species in the canopy may include *Corymbia intermedia*, *Acacia leptostachya*, *Lophostemon confertus*, *C. clarksoniana*, *Eucalyptus exserta* and *E. drepanophylla*. In some areas (for example St. Bees Island) the canopy may be co-dominate with or subdominated by pioneering rainforest species such as *Neolitsea brassii* and *Acronychia laevis*, with occasional associated species including *Timonius timon* var. *timon*, *Ficus rubiginosa* forma *glabrescens* and *Macaranga involucrata* var. *mallotoides*. When the canopy is dense, lower strata are absent or consisting of isolated plants. A sparse to mid-dense shrub layer under more open canopies may include *Ficus opposita*, *Diospyros geminata*, *Tabernaemontana orientalis*, *Neolitsea brassii* and *Acronychia laevis*. The ground layer ranges from very sparse to dense, and is usually dominated by *Xanthorrhoea latifolia* subsp. *latifolia*, with other common species often including *Themeda triandra*, *Dianella caerulea*, *Eustrephus latifolius*, *Gahnia aspera*, *Lepidosperma laterale* var. *laterale*, *Lomandra longifolia*, *Imperata cylindrica* and *Hibbertia scandens*. Occurs on slopes, ridges and crests on rolling low hills, rolling mountains and steep hills of lowlands and foothills on islands and headlands. Geologies mapped include Kw (Whitsunday Volcanics) and Kg. Early Cretaceous waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Th (Cape Hillsborough Beds). Tertiary acid volcanics, conglomerate, shale, argillaceous sandstone and basalt. Not a Wetland. (BVG1M: 28e).

8.12.29b: *Lophostemon confertus* and/or *Acacia leptostachya* closed scrub to open forest (0.7 - 8m tall). Common codominant or associated species in the canopy are *Allocasuarina littoralis*, *Melaleuca viridiflora* var. *viridiflora*, *Corymbia dallachiana*, *Eucalyptus drepanophylla* and *E. exserta*. Other less common associated canopy species may include *Alphitonia excelsa* and *Corymbia intermedia*. Occasional emergents may include *Araucaria cunninghamii*, *Corymbia tessellaris* and *Eucalyptus drepanophylla*. One or more very sparse to sparse lower tree or shrub layers are often present, and dominants and associated species may include *Corymbia dallachiana*, *Eucalyptus drepanophylla*, *Acacia leptostachya*, *Lophostemon confertus*, *Melaleuca viridiflora* var. *viridiflora*, *Allocasuarina littoralis*, *Sersalisia sericea*, *Alphitonia excelsa*, *Alyxia spicata*, *Dodonaea lanceolata* var. *subsessilifolia*, *Denhamia disperma*, *Acacia multisiliqua*, *Acacia simsii*, *Melaleuca nervosa*, *Glochidion lobocarpum*, *Lithomyrtus obtusa*, *Acacia multisiliqua*, *Pseudanthus ligulatus* subsp. *ligulatus*, *Exocarpos latifolius* and *Coelospermum reticulatum*. The ground layer varies from very sparse to mid-dense, and dominant species may include *Xanthorrhoea latifolia* subsp. *latifolia*, *Eriachne pallescens* var. *pallescens*, *Gahnia aspera*, *Themeda triandra*, *Eustrephus latifolius*, *Jasminum didymum* and *Dianella caerulea*. Occurs on slopes, ridges, crests and small scarps on undulating low hills to steep hills of lowlands and foothills of islands and headlands (often with abundant rock at the surface). Geologies mapped include PKg, Kw (Whitsunday Volcanics), Kg and DCc (Campwyn Beds). Early Cretaceous - Late Devonian waterlaid acid to intermediate air-fall pyroclastics, minor pyroclastic flows and lavas. Includes leucogranite, microgranite and leucocratic alkali granite. Not a Wetland. (BVG1M: 28e).

