Vegetation On Fraser Island

Imagine towering pines, rainforest trees with three metre girths, rare and ancient giant ferns, eucalypt forests with their characteristic pendulous leaves, lemon-scented swamp vegetation and dwarfed heathland shrubs covered in a profusion of flowers. Now imagine them all growing on an island of sand.

Two of Fraser Island's unique features are its diversity of vegetation and its ability to sustain this vegetation in sand, a soil that is notoriously low in nutrients essential to plant growth. Plants growing on the dunes can obtain their nutrients (other than nitrogen) from only two sources - rain and sand.

Sand is coated with mineral compounds such as iron and aluminium oxides. Near the shore the air contains nutrients from sea spray which are deposited on the sand. In a symbiotic relationship, fungi in the sand make these nutrients available to the plants. These in turn supply various organic compounds to the fungi which, having no chlorophyll cannot synthesise for themselves.

Colonising plants, such as spinifex, grow in this nutrient poor soil and play an integral role in the development of nutrients in the sand. Once these early colonisers have added much needed nutrients to the soil, successive plant communities that are also adapted to low nutrient conditions, can establish themselves.

She-oaks (*Allocasuarina and Casuarina spp.)* can be found on the sand dunes of the eastern beach facing the wind and salt spray. These hardy trees are a familiar sight throughout the island with their thin, drooping branchlets and hard, woody cones. She-oaks are known as nitrogen fixers and add precious nutrients to the soil.

Behind the first stands of she-oaks are banksias (*Banksia spp.*), a distinguishable group of Australian plants with hardy, leathery leaves and large, spiky flowers that develop into woody fruits which contain seeds. Further inland, taller trees such as eucalypts grow where the vegetation is protected from harsh coastal conditions and the soil has been further enriched.

Scribbly gums (*Eucalyptus racemosa*) are a common sight on Fraser Island and can be recognised by the darker *scribbles* over their trunks. These *scribbles* are formed by the hungry larvae of scribbly gum moths (*Ogmograptis scribula*) and are only found on scribbly gums and on the higher parts of blackbutt trees (*Eucalyptus pilularis*).

Another eucalypt commonly found on the eastern side of Fraser Island is the Moreton Bay ash or carbeen (*Corymbia tessellaris*). One of the most prevalent under storey plants, common on both the eastern and western sides of the island, is the bright green foxtail fern (*Caustis blakei*) which is actually sedge and, in many instances, replaces the grasses.

Other common under storey plants are the burrawang or zamia palm (*Macrozamia douglasii*), a close relative of prehistoric cycads and Australia's famous grass trees (*Xanthorrhoea spp.*). The grass trees have spear-like stems that can be over a metre in length and are covered in hundreds of tiny flowers, which are replaced by woody capsules containing the seeds.

Majestic rainforests can be found in the gullies of the central high dunes which are protected from winds and have a plentiful supply of freshwater and greater amounts of nutrients. These are centuries old and home to the living fossil fern (*Angiopteris evecta*), numerous piccabeen palms (*Archontophoenix cunninghamiana*) and carrol (*Backhousia myrtifolia*).

Competition for light is intense in rainforest areas resulting in tall, straight stemmed trees that have few branches until they reach the upper canopy where their branches spread and help to form the dense canopy that shades the lower levels. This canopy prevents the dense under storey growth that may be seen in other plant communities.

The dominant trees in these rainforest areas are the Fraser Island satinay (*Syncarpia hillii*) and brush box (*Lephostemon confertus*). Often emerging above this 50 metre canopy are hoop pines (*Araucaria cunninghamii*) and kauri pines (*Agathis robusta*) as well as creepers, massive birds' nest ferns, elkhorns and, occasionally, native orchids.

The western side of Fraser Island features the older sand dune systems and appears to have a greater wealth of flowering plants. Here you can see Wide Bay boronia (*Boronia rivularis*) which has a seasonal abundance of waxy purple flowers, is common in the wetter areas and is thought to be found only in the Great Sandy region.

The mauve-flowered forest boronia (*Boronia rosmarinifolia*) is more common in open forest areas. It is not the flowers of these boronias that are scented but the leaves. Also with highly scented leaves and found in abundance are the lemon-scented tea trees (*Leptospermum spp.*). These shrubs have a waxy, white flower that develops into a woody seed case.

From August to September wedding bush (*Ricinocarpus pinifolius*) can be seen covered in a profusion of small, five-petalled, white flowers. There are a number of peaflowers (*Fabaceae family*), most of which are yellow in colour, plus a number of small leaved heaths (*Epacridaceae family*) that flower at various times throughout the year, giving visitors a display of wildflowers virtually all year round.

Vegetation on the western side of the island includes three types of banksia (*Banksia aemula, B. robur and B.integrifolia*), grass trees, she-oaks, satinay, brush box, pink bloodwood (*Corymbia intermedia*), cypress pines (*Callitris columellaris*) and a number of sedges and rushes (*Restionaceae and Cyperacea families*).

Along the west coast in sheltered inlets and bays are a number of mangrove communities. Mangrove trees are readily identifiable by their above-ground roots (*pneumatophores*) which help to provide oxygen to the tree. It is thought that about twelve varieties exist in the area, the most common being the river, grey and yellow mangroves.

Different mangrove species often have different root types. For example, the grey mangrove (*Avicennia marina*) has short, straight pneumatophores that rise above the ground, whereas the stilted or red mangrove (*Rhizophora stylosa*) has branching pneumatophores that can form a thick, above-ground network.

