

Growth Habits of the Eucalypts

Name comes from the Greek, kaluptos meaning covered, referring to the flower which is covered before it opens.

Lignotubers

Many Eucalypt species have dormant buds at their base. These will germinate if the tree is severely damaged or killed. This is seen as "coppice growth" – new shoots sprouting when the parent tree is cut down. Formerly used as a forest management tool for firewood production, selecting the best stem or 2 stems and removing the rest. Mallee species exhibit this in an extreme form due to harshness of the Mallee climate so that these species evolved to be able to frequently die back and regenerate. Mallee roots, a favoured fuel in earlier days, are masses of lignotuberous cells which have sprouted then died back under harsh conditions. to be replaced by more growth when conditions are favourable. These were harvested when Mallee scrub was converted to pasture growth. Loss of this natural habitat lead to the dust storms of earlier days.

Coppice Growth

Many Eucalypts also have dormant buds in the Cambium, the growth layer between the bark and the true wood. These will sprout after bushfires have killed the tree crowns enabling the tree to survive, although wood quality is adversely affected. Our tallest Eucalypts such as Mountain Ash (*E. regnans*) do not have these dormant buds and are killed in severe bush fires. The forest then regenerates from seed which is shed after such fires on to the then fire cleared ground. The species requires clear ground for regeneration as it is not shade tolerant. Accordingly most stands of Ash Eucalypts are even aged compared with the species which have the buds and are also shade tolerant so such forests will have trees of varying ages.

Multi Stemmed crown provides a defence against endemic insect attack on the leaves. Trees survive normal insect attack. When planted overseas such as Israel, South Africa, California, trees grow much faster than in Australia due to absence of leaf eating insects.

Climate effects on leaf evolution:

Leaves of Eucalypts growing in the typical Australian climate of hot dry summers hang vertically. This is an adaption to resist extreme heat, compared with leaves of cool climate trees in the Northern Hemisphere which usually grow horizontally to capture the maximum light available. However some Euc. Species such as the Snow Gum are leathery and more horizontal, showing their evolution to the higher altitude climate.

Forest Ecosystems & Carbon dioxide:

When a forest is young and growing, it locks up carbon dioxide in its wood production. As with all living things, trees grow old and eventually die. When a forest is mature, this death of older trees balances out the production of new wood, which can only grow in the gaps created by such deaths. So the claim that the jungles of the tropics are the lungs of the earth, implying that they have a net intake of CO₂ and net output of oxygen is incorrect. Such forests have no impact at all on the CO₂/Oxygen balance, although certainly the destruction of such forests results in a once only release of CO₂.