8.12.29c: *Allocasuarina littoralis* and/or *Lophostemon confertus* and/or *Grevillea banksii* and/or *Acacia disparrima* subsp. *disparrima* and/or *Acacia julifera* subsp. *curvinervia* open shrubland to low closed forest (0.4-10m tall). The canopy is very variable in species composition and structure. Associated species may include *Banksia integrifolia* subsp. *compar*, *Melaleuca viridiflora* var. *viridiflora*, *Eucalyptus exserta*, *E. crebra*, *Leptospermum neglectum* and *L. polygalifolium*. Where the canopy consists of trees there are sometimes very sparse to mid-dense lower tree and shrub layers consisting of similar species to the canopy as well as species such as *Dodonaea lanceolata* var. *subsessilifolia*, *Petalostigma pubescens*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Alyxia ruscifolia*, *Pomaderris canescens*, *Hovea clavata* and *Lithomyrtus obtusa*. The ground layer ranges from very sparse to sparse and may include species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Themeda triandra*, *Dianella caerulea*, *Gahnia aspera*, *Hibbertia stricta*, *Patersonia sericea* and *Pimelea linifolia*. Occurs on slopes, ridges, crests and small scarps on undulating rises, rolling hills and steep rises of lowlands and foothills of headlands and islands, on Mesozoic to Proterozoic igneous rocks. Often has shallow soil with rock at the surface. Geologies mapped include RKvp (Peninsula Range Volcanics), Ki, Ccs (Shoalwater Formation) and SDh (Mount Holly beds). Early Cretaceous - Late Silurian pyroclastic crystal tuff, rhyolite flows, agglomerate, gabbro, leucodiorite and quartz hornblende diorite. Not a Wetland. (BVG1M: 28e).

**Short description:** *Allocasuarina littoralis* and/or *Lophostemon confertus* and/or *Acacia* spp. and/or *Grevillea banksii* open shrubland on islands and headlands on Mesozoic to Proterozoic igneous and Tertiary acid to intermediate rocks

<b>Supplementary descriptions:</b>	Batianoff, Dillewaard and Franks (1997), Vegetation unit 23b (in part), and 25 (in part); Bean (1991), Vegetation type 5; Cumming (1997), Vegetation type 20; Kemp (2009), All, Allc, Avs; Ryan et al. (2003), Vegetation unit 8H; Queensland Herbarium (2008), Caslof_12; Warrien and Lavarack (in prep), Vegetation unit 6f, 6g, 6e and 5d.
<b>Subregions:</b>	1, 6, 2, 5, 4, (11.14)
<b>Protected areas:</b>	Whitsunday Islands NP, Lindeman Islands NP, Gloucester Island NP, Percy Isles NP, Cape Hillsborough NP, South Cumberland Islands NP, Brampton Islands NP, Keppel Bay Islands NP (S), Northumberland Islands NP, Broad Sound Islands NP, Repulse Islands NP, Newry Islands NP, Smith Islands NP
<b>Extent in reserves:</b>	High
<b>Wetland:</b>	Not a Wetland
<b>Special values:</b>	<p>8.12.29: Potential habitat for NCA listed species: <i>Croton magneticus</i>, <i>Ozothamnus eriocephalus</i>, <i>Solanum graniticum</i>.</p> <p>8.12.29a: Habitat for <i>Leptospermum anfractum</i> which is uncommon in the Central Queensland Coast bioregion and here occurs near the southern limit of its range.</p> <p>8.12.29b: Habitat for threatened plant species <i>Solanum graniticum</i>, <i>Ozothamnus eriocephalus</i> and <i>Croton magneticus</i>. Also habitat for several plant species that are locally uncommon including <i>Ricinocarpos pinifolius</i>, <i>Leptosema oxylobioides</i>, <i>Pseudanthus ligulatus</i> subsp. <i>ligulatus</i> and <i>Tephrosia purpurea</i> var. <i>sericea</i>. Habitat for <i>Leptospermum anfractum</i> which is uncommon in the Central Queensland Coast bioregion and here occurs near the southern limit of its range.</p> <p>8.12.29c: Habitat for the near threatened plant species <i>Xylosma ovata</i>. Also habitat for plant species at the northern limit of their range including <i>Phebalium woombye</i>, <i>Pseudanthus orientalis</i>, <i>Hovea clavata</i>, <i>Patersonia sericea</i>, <i>Brachyloma daphnoides</i>, <i>Hibbertia vestita</i>, <i>Mirbelia rubiifolia</i> and <i>Mitrasacme alsinoides</i>, and for poorly known species including <i>Patersonia glabrata</i>, <i>Acianthus fornicatus</i>, <i>Caladenia catenata</i>, <i>Pomax umbellata</i> and <i>Pterostylis ophioglossa</i>.</p>



