



Mistletoe

The mistletoe of literature and Christmas celebration is known botanically as *Viscum album* and commonly as European mistletoe. The plant was known long before Christian times, in Britany, where they grow in plenty, it is called *Herbe de la Croix* (herb of the Cross), as according to an old legend, the Cross was made from its wood, it was also known some time ago in Europe as *Lignum Sanctiae Crucis* (wood of the Holy Cross).

Mistletoe's growing habit is endowed with some 'magical' properties, the plant just appears high up in the branches of trees and grow without soil. Its berries, when ripe, are filled with a sticky transparent pulp which are toxic to human but not to some animals and birds, particularly the appropriately-named mistle thrush. The birds distribute the seeds either in their droppings on the bark of a tree or simply by regurgitating the seeds on branches to which the seeds adhere. After germination, a root penetrates the bark of the host tree and forms a connection through which nutrients pass from host to parasite. Traditionally the name mistletoe strictly applies to *Viscum album*, the European mistletoe, however, a broader definition of mistletoe is assumed nowadays, it refers to perennial flowering plants, woody, shrubby or vine-like, which grow as parasites attached to the branches of other trees and shrubs. When this broader definition is applied, there are about 1400 species of mistletoes. The essential feature of the plant is that it has a rootlike structure that grows into or around another structure, thus it becomes a parasite utilizing its host's water and dissolved nutrients. The majority of mistletoes have green leaves, and carry out their own photosynthesis, so they are only partial parasites, taking up only water and mineral salts from the host, but a small percentage appear to utilize the sugars and other organic nutrients transported in the host's system as well.

Aussie, Aussie, Aussie... but no Tassie

Mistletoes are so entwined with European tradition and folklore that many Australians assume they are introduced plants. In fact, there are some ninety species of mistletoe in Australia and most are native. In addition to forests and woodlands, the plants can also be found in deserts and heathlands, as well as urban and agricultural areas throughout mainland Australia, but there is no mistletoe in Tasmania; fossil plant species indicate they did grow there at one time, but probably became locally extinct during the last ice age. Mistletoes in Australia often get a bad (Christmas) wrap, they have a 'naughty' and not 'nice' reputation i.e. they are introduced, they are parasites, they are pests, they kill their host trees, they are toxic etc...

Definitely, they are not introduced. True, they are parasitic, but they do not necessarily kill their hosts, the inextricable bond between them and their hosts means that the well-being of the host plant is in direct of their interest, so starving or killing the host plants compromises their own survival; that is not to say there is no discernible effect – there is often a reduction in access to water and nutrients for the host plant, and multiple infections can have dire consequences, in extreme cases, this can shorten the host tree's life by making it more susceptible to drought, insect attack or fungal infection.

Are they pests? Some gardeners think they are rewarding plants to grow if suitable hosts are available. In some parts of Asia, apple orchards are sometimes used for medicinal mistletoes crops to yield a return in winter when the host trees are dormant. On the other hand, mistletoes can be real pests of some crop trees and are the cause of abnormal growth that deforms and sometimes kill the branches and affect the reproductivity of the host trees. A handful of species are known for inflicting damage on horticulturally important trees, including members of the pine family that are valued for their timber.

'Free loaders', yes, but to go as far as 'pests' and 'killers', opinions do vary and differ.

Many Australian animals feed on mistletoe, this plant can be more nutritious than the trees they live in and its nectar and fruits are loved by birds such as honeyeaters, lorikeets, emus, cockatoos, as well as the Mistletoe Bird and the endangered Regent Honeyeater. The succulent leaves provide valuable nutrients for a wide variety of our invertebrate friends, including beetles, spiders, caterpillars, moths and butterflies. Some species of butterflies are known to feed on mistletoes during their caterpillar stage. Mistletoe birds, native to Australia, also called the Australian Flowerpecker, live all across mainland Australia, wherever the mistletoe grows, they love to eat mistletoe fruit and are the main distributor of its sticky seeds. Koalas, sugar gliders and possums also feed on the fruits and flowers. Some koalas, sheep, cattle and insects will also eat the leaves. Furthermore, mistletoe is more than a food source – it provides shelter habitat, birds often nest in dense, leafy clumps of mistletoe. With heat waves expected to become more severe and frequent, the densely branched clumps of mistletoes can offer a cool respite during the heat of the day, especially in semi-arid and arid regions where shade is scarce.

City of Melbourne's mistletoe project: This project planted creeping mistletoe (*Muellerina eucalyptoides*) seeds into non-native London plane trees, which are good for tolerating pollution and a range of weather conditions, but which are not particularly good as wildlife habitat or food. The idea was to boost biodiversity, to bring structure, food and shelter for a whole range of wildlife. About 2,000 mistletoe seeds had been planted since the summer of 2020-21 and early monitoring was showing signs of success.



Atkinsonia ligustrina

Root parasite mistletoe: Australia is well endowed with trees and shrubs that steal from other plants through their roots. The best known include desert quandong (*Santalum acuminatum*), Australian sandalwood (*S. spicatum*) and native cherry (*Exocarpos cupressiformes*). Two rare species: *Nuytsia floribunda*, endemic to southwest Western Australia, and *Atkinsonia ligustrina*, confined to the Upper Blue Mountains, NSW. *Atkinsonia ligustrina* is an upright shrub with yellow flowers and many red-brown stems that divide into a canopy of smooth, red-brown, brittle branchlets. The drupe-like oval to egg-

shaped fruit is about 1.5cm long, initially green, but develops a red skin when ripe. *Nuytsia floribunda* is an unusual tree, classed in a genus of its own. It produces a dazzling display of vivid yellow/orange flowers around December, giving rise to its common name Western Australian Christmas Tree, said to be the largest parasitic plant in the world. Related to the traditional mistletoe, yet it is different, it is a stand-alone tree, it can use basically any plant with roots as its host, from grass to a grove of trees, it does not need the mistletoe bird to spread its seeds, its seeds are not a soft edible drupe typical of the traditional mistletoe seed but a dry three-winged seed which is dispersed by the wind.

In their natural setting, *Nuytsia floribunda* appear to be tough and adaptable, albeit their connections to the roots of small plants have been noted to cause damage to underground cables, small water pipes and telephone lines. However, they are truly a visual feast in the bush in WA over the Christmas period... On this festive note, very best wishes for a



Western Australian Christmas tree

Merry Christmas and Happy Holidays Good Health and Good Fortune 2024