Even though these mangroves and their associated communities are often dismissed as being unattractive, they are vital to hundreds of animals including fish, crabs, birds and bats. The flora of Fraser Island is richly diverse, representing at least six major plant communities and hundreds of species.

The diversity of plants includes three species listed as endangered, four as vulnerable and nine as rare. The island has evolved over thousands of years from the spiky coastal flora through to plant life of the lush rainforest species. It is a source of constant curiosity and pleasure to botanists, bushwalkers and anyone who enjoys the natural environment.

A Snapshot Of Typical vegetation On Fraser Includes:

Awinya Creek - boasts some remarkable vegetation changes in a very small area. Beach spinifex (*Spinifex sericeus*) thrives on the foredunes. Casuarinas behind these dunes play an important part in making nitrogen available for other coastal plants. Many mangrove species are also prominent.

Wathumba Creek Mangroves — this area is one of Fraser's most impressive estuarine environments with a third of all Australian mangrove species found within this region alone, including the grey (*Avicennia marina*), yellow (*Ceriops tegal*) and red (*Rhizophora stylosa*).

Yeerall Creek Melaleuca Forest - due to semi-permanent waterlogging, usually supports only sedges, ferns (*Blechnum sp.),* some rainforest pioneers such as celerywood (*Polyscias elegans*) and Acronychia species, lemon-scented tea tree and, of course, the unique paperbark (*Melaleuca quinquenervia*).

Swamp near Moon Point — this region supports a variety of forest types. Typically, forest red gum (*Eucalyptus tereticornis*), swamp box (*Lophostemon suaveolens*), red bloodwood (*Corymbia gummifera*) and paperbark (*Melaleuca quinquenervia*) trees dot these desert-like heathland areas.

Banksia and Low Forest (**Wathumba track**) - the banksia and low forest areas offer mostly wallum banksia (Banksia aemula) and Baeckea stenophylla. Underneath these shrubs is an array of sedges and emerging shrubs that will forever try to change this heathland into a taller, more prominent shrub land or low forest.

Waddy Point - The forest behind the Waddy Point headland contains fine examples of beautifully-detailed scribbly gum (*Eucalyptus racemosa*) and red bloodwood (*Corymbia gummifera*). Evidence of fire activity is provided by blackened trunks and by the prominence of the under storey bracken fern (*Pteridium esculentum*).

Allom Lake - is one of Fraser's hidden treasures, inhabited by turtles and frequented by frogs. This perched or dune lake is surrounded by remnant hoop pine (*Araucaria cunninghamii*) forest. Allom is encircled by strips of paperbarks, sedges, sundews and bladderworts.

Pile Valley - displays some of the most accessible and magnificent satinay (*Syncarpia hillii*) and brush box (*Lophostemon confertus*) forest on the island. These are the dominant species along with piccabeen palms, cherry satinash and blush satinash. They reach heights of over 40 metres.

Yidney Scrub - is a wonderful example of the rainforest found on the island. Dominant trees, such as crab apple (*Schizomeria ovata*); blue quandong (*Elaeocarpus grandis*); blush coondoo (*Planchonella queenslandica*); and pink poplar (*Euroschinus falcata*), form the tallest of all forest canopies on the island, reaching peaks of up to 60m.

Basin Lake - nestled among a tall open forest of satinay (*Syncarpia hillii*), blackbutt (*Eucalyptus pilularis*), smooth-barked apple (*Angophora leiocarpa*) and scribbly gum (*Eucalyptus racemosa*), is home to an outgoing turtle population!

First Dune - Beach spinifex (*Spinifex sericeus*), goats-foot convolvulus (*Ipomea pescaprae subsp. brasiliensis*), pigface (*Carpobrotus glaucescens*) and saltwater couch (*Paspalum vaginatum*) are just some of the pioneer plant species found along Seventy - Five Mile Beach that stabilised the original sand mass and initiated the development of Fraser Island and the Great Sandy Region.

Valley of the Giants - This majestic but secluded valley displays some of the most ancient trees to be found anywhere on Fraser Island. The satinay (*Syncarpia hillii*) and brush box (*Lephostemon confertus*) forest here contains trees more than 1200 years old and greater than four metres across the trunk. All growing in sand!

Wanggoolba Creek - Rainforest-clad Wanggoolba Creek is home to the magnificent giant king fern (*Angiopteris evecta*). You'll see excellent examples of kauri pine (*Agathis robusta*), brush box (*Lophostemon confertus*), Fraser Island satinay (*Syncarpia hillii*) and piccabeen palms (*Archontophoenix cunninghamiana*).

Coastal Forest - from the stabilising beach spinifex (*Spinifex sericeus*) grass of the foredunes to the banksia and eucalyptus trees of the back dunes, this is one of the most important regions of plant growth on Fraser Island. Many trees and shrubs have the ability to fix nitrogen from the air into an available nutrient in the soil.

Lake Wabby Track – the track to Lake Wabby from the beach contains a wide diversity of plants. These forests are home to trees such as scribbly gums(*Eucalyptus racemosa*) and brush box (*Lephostemon confertus*) as well as prickly broom heath (*Monotoca scoparia*) scrub and a surprisingly high number of ground and tree orchids.

Dundonga Creek – is typical of the freshwater creeks which flow out to the western side of the island between Moon Point and Snout Point. The creek is a magnificent example of a mangrove community. Eight species of mangrove have been recorded. The creek is a habitat for rich marine life. The build up of nutrients at the mouth of the creek allows sea grass beds to flourish, providing food for dugong.