**Comments:**

8.12.29a: Closely related to 8.12.29b and 8.12.29c from which it can be distinguished by the dominance of *Allocasuarina littoralis*. The only other RE on land zone 12 dominated by *Allocasuarina littoralis* is 8.12.31b which occurs inland on mountainous ranges. May have a similar structure and species composition to the 8.12.10 series, however these occur on mountain tops, a little way inland from the sea, whereas 8.12.29a occurs on coastal windswept headlands and islands. Occurs at Cape Hillsborough on the mainland and on islands from Hook Island in the north to Keswick and St Bees Island in the south. Also found on South Percy Island in the Northumberland Island Group. Relatively good except on those islands which have been heavily grazed by goats - for example on St. Bees island grazing has reduced *Imperata cylindrica* and *Themeda triandra* cover, and has encouraged the dominance of *Aristida* spp. Weeds are also more common on heavily grazed islands, and problem species include \**Lantana camara*, \**Stachytarpheta jamaicensis*, \**Ageratum conyzoides* subsp. *conyzoides* and \**Passiflora suberosa*, \**P. pallida*.

8.12.29b: Very closely related to 8.12.29c and most easily distinguished by occurring in subregions 1 and 2 only (8.12.29c occurs in subregions 4 and 5). Distinguished from 8.12.29a by not being dominated by *Allocasuarina littoralis* (though it may be an associated species). Similar to 8.12.14c, but in 8.12.29b *Lophostemon confertus* ranges from an associated to a co-dominant species, whereas in 8.12.14c *Lophostemon confertus* is strongly dominant. Can be similar to 8.12.14a, but 8.12.14a is taller and strongly eucalypt dominated, whereas 8.12.29b is shrubbier and a more even mixture of eucalypts and non-eucalypts. May have a similar structure and species composition to the 8.12.10 series, however these occur on mountain tops, a little way inland from the sea, whereas 8.12.29b occurs on coastal windswept headlands and islands. Occurs from Cape Gloucester south to Ben Lomond on the mainland. Also mapped on many islands from Gloucester Island and Border Island in the Whitsunday Islands group south to Tern Island in Broad Sound Islands group. Generally good condition, though some areas have minor weed invasion. Problem species include \**Lantana camara*, \**Melinis repens*, \**Passiflora foetida*, \**Ageratum conyzoides* subsp. *conyzoides*, \**Passiflora suberosa*, \**P. pallida* and \**Stachytarpheta jamaicensis*.

8.12.29c: Can be very similar to 8.12.29a and 8.12.29b but occurs in subregions 4 and 5 only (8.12.29a and 8.12.29b occur only in the northern subregions) and also by the frequent presence of lower-stratum species which occur at the northern limit of their range which therefore do not occur in 8.12.29a or 8.12.29b. Distinguished from heath dominated examples of 8.12.13a by having a canopy > 0.4m tall. Can be similar to the 8.12.14 and 8.12.12 series which differ by being dominated by *Eucalyptus* spp. or *Corymbia* spp (except for 8.12.14c which occurs only in subregions 1 and 2). May have a similar structure and species composition to the 8.12.10 series, however, these occur on mountain tops a little way inland from the sea, whereas 8.12.29c occurs on coastal windswept headlands and islands. Occurs in subregion 5 from Cliff Point (5km north of Cape Manifold), to the headlands west of Island head Creeks mouth. Also near Stanage Bay and the northern end of Quail Island at the far north-west of Shoalwater Bay. Often in relatively good condition given the harsh nature of the habitat, which inhibits weed invasion. However \**Lantana camara* can be a problem in some sites. Herbaceous weeds which are sometimes present include \**Passiflora suberosa*, \**P. pallida*, \**Stylosanthes scabra* and \**Opuntia stricta*.

**Estimated extent:**<sup>1</sup> Pre-clearing 6000 ha; Remnant 2021 6000 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.12.30

