



## Mistletoe in Central Australia An Indicator of an Unhealthy System

You may have seen this parasite 'hanging around' in central Australian trees. Mistletoe brings with it a custom for some – if you're standing under mistletoe, you may be proposed to for a kiss. This old custom comes about as it has been considered a plant that increases life and fertility, due to its ability to stay green when other plants die off in European winters, though historians also believe that the connection relates to Norse mythology.

In central Australia, the plant can get a bad rap due to its parasitic nature. Mistletoes are partly parasitic – producing its own energy through photosynthesis but obtaining nutrients and water from the host plant. In central Australia, there are roughly 10 species of Mistletoe, belonging to two genera – *Amyema* and *Lysiana*. They have co-evolved with the native flora on which they establish, with hosts including *Eucalyptus* and *Acacia* among others.

Mistletoe plays an important ecological function, and is sometimes considered to be important to the health of an ecosystem, providing food and shelter for wildlife. The flowers produce nectar that is consumed by birds and invertebrates. In addition, all species produce small sticky fruits that are eaten by the Mistletoe Bird (*Dicaeum hirundinaceum*) and the Spiny-cheeked Honeyeater (*Acanthagenys rufogularis*). As consumer of the fruit, the Mistletoe Bird is dependent on this plant for its survival but in turn acts as a seed disperser for the plant, excreting the sticky seed that then sticks to the cloacal plumage. In frustration, the bird wipes its back end onto a branch and the sticky seed dislodges and sticks to the bark. Upon excretion, the Mistletoe must germinate rapidly in order to survive. Enzymes in the seed help to break down the bark in order for a tap root to enter the host tree's cambium layer. An haustorium is eventually formed, enabling the Mistletoe to draw nutrients and water from the host, which is then supplemented by sugars obtained through photosynthesis.

Mistletoe uses the host tree to source water and nutrients, and this can in turn kill off the portion of the limb past the site of Mistletoe attachment, in turn opening up a section of the canopy for the Mistletoe to access sunlight. As a result, some landholders may take the view that Mistletoe is a threat to trees and may attempt to remove the clumps or affected branches. Mistletoe is very rarely responsible for the direct decline in tree health, but rather acts as an indicator of already poor health or an unbalanced ecosystem. Healthy trees are often able to cope readily with a small infestation, while trees that are heavily infested with Mistletoe are often already old, stressed or otherwise compromised. Stressors include poor soil nutrient levels, soil compaction, salinity, vegetation clearance and tree isolation, altered water supply, fungal attack and insect predation. If Mistletoe removal is needed, this can be done by removing the limb that contains the parasite.

Cutting off tree limbs in this case can be more damaging than leaving the Mistletoe in place, especially true considering the rapid reinfection that can take place. In many cases, it's best to leave the Mistletoe to perform a valuable function in the ecosystem. Focusing attention on improving tree health may be a better use of energy. Regeneration and protection of remnant vegetation will prevent isolated trees from becoming infested, and retaining an understorey and groundcover to provide habitat for invertebrates and non-recruiting birds that will feed on the leaves and fruits of Mistletoe will help to keep a balanced system.

# Amyema



Land for Wildlife

**Pale-leaf Mistletoe**  
*Amyema maidenii* subsp. *maidenii*



NT Flora

**Ironwood Mistletoe**  
*Amyema hilliana*



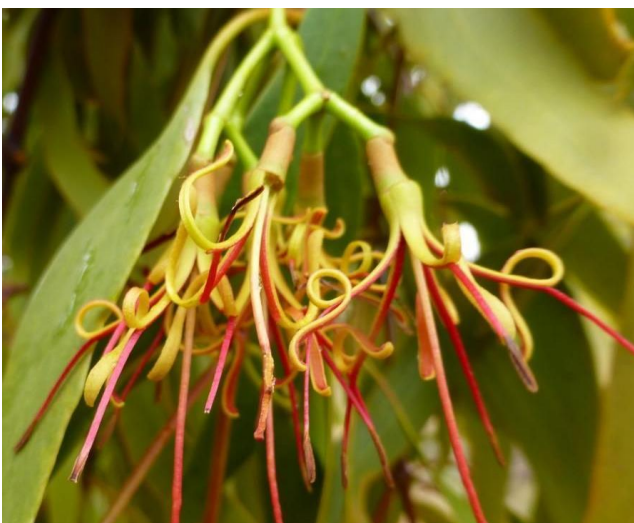
Seeds of South Australia

**Wire-leaf Mistletoe**  
*Amyema preissii*



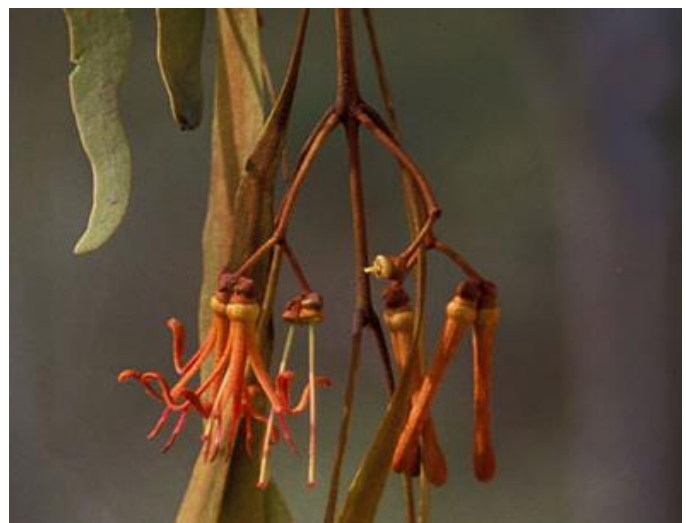
North Queensland Plants

*Amyema gibberula* var. *gibberula*



SA Seed Conservation Centre

**Box Mistletoe**  
*Amyema miquelii*



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**Twin-fork Mistletoe**  
*Amyema bifurcata* var. *bifurcata*

## Lysiana



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**Harlequin Mistletoe**  
*Lysiana exocarp subsp. exocarp*



Seeds of South Australia

**Mulga Mistletoe**  
*Lysiana murrayi*



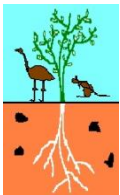
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**Flat-leaved Mistletoe**  
*Lysiana spathulata*



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**Northern Mistletoe**  
*Lysiana subfalcata*



**Land for Wildlife & Garden for Wildlife**  
**Central Australia**

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