Rainforest layers

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FACT SHEET 10

Under the canopy

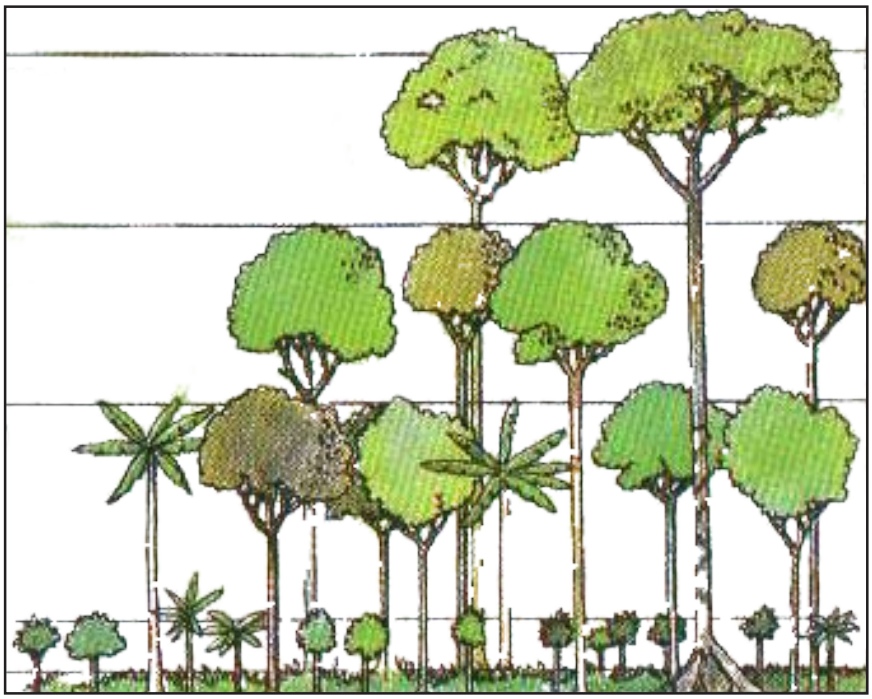
When you enter a rainforest you will notice the dramatic change in light level. The crowns of the trees interweave to form a canopy, through which rays of sunlight filter to the forest floor. Different layers are formed within the forest according to how much sunlight is available and which plants have adapted to lower light levels closer to the forest floor.

EMERGENT LAYER – to 50m

CANOPY LAYER – 20-40m

UNDERSTOREY – 3-10m

FOREST FLOOR



Emergents

Extremely tall, straight trees from 20-50m in height which emerge above the general canopy of trees and branch at the top where the leaves receive plenty of sunlight.

Strangler figs are common emergents at Sea Acres.

Canopy

This layer maintains the moist and cool microclimate of the forest. It shields the forest from dry winds, loss of moisture and humidity and sudden changes in temperature.

Canopy trees at Sea Acres include **rosewood** (47L), **maidens blush** (35L), **bolly gum** (174L), **myrtle ebony** (186R) **cabbage tree palm** (61R) and **bangalow palm** (46R)

Vines you may see in this layer include **giant pepper vine** (5R), **water vine** (48L), **whip vine** (Bay 1) and **round leaf vine** (141R).

Understorey

Trees here are prevented from growing taller by the shade of the canopy.

At Sea Acres **sandpaper fig** (5L), **brush bloodwood** (15R), **white bolly gum** (190R) and **bolwarra** (288R) grow in this layer.

Epiphytes are often found in this layer. **Staghorns** (212L), **elkhorns**, **ribbon ferns** and **birdsnest ferns** (all at 260L) grow on other trees but collect nutrients from fallen leaves and rain, so are not parasites.

Forest floor

Dominated by ground ferns, herbs, seedlings, mosses and fungi, which are shade tolerant.

Common at Sea Acres are **shield fern** (43L), **rasp fern** (89L), **walking stick palm** (46L), **orange thorn bush** (60L), **native ginger** (114R) cunjevoi and **swamp lily** (both at 1R).