**Description:** Evergreen notophyll mossy forest. The canopy is dominated by *Ristantia waterhousei*. Other canopy species may include *Pleioluma queenslandica*, *Cryptocarya macdonaldii*, *Cryptocarya murrayi*, *Archontophoenix alexandrae*, *Argyrodendron actinophyllum* subsp. *diversifolium*, *Cinnamomum laubatii*, *Cryptocarya grandis*, *Elaeocarpus eumundi*, *Cryptocarya vulgaris*, *Cryptocarya onoprienkoana* and *Sloanea langii*. Hanging bryophytes on tree branches are abundant and conspicuous. sub-canopy and lower tree layers may include *Archontophoenix alexandrae*, *Neisosperma poweri*, *Neolitsea dealbata*, *Diospyros pentamera* and *Guioa lasioneura*. Occasional shrubs or low saplings are *Wilkiea macrophylla*, *Tasmania insipida*, *Medicosma obovata*, *Polyscias australiana*, *Psychotria loniceroides*, *Psydrax lamprophylla* and *Tapeinosperma pseudojambosa*. Scattered ground stratum plants include *Blechnum cartilagineum*, *Arachnoides aristata*, *Calanthe triplicata*, Epiphytes include *Asplenium australasicum*, *Arthropteris tenella* and *Dockrillia teretifolia*. Common vines are *Cissus antarctica*, *Embelia australiana*, *Smilax australis* and *Calamus australis*. Confined to upper slopes and crests on rolling to steep mountains of uplands. Geology probably mainly rhyolite, but mapped as Kp (Kp = Proserpine Volcanics) and Kg. Early Cretaceous rhyolite, andesite, minor pyroclastics, leucocratic alkali granite, granophyre and quartz syenite. Not a Wetland. (BVG1M: 6b).

**Short description:** Evergreen notophyll *Ristantia waterhousei* mossy forest of uplands on rhyolite

### Supplementary descriptions:

**Subregions:** 1

**Protected areas:** Dryander NP

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.30: A rare regional ecosystem dominated by an endemic threatened plant species *Ristantia waterhousei*. Also habitat for vulnerable plant species *Medicosma obovata*. Also habitat for plant species at the southern limit of their range such as *Cestichis nugentiae* and species poorly known in the Central Queensland Coast bioregion such as *Dockrillia teretifolia*.

**Comments:** 8.12.30: Distinguished from all other closed forest ecosystems on land zone 12 by the dominance of *Ristantia waterhousei* in the canopy. Confined to Mt Dryander in subregion 1. Approximately 15km north of Proserpine and 15km west of Airlie Beach. Probably good given the remoteness, and is probably fairly resistant to weed invasion having a heavily closed canopy.

**Estimated extent:**<sup>1</sup> Pre-clearing 500 ha; Remnant 2021 500 ha

**VM class:** Of concern

**Biodiversity status:** Of concern

**Biodiversity status notes:**

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## Regional ecosystem 8.12.31

**Description:** *Eucalyptus resinifera* and/or *E. portuensis* and/or *E. acmenoides* and/or *Allocasuarina littoralis* and/or *A. torulosa* closed forest to low open forest (to closed scrub) (4-40m tall). Other associated species in the canopy may include *Corymbia intermedia*, *Syncarpia glomulifera* subsp. *glomulifera*, *Banksia integrifolia* subsp. *compar*, *C. trachyphloia* and occasionally *E. exserta*, *E. suffulgens* and *Lophostemon confertus*. There is often a very sparse to mid-dense secondary tree layer consisting of species such as *Allocasuarina* spp., *Acacia aulacocarpa*, *A. spirorbis* subsp. *solandri*, *Corymbia intermedia*, *Banksia integrifolia* subsp. *compar* and *A. flavescens*. The very sparse to sparse shrub layer typically includes species such as *Grevillea banksii*, *Allocasuarina torulosa*, *Lophostemon confertus* and *Xanthorrhoea latifolia* subsp. *latifolia*. The ground layer ranges from mid-dense to sparse, and often includes species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Themeda triandra*, *Acrotriche aggregata*, *Hardenbergia violacea*, *Desmodium gunnii*, *Desmodium rhytidophyllum*, *Glycine cyrtoloba* and *Lepidosperma laterale* var. *laterale*. Occurs on moist slopes, tablelands, ridges, crests and small scarps on rolling to steep mountains, mainly above 400m, on Mesozoic to Proterozoic igneous rocks. Geologies mapped include CKr (Urannah Igneous Complex), CPgpg (Pisgah Igneous Complex), Pc/s (Carmila beds/s), CKgu/g (Urannah Batholith) and Cvw (Whelan Creek Volcanics). Early Cretaceous - Late Carboniferous acid, intermediate and basic plutonic rocks. Not a Wetland. (BVG1M: 9d).

