

## Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregions

### Conservation Status:

Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregions is listed as an Endangered Ecological Community (EEC) in Part 3 of Schedule 1 of the NSW Threatened Species Conservation (TSC) Act 1995. Littoral Rainforest is also listed as a critically endangered ecological community under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. SEPP 26.



Littoral rainforest - Brunswick Heads Nature Reserve

photo: David Milledge

### Description

Last updated January 2010

The Final Determination of the NSW Scientific Committee (2004) describes the EEC “Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregions” as:

*..generally a closed forest, the structure and composition of which is strongly influenced by proximity to the ocean. The plant species in this ecological community are predominantly rainforest species with evergreen mesic<sup>1</sup> or coriaceous<sup>2</sup> leaves. Several species have compound leaves, and vines may be a major component of the canopy. These features differentiate Littoral Rainforest from sclerophyll forest or scrub, but while the canopy is dominated by rainforest species, scattered emergent individuals of sclerophyll species, such as *Angophora costata*, *Banksia integrifolia*, *Eucalyptus botryoides* and *E. tereticornis* occur in many stands. Littoral Rainforest in NSW is found at locations along the entire NSW Coast in the NSW North Coast Bioregion, Sydney Basin Bioregion and South East Corner Bioregion.*

A full description of the EEC is provided on the Department of Environment and Climate Change (DECC) website <http://www.nationalparks.nsw.gov.au> The description of Littoral Rainforest in the NSW Scientific Committee’s Final Determination (2004) is more characteristic of the community occurring in the Sydney Basin and South East Corner Bioregions than in the North Coast Bioregion, particularly in the northern

half, where it tends to be more diverse and dominated by a different suite of species.

Coast Banksia *Banksia integrifolia* is a common component of Littoral Rainforest in the North Coast Bioregion rather than a scattered emergent and dominates many stands, particularly young regrowth rainforest. Smooth-barked Apple *Angophora costata* and Bangalay *Eucalyptus botryoides* do not occur in Littoral Rainforest in much of north-eastern NSW and Forest Red Gum *E. tereticornis* is only occasionally present as an emergent, for example at Brunswick Heads.

In Byron Shire the physical structure and floristic composition of Littoral Rainforest varies according to the substrate and degree of exposure to littoral influences. The widely-distributed Beach Acronychia *Acronychia imperforata*-Tuckeroo *Cupaniopsis anacardioides* -Three-veined Laurel *Cryptocarya triplinervis* - Beach Alectryon *Alecryon coriaceus* association occurs in sheltered, fire-protected sites on siliceous sands with Coast Banksia common in the canopy where there is an increase in fire frequency or other disturbance (Landmark et al. 1999).

Examples of this association occur behind the dunes at Clarks Beach and Suffolk Park. Brushbox *Lophostemon confertus* is common to dominant in littoral rainforest on metasediments at Broken Head (Headland Brushbox type, Forestry Commission of NSW 1989; Suballiance No.

<sup>1</sup> Containing a moderate amount of moisture, neither humid nor very dry.

<sup>2</sup> Leaves of thick, leathery and tough texture.

18, *Lophostemon confertus*, Floyd 1990) and in Littoral Rainforest on hind dunes at Suffolk Park and south of Broken Head. The NSW Scientific Committee (2004) notes that “the areas mapped for inclusion in State Environmental Planning Policy (SEPP) No. 26 Littoral Rainforest are examples of the Littoral Rainforest ecological communities, but the mapping for SEPP 26

is not exhaustive and stands of the Littoral Rainforest ecological community occur at locations not mapped under SEPP 26. Some stands may be regrowth or in the process of regenerating”. This is the case in Byron Shire, where SEPP 26 mapping is confined to limited areas around Broken Head, Marshalls Creek, Brunswick Heads and Cape Byron.

## Distribution and Trends

### National and State

Littoral Rainforest is found throughout coastal eastern Australia although the floristic composition varies greatly according to soils, climate and geographic location. The community described by the NSW Scientific Committee (2004) is necessarily confined to NSW and occurs from the New South Wales-Victorian border (South East Corner Bioregion) to the New South Wales-Queensland border (North East Corner Bioregion) although littoral rainforests not included in the determination also occur in other Australian states.

