

The Strangler Fig

Cloudbridge Nature Reserve - Nature Notes No. 5

Thou art an elm, my husband, I a vine,
Whose weakness, married to thy stronger state,
Makes me with thy strength to communicate
(‘Comedy of Errors’, ii., 2)

Most strangler trees found at Cloudbridge are fig trees, such as *Ficus hartwegii*, *Ficus crassiuscula* and the giant *Ficus tuerckheimii*. The strangler fig tree has 4 different stages in its life: epiphyte, primary hemi-epiphyte, strangler and tree.

In the first stage, it grows up as an epiphyte. The seeds inside the fruit are pollinated by tiny wasps that squeeze into the fig to lay their eggs, but then lose their wings and die. Later, the figs are eaten by a wide range of animals like bats, birds, monkeys, coatis and kinkajous that spread the excrement on branches and notches of tall host-trees.

Then the seeds germinate and grow as epiphyte (epi = on / phyte = plant) that will use the host-tree as a physical support. Up there in the canopy, the epiphyte can enjoy sunlight and intercept aerial-borne nutrients contained in rain, mist and dust.

Strangler fig tree

In the second stage is shown in the photo at right, where a *Ficus* vine begins its takeover of an elm, *Ulmus mexicana*. The epiphyte grows roots right down to the soil, looking for higher resources in water and nutrients, becoming a primary hemi-epiphyte. With an average pace of 5 meters a year, these aerial roots can reach the ground within 4 or 5 years, depending on the host-tree’s size. Just before entering the soil, each individual root around the host-tree trunk divides into several thin roots, which means several sources of nutrients and water. Many scientists have tried to understand how roots can detect the close ground. Some explain this by minerals contained in both the sap of the roots and the water from the soil, stimulating magnetism! Once the roots reach the ground, they develop underground in a large radius to take as much of resources as possible.

In the third stage, the strangler function begins: sap flows up the roots that grow thicker, meld together through a chemical process, and slowly strangle the host-tree.

In its fourth stage, the strangler has reached its goal: to become a tall and free-standing tree with branches, leaves, fruits and flower. New branches sprout from the top and the ficus begins to shade out the host tree. It appears that this shading, rather than an actual “strangling” by the roots, is what normally kills the host. The latticework of roots has formed a very stable trunk around the host-tree that will disappear and decay inside the fig tree, leaving it hollow.

Despite its name, this tree plays an important role in the regeneration of the tropical cloud forest: it uses a host-tree to become independent and eventually replaces it. The fig itself then becomes a host for new epiphytes of all kinds.