Vegetation communities in this regional ecosystem include:

8.12.31a: *Eucalyptus resinifera* and/or *E. portuensis* and/or *E. acmenoides* closed forest to low open forest (to closed scrub) (4-40m tall). Associated canopy species may include *Corymbia intermedia*, *Syncarpia glomulifera* subsp. *glomulifera*, *Banksia integrifolia* subsp. *compar*, *C. trachyphloia* and occasionally *E. exserta*, *E. suffulgens* and *Lophostemon confertus*. There is often a very sparse to mid-dense secondary tree layer (and sometimes a tertiary layer) consisting of species such as *Allocasuarina littoralis*, *A. torulosa*, *Acacia aulacocarpa*, *Corymbia intermedia*, *Banksia integrifolia* subsp. *compar*, *A. flavescens* and *Lophostemon confertus*. The very sparse to sparse shrub layer typically includes species such as *Grevillea banksii*, *Allocasuarina torulosa*, *Lophostemon confertus*, *Xanthorrhoea latifolia* subsp. *latifolia*, *Bursaria tenuifolia*, *Cassinia subtropica*, *Leptospermum polygalifolium* and *Acacia falcata*. The ground layer ranges from mid-dense to sparse, and often includes species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Themeda triandra*, *Acrotriche aggregata*, *Hardenbergia violacea*, *Desmodium gunnii*, *Desmodium rhytidophyllum* and *Glycine cyrtoloba*. Occurs on moist slopes, tablelands, ridges, crests and small scarps on rolling to steep mountains, mainly above 500m, on Mesozoic to Proterozoic igneous rocks. Geology is mapped as CKr (Urannah Igneous Complex), CPgpg (Pisgah Igneous Complex), Pc/s (Carmila beds/s), CKgu/g (Urannah Batholith) and Cvw (Whelan Creek Volcanics). Early Cretaceous - Late Carboniferous acid, intermediate and basic plutonic rocks. Not a Wetland. (BVG1M: 9d).

8.12.31b: *Allocasuarina littoralis* and/or *A. torulosa* closed forest to closed scrub (to open forest). Occasional associated species may include *Corymbia intermedia* and *Banksia integrifolia* subsp. *compar*. *Xanthorrhoea latifolia* subsp. *latifolia* may form a prominent mid-dense to sparse shrub layer, or may be a part of the ground layer. Other associated shrub layer species may include *Acacia spirorbis* subsp. *solandri*, *Banksia integrifolia* subsp. *compar*, and *Duboisia myoporoides*. The ground layer may include species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Lepidosperma laterale* var. *laterale* and *Oplismenus* spp. Occurs on slopes, tablelands, ridges and crests on rolling to steep mountains, mainly above 400m. Geologies mapped include Cvw (Whelan Creek Volcanics), CKgu/g (Urannah Batholith), CPgsc (Stony Creek Granite), Kgms (Mount Scott Granite) and Kgcc (Cameron Creek Granite). Early Cretaceous - Late Carboniferous rhyolitic ignimbrite, biotite granite and biotite-hornblende. Not a Wetland. (BVG1M: 28e).

**Short description:** *Eucalyptus resinifera* and/or *E. portuensis* and/or *E. acmenoides* and/or *Allocasuarina* spp. open forest on moist upper slopes of ranges on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:** Bean (1992b), Et (in part), Lo (in part); Brushe et al. (in prep), Map Unit c86