Littoral rainforest has been greatly reduced in area and is now extremely limited in extent since European settlement largely as a result of clearing for agriculture, sandmining and more recently coastal development (Keith 2006). Littoral Rainforest occurs in numerous,

small stands and in total comprises less than 1% of the total area of rainforest in NSW (NSW Scientific Committee 2004).

### Local

In Byron Shire Littoral Rainforest occurs as disjunct stands along the coastal strip (generally within 2 km of the coast) on a range of substrates including:

- **Sand** - Ocean Shores, Marshall’s Creek, Belongil Creek, Broken Head
- **Metasediments**<sup>3</sup> - Brunswick Heads, Cape Byron, Broken Head
- **Alluvium**<sup>4</sup> - Brunswick Heads
- **Basalt**<sup>5</sup> - Anderson’s Ridge, Gray’s Lane

## Ecology

### Habitat

The NSW Scientific Committee (2004) describes the habitat of the Littoral Rainforest EEC as occurring “on both sand dunes and on soils derived from underlying rocks”.

Most stands of Littoral Rainforest occur within 2 km of the sea, but may occasionally be found further inland, but within reach of maritime influence (DEC 2005).

Lowland Rainforest and Lowland Rainforest on Floodplain (also listed as Endangered Ecological Communities under the TSC Act 1995) may replace and intergrade with Littoral Rainforest with decreasing maritime influence (NSW Scientific Committee 2006)

Figure 3: Typical structure of a littoral rainforest

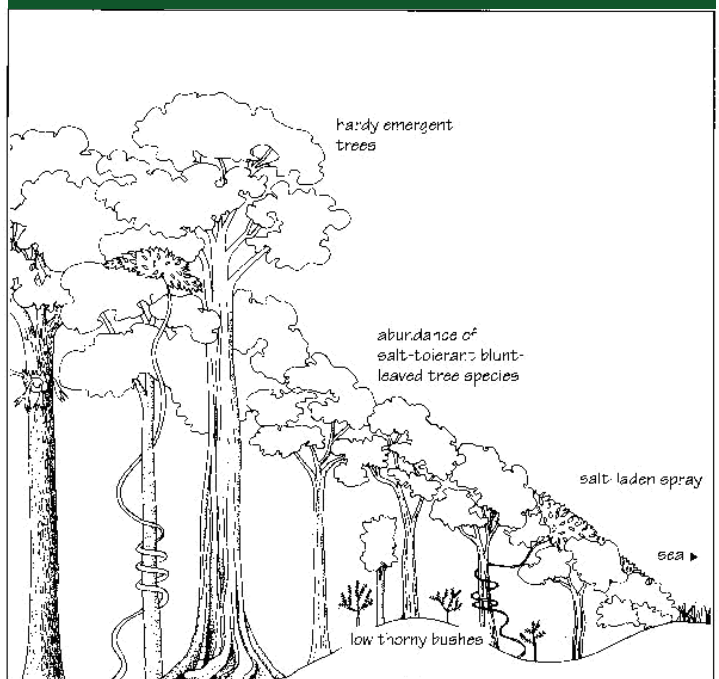


Image: Botanic Gardens Trust

<sup>3</sup> Sediments or sedimentary rocks which have undergone metamorphism.

<sup>4</sup> Sediment deposited by flowing water which can include clay, silt, sand and gravel.

<sup>5</sup> Basalt is a dark coloured, fine grained igneous rock.

## Flora and Fauna

In Byron Shire the Littoral Rainforest EEC is known to provide important habitat for Threatened flora (TSC Act 1995) including:

- Stinking Cryptocarya *Cryptocarya foetida*
- Basket Fern *Drynaria rigidula*
- White Laceflower *Archidendron hendersonii*
- Xylosma *Xylosma terra-reginae*
- Scented Acronychia *Acronychia littoralis*
- Brown Fairy Chain Orchid *Peristeranthus hillii*

Littoral Rainforest also provides important habitat for Threatened fauna (DECC 2008) such as:

- The Rose-crowned Fruit-dove *Ptilinopus regina*
- Superb Fruit-dove *P. superbus*
- Wompoo Fruit-dove *P. magnificus*
- Mangrove Honeyeater *Lichenostomus fasciogularis*
- Barred Cuckoo-shrike *Coracina lineata*
- White-eared Monarch *Monarcha leucotis*
- Eastern Blossom-bat *Syconycteris australis*
- Black Flying-fox *Pteropus alecto*
- Grey-headed Flying-fox *P. poliocephalus*
- Eastern Long-eared Bat *Nyctophilus bifax*

## Threats

The NSW Scientific Committee (2004) lists the following threats to Littoral Rainforest:

- o Weed species threatening the integrity of stands.

