

# THE RAINFOREST

The rainforest on Bellinghen Island is an endangered Lowland Subtropical Rainforest on floodplain. Only 2.5ha in area, it is the largest rainforest remnant left after agricultural

clearing of the rich soil of lower Bellingher. Diverse in native animal, bird, insect, fungal and plant life, it is isolated from other native vegetation and directly downstream from

large infestations of serious vine and ground cover weeds. Its unstable ecology is driven by two major dynamic features: floods and bats.

## The Flora - What grows here?

The Island's rainforest belongs to the White Booyong Alliance, a type of high biodiversity rainforest that occurs on good soils at low altitudes. Booyongs are common and associated here with pepperberry, stinging trees and strangler figs. There about 70 tree and 30 vine species. High light levels and moisture, make for very lush ground and shrub layers.



Stinging trees are common. They regenerate in warm sunny gaps and become large trees. Avoid touching them. They sting.



White booyong is the Island's most common tree species. Its seedlings are common, but slow growing. Its mature leaves consist of 3 leaflets and are silver underneath.



Madreia vine is the most serious vine weed. Tubers (left) form on the vines, fall to the ground and sprout (right). Floods carry tubers.



On sunny ground under thin canopy, native seedlings vie with the two main weeds. Native seedling regeneration is high, but weed management has to be regular and ongoing.

## Floods - How do they affect the rainforest?

The Island is partially covered by floods most years and entirely covered every 2-3 years. Floods deposit silt, sand and plant debris. The big 2001 floods deposited 10cm of silt over The Island. Silt and debris contain viable tubers of Madeira vine, and pieces of Wandering Jew, as well as many small plants, both native and exotic. Silt kills small seedlings and also creates a seedbed conducive to certain species, native and weedy. The higher ground of The Island is generally in better condition and easier to manage than the lower, more flood prone sites.

Floods have also caused serious erosion of the high southern bank of the Island. This bank was reinforced after the 2001 floods in an attempt to reduce future damage.



Mud and debris deposited by a flood

## Common plants on Bellinghen Island

Growth Phase	Emergent Trees	Tall Trees	Middle Stratum	Vines	Fern & Herb Layer	Trailing Ground Covers
Mature Plants	Small-leaved Fig	White Booyong	Sandpaper Fig	Giant Pepper	Cunjevoi	Pollia
	Moreton Bay Fig	Giant Stinging Tree	Snowwood	Pothos	Giant Maidenhair Fern	Basket Grass
		Pepperberry	Hairy Walnut	*Madeira Vine	Lacy Ground Fern	Aneilema
		Red Cedar	*Castor Oil		Scrub Nettle	*Wandering Jew
		Weeping Lilly-pilly	*Wild Tobacco			
Common Regenerating Species		White Booyong	Sandpaper Fig	Giant Pepper	Cunjevoi	Pollia
		Giant Stinging Tree	Bangalow Palm	*Madeira Vine		Basket Grass
		Pepperberry	*Queen Palm	*Balloon Vine		Aneilema
		Red Cedar	*Camphor Laurel	*Cape Ivy		*Wandering Jew
			*Small-leaved Privet			

## The Bats - How do the bats affect the rainforest?

Bats affect the forest structure, increase light infiltration, cause periodic increases in leaf fall, and their droppings are a high nutrient mix that contains seeds of native and weed species. The increased light and surface nu-

trients favours fast growth of some ground covers and vines, in particular *Pollia* and *Aneilema* spp., and the weeds Wandering Jew and Madeira vine. Although bats are a major factor in vegetation management, floods have

turned out to be more troublesome. Wildlife (notably, but not only, bats) and vegetation conservation, are the twin goals of management. Together they are challenging and interdependent but not mutually exclusive.



Canopy height of subtropical rainforest is normally about 30m and strangler figs emerge above it. Here it is 10m-15m because of even age regeneration and some pruning down by bats. The emergent trees are old strangler figs and remnant specimens of the old canopy, including white booyongs, pepperberries, stinging trees and water gums.



Bat droppings increase surface nutrients and encourage surface feeding ground covers. The droppings also contain seed of several plant species. Many native. Only relatively minor weeds are introduced by bat droppings.



Bats knock leaves off trees, increasing the light reaching the ground, and blanketing seedlings with fresh leaf litter. Canopy in rainforest normally covers more than 70% of the sky. Here it fluctuates between 40% and 70%.

# THE GEOLOGY

Bellinghen Island is a comparatively recent alluvial deposit, less than 2000 years old. The present course of the Bellingher River runs along the southern side of the Island, but prior to 1974 the river flowed along the northern side of the Island. Even longer ago, before the Island's alluvium was deposited, the Bellingher flowed on the southern edge of the present floodplain under the red terrace on which the town of Bellingher now stands.

Prior to 1974, the river adjacent to the Island was a popular swimming hole. The northern bank cut into an even older alluvial deposit - a former floodplain of the Bellingher some 15000 to 100000 years old - where weathering and leaching of the alluvium had produced a red soil typical of the terraces of the Bellingher. The steep bank next to the swimming hole was called the Red Ledge.

## Geological transect of Bellinghen Island & the adjacent floodplain