**Subregions:** 3, (4)

**Protected areas:** Crediton FR, Eungella NP, Homevale NP, Kelvin NP, Pioneer Peaks NP, Connors FR, Kelvin FR

**Extent in reserves:** High

**Wetland:** Not a Wetland

<b>Special values:</b>	<p>8.12.31: Potential habitat for NCA listed species: <i>Bertya sharpeana</i>, <i>Ozothamnus eriocephalus</i>, <i>Parsonsia larcomensis</i>.</p> <p>8.12.31a: Habitat for the Glossy Black Cockatoo and <i>Ozothamnus eriocephalus</i>, both listed as "Vulnerable" in the Queensland Nature conservation Act 1992. Also habitat for <i>Eucalyptus acmenoides</i> which is uncommon in Central Queensland Coast and is mostly confined to higher altitudes and/or higher rainfall areas. Northern limit for the plant species <i>Glossodia major</i>, <i>Sprengelia sprengelioides</i> and <i>Austrostipa rudis</i>. Habitat for a large number of herbaceous species that are locally rare (restricted to the higher altitudes) and are more typical of southern cooler climates, including <i>Leucopogon juniperinus</i>, <i>Cassinia subtropica</i>, <i>Acacia falcata</i>, <i>Acacia melanoxylon</i>, <i>Eucalyptus resinifera</i>, <i>Desmodium gunnii</i>, <i>Glycine microphylla</i>, <i>Ranunculus lappaceus</i>, <i>Geranium homeanum</i>, <i>Hydrocotyle acutiloba</i>, <i>Clematis glycinoides</i>, <i>Lobelia gibbosa</i>, <i>Plantago debilis</i>, <i>Senecio prenanthoides</i>, <i>Veronica plebeia</i> and <i>Viola hederacea</i>. Also habitat for restricted or poorly known species in the Central Queensland Coast such as <i>Banksia spinulosa</i>, <i>Hibbertia cistoidea</i>, <i>Acacia penninervis</i> var. <i>penninervis</i>, <i>Caustis recurvata</i>, <i>Chorizema parviflorum</i>, <i>Gleichenia dicarpa</i>, <i>Hibbertia velutina</i>, <i>Ophioglossum reticulatum</i>, <i>Oplismenus imbecillis</i>, <i>Pomaderris ferruginea</i>, <i>Pultenaea retusa</i> and <i>Zieria minutiflora</i>.</p> <p>8.12.31b: Habitat for the threatened species Glossy Black Cockatoo, which is listed as "Vulnerable" in the Queensland Nature conservation Act 1992.</p>
<b>Comments:</b>	<p>8.12.31a: Closely related to 8.12.31b but is dominated by <i>Eucalyptus</i> spp. instead of <i>Allocasuarina</i> spp. Also closely related to 8.12.32 which does not include <i>E. resinifera</i> and which usually occurs at slightly lower altitudes, and lower rainfall, and often has a more prominent presence of <i>Corymbia intermedia</i>. Scattered along the Clarke and Connors Ranges from Pine Mountain (west of Bloomsbury) to Fort Arthur (20km south-west of Clairview) in subregion3. In subregion 4 it is found on the Polygon Range and Coast Range. Often in relatively good condition, but has been impacted by timber harvesting in many areas, leading to a reduction in tree basal area. Occasional areas are subject to removal of <i>Allocasuarina</i> for pasture improvement purposes. The weed <i>Lantana camara</i> is a problem at some sites. Mechanical disturbance and grazing by cattle may have assisted the spread of weeds. Some herbaceous weed species present include <i>Bidens pilosa</i>, <i>Triumfetta pilosa</i>, <i>Triumfetta rhomboidea</i>, <i>Melinis repens</i>, <i>Passiflora suberosa</i>, <i>P. pallida</i>, <i>Crassocephalum crepidioides</i>, <i>Conyza sumatrensis</i>, <i>Asclepias curassavica</i>, <i>Passiflora subpeltata</i> and <i>Cirsium vulgare</i>.</p> <p>8.12.31b: Closely related to 8.12.31a and 8.12.32, but distinguished from these by the clear dominance of <i>Allocasuarina</i> spp. in the canopy. Distinguished from 8.12.29a by occurring in mountainous areas on the mainland (8.12.29a occurs on islands and headlands). Occurs in subregion 3, scattered along the Clarke and Connors Ranges from Mt Pinnacle near Finch Hatton to an area 16km west of Clairview. Also mapped at Mt Blackwood (east of Kuttatbul). Largely unknown but probably reasonably good given the remoteness of most of this vegetation community.</p>
<b>Estimated extent:</b> <sup>1</sup>	Pre-clearing 29000 ha; Remnant 2021 28000 ha
<b>VM class:</b>	Least concern
<b>Biodiversity status:</b>	No concern at present
<b>Biodiversity status notes:</b>	