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Sea Acres rainforest layers

Emergents

Strangler fig

Emergent above canopy

Canopy

Bangalow palÙ

Bollygum

Vines

Understorey

Shrubs

Birdsnest fern

Sandpaper pig

Forest floor

Walking stick palm and ferns

Cunjevoi

Native ginger

Rainforest layers

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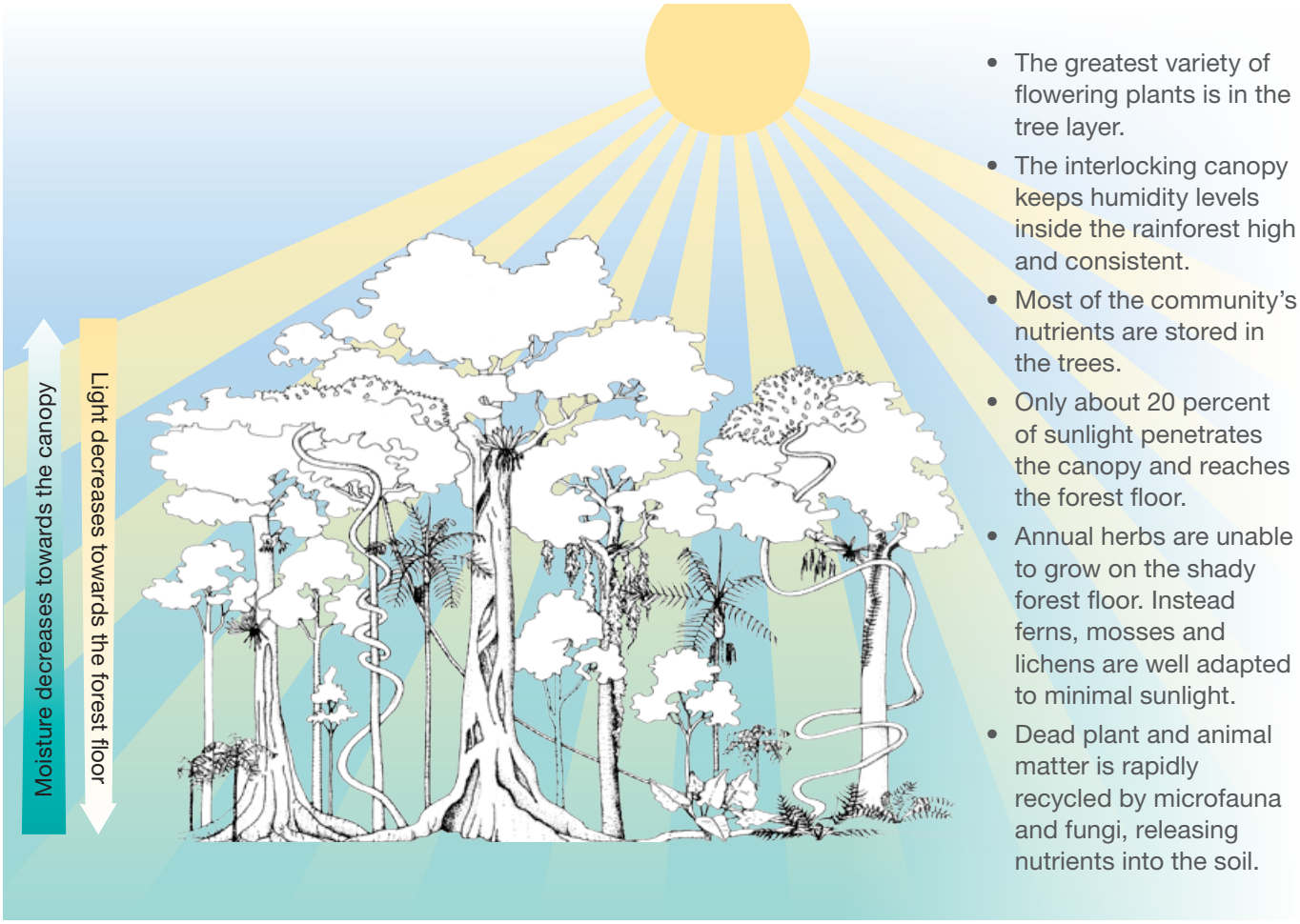
FACT SHEET 10 (CONTINUED)

Light, moisture and nutrients in the rainforest



- The greatest variety of flowering plants is in the tree layer.
- The interlocking canopy keeps humidity levels inside the rainforest high and consistent.
- Most of the community's nutrients are stored in the trees.
- Only about 20 percent of sunlight penetrates the canopy and reaches the forest floor.
- Annual herbs are unable to grow on the shady forest floor. Instead ferns, mosses and lichens are well adapted to minimal sunlight.
- Dead plant and animal matter is rapidly recycled by microfauna and fungi, releasing nutrients into the soil.

Some adaptations to low light levels in the rainforest

- Many tree species germinate then remain as small saplings for many years, awaiting a break in the canopy to give them space to grow.
- Strangler figs germinate high in the fork of a tree and send roots to the ground. This gives them an advantage in capturing sunlight in the upper canopy.
- Vines germinate and climb rapidly by twining or by hooks before producing most of their leaves and flowers in the canopy layer. Vines grow ten times faster than trees.
- Epiphytes use tree trunks and branches for support to obtain sufficient sunlight.
- Tree ferns build up tall trunks which often bend towards lighter openings in the canopy.
- Cunjevoi has very large leaves to make the most of short bursts of sunlight which penetrate between gaps in the canopy.
- Mosses, lichens and ferns have evolved to photosynthesise in low light levels. They grow in moist, shady places, where nutrient levels are high to make up for the lower energy levels received from sunlight.