I. Weed species that threaten the integrity of particular stands locally include Fishbone Fern *Nephrolepis cordifolia*, Madeira Vine *Anredera cordifolia*, Asparagus Fern *Asparagus spp.*, Bitou *Chrysanthemoides monilifera*, Glory Lily *Gloriosa superba*, Morning Glory *Ipomoea spp*; Lantana *Lantana camara*, Queensland Umbrella Tree *Schefflera actinophylla*, Winter Senna *Senna pendula*, Arsenic Bush *Senna septemtrionalis* and Trad *Tradescantia fluminensis*. Cherry Guava *Psidium cattleianum* poses a serious threat to Littoral Rainforest in the Broken Head Nature Reserve.

- o Loss of canopy integrity arising from salt and wind damage as a result of clearing or damage to stand margins.
- o Clearing of understorey.
- o Inappropriate collection of a range of plant species (including, but not restricted to, epiphytes<sup>6</sup>).
- o Fire, particularly fire incursion along boundaries.
- o Visitor disturbance including soil compaction, soil disturbance, erosion from foot, cycle, trail bike and 4 wheel drive tracks.

- o Introduction of pathogens, and disturbance from creation of new planned and unplanned tracks.

- o Increased visitation and resulting increased demand for and use of, visitor facilities such as walking tracks, viewing platforms, toilet blocks, picnic areas etc; car and other rubbish dumping.

- o Loss of fauna from Littoral Rainforest due to predation by feral animals, road kill, loss of habitat and feeding resources, disturbance from human visitation (faunal elements are essential to the ecological functioning of Littoral Rainforest and loss, or reduction, in pollinators and seed dispersal agents will adversely affect long term vegetation health).

- o Fragmentation resulting in loss of connectivity and possibly reduced genetic exchange between populations.

- o Dumping of garden waste in areas adjacent to Littoral Rainforest is a major threat in Byron Shire as garden waste often includes environmental weed species that then colonise and degrade the community. All the threats listed above are relevant to the Littoral Rainforest EEC in Byron Shire.

<sup>6</sup>Plants which grow on other plants, without deriving nourishment from the host plant.

## Management Actions for Byron Shire

- o Identify and protect smaller Littoral Rainforest stands not included in Byron Shire Council vegetation mapping;
- o Supervise acknowledged sites to identify key threats or progress of recovery;
- o Buffer, expand and connect remnant Littoral Rainforest stands using established ecological restoration methods;
- o Control weeds in Littoral Rainforest stands using established low-impact methods;
- o Protect Littoral Rainforest edges during road-works;
- o Restrict human use of Littoral Rainforest to existing formed tracks;
- o Protect Littoral Rainforest from fire by establishing fire breaks or suitable buffers and using appropriate methods for fuel reduction;
- o Exclude grazing from Littoral Rainforest by fencing;
- o Control feral animals within Littoral Rainforest;
- o Regulate recreational visitor access to ensure disturbance is minimized;
- o Install interpretive signage for visitor education/information, so as to reduce visitor impact;
- o Do not dump garden waste in or near Littoral Rainforest stands and promote community awareness of the detrimental impacts of this practice;
- o Do not plant species that are listed by Byron Shire Council as environmental weeds or that are known to adversely impact on Littoral Rainforest;
- o Seek a permit from the DECCW before collecting fruit or seed from Littoral Rainforest, buy Littoral Rainforest plants only from appropriately licensed nurseries and ensure plants are sourced from local wild Littoral Rainforest populations;
- o Support local Landcare and Dunecare groups working in Littoral Rainforest.

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Typical structure of a littoral rainforest [Image]. (n.d.). Retrieved 30th November, 2009 from [http://www.rbg Syd.nsw.gov.au/education/Resources/rainforests/Australian\\_Rainforests/Littoral\\_rainforests](http://www.rbg Syd.nsw.gov.au/education/Resources/rainforests/Australian_Rainforests/Littoral_rainforests)

### Candidate Locations of Endangered Ecological Communities within Byron Shire

- Community Location
- National Parks & Nature Reserves



Figure 3: Littoral rainforest distribution Byron Shire