## Regional ecosystem 8.12.32

**Description:** *Corymbia intermedia* woodland to open forest (15-34m tall). Includes small areas dominated by *Allocasuarina littoralis* and/or *Eucalyptus exserta* and/or *Lophostemon confertus* woodland to closed forest (3-15m tall). Associated canopy species may include *E. portuensis*, *Lophostemon suaveolens*, *E. tereticornis*, *Banksia integrifolia* subsp. *compar*, *Allocasuarina littoralis*, *A. torulosa*, *E. drepanophylla* and *E. crebra*. A secondary tree layer is often present, with species usually including *Allocasuarina torulosa*, *A. littoralis*, *Banksia integrifolia* subsp. *compar* and *Lophostemon suaveolens*. A very sparse to mid-dense shrub layer is often present, with typical species including *Banksia integrifolia* subsp. *compar*, *Allocasuarina* spp. and *Xanthorrhoea latifolia* subsp. *latifolia*. The ground layer may be dominated by species such as *Xanthorrhoea latifolia* subsp. *latifolia*, *Themeda triandra*, *Imperata cylindrica*, *Heteropogon triticeus*, *Pteridium esculentum*, *Sorghum nitidum* forma *aristatum* and *Mnesithea rottboellioides*. Occurs on slopes, ridges, crests and tablelands on undulating hills to steep mountains of foothills and uplands, on Mesozoic to Proterozoic igneous rocks. Geologies mapped as CKr (Urannah Igneous Complex), CPgte (Teemburra Igneous Complex), CPgga (Gargett Granite), CPg and CPgjo (Johnstone Creek Igneous Complex). Early Cretaceous - Late Carboniferous undivided acid, intermediate and minor basic plutonic rocks. Not a Wetland. (BVG1M: 9c).

**Short description:** *Corymbia intermedia* +/- *E. portuensis* +/- *E. exserta* open forest to woodland with areas of *Allocasuarina* spp. +/- *Banksia integrifolia* open forest on high ranges on Mesozoic to Proterozoic igneous rocks

**Supplementary descriptions:** Bailey et al. (2003), AL-12; Bean (1992b), Og (in part); Brushe et al. (in prep), Map units c88, c89

**Subregions:** 3, 4, (11.2), (11.14)

**Protected areas:** Homevale NP, Eungella NP, Crediton FR

**Extent in reserves:** High

**Wetland:** Not a Wetland

**Special values:** 8.12.32: Habitat for the threatened species Glossy Black Cockatoo, which is listed in the Queensland Nature conservation Act 1992. Northern limit for *Glossodia major*, *Olearia nernstii*, *Parsonsia leichhardtii*, *Macrozamia miquelii*, *Acianthus amplexicaulis*, *Hovea clavata*, *Mirbelia rubiifolia*, *Persoonia virgata*, *Phebalium woombye*, *Pomaderris ferruginea* and *Pseudanthus orientalis*. Habitat for species which are poorly known in the Central Queensland Coast, including *Cyathea australis*, *Banksia spinulosa* var. *spinulosa*, *Cassinia subtropica*, *Hibbertia velutina*, *Monotoca scoparia*, *Gompholobium pinnatum*, *Cassinia subtropica*, *Comesperma esulifolium*, *Homalanthus stillingiifolius*, *Leucopogon flexifolius*, *Patersonia glabrata*, *Pultenaea retusa* and *Ranunculus lappaceus*.

**Comments:** 8.12.32: Most closely related to the 8.12.5 series from which it can be distinguished by being dominated by *Corymbia intermedia*. Also related to the 8.12.31 series but tends to occur at slightly lower altitudes and excludes *E. resinifera*. Occurs from near Mt Flat Top on the Clarke Range (40km west of Lethebrook) to Pisgah Range 20km north of Nebo in subregion 3. In subregion 4 it is mapped on the Polygon Range, Coast Range and Peninsula Range. Ranges from good to very poor. Many areas have been grazed heavily and some areas have been harvested for timber. This ecosystem is vulnerable to weed invasion. Common weed species include *\*Lantana camara*, *\*Triumfetta rhomboidea*, *\*Passiflora suberosa*, *\*P. pallida*, *\*Ageratum conyzoides* subsp. *conyzoides*, *\*Melinis minutiflora*, *\*Melinis repens*, *\*Axonopus fissifolius*, *\*Crassocephalum crepidioides*, *\*Dichanthium annulatum*, *\*Themeda quadrivalvis* and *\*Stachytarpheta jamaicensis*.

**Estimated extent:**<sup>1</sup> Pre-clearing 29000 ha; Remnant 2021 28000 ha

**VM class:** Least concern

**Biodiversity status:** No concern at present

**Biodiversity status notes:**

<sup>1</sup> Estimated extent is from the current released version of the pre-clearing and remnant regional ecosystem mapping. Figures are rounded for simplicity. For more precise estimates, including breakdowns by tenure and other themes see remnant vegetation in Queensland (<https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/remnant-vegetation/>)

<sup>2</sup> Superseded: Revision of the regional ecosystem classification removed this regional ecosystem code from use. It is included in the regional ecosystem description database because the RE code may appear in older versions of RE mapping and the Vegetation Management regulation.