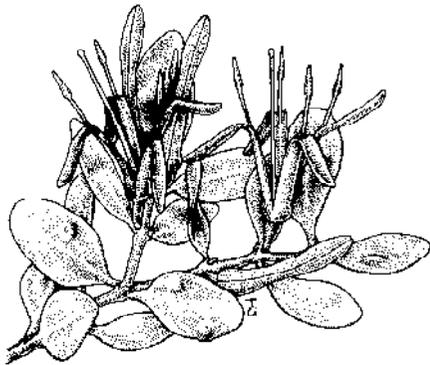


What are mistletoes?

Mistletoe is the general name given to plants that grow leaves to obtain food but also use specially adapted roots to extract water and nutrients from a host plant. Mistletoes grow in many countries around the world, but New Zealand is home to eight 'endemic' species (i.e. found nowhere else but New Zealand). One of these species (*Trilepidea adamsii*) is now presumed extinct.



***Peraxilla tetrapetala* (red mistletoe)**

Unlike some mistletoe species found in other countries, New Zealand mistletoes do not harm their hosts. Three of our species, known as the "beech mistletoes" (*Peraxilla tetrapetala*, *Peraxilla colensoi*, and *Alepis flavida*), are very important species. They provide native birds with fruit and nectar, which are otherwise scarce in beech forests.

Beech mistletoes are now uncommon in many parts of New Zealand. However, they are still locally abundant in some parts of the Southern Alps such as Craigieburn, Lake Ohau, the Lewis Pass, Mavora, Haast, and the Eglinton Valley.

Identifying mistletoes

The pictures in this pamphlet will help you identify the three beech mistletoe species. *Peraxilla tetrapetala* (red mistletoe) has bright red flowers and insect galls (small bumps) on its leaves. *Peraxilla colensoi* (scarlet mistletoe) is similar to *P. tetrapetala* but has larger leaves and flowers. *Alepis flavida* (yellow mistletoe) is easily differentiated by its smaller, yellow-orange flowers. It also tends to grow on branches further out from the host trunk, and its leaves have a faint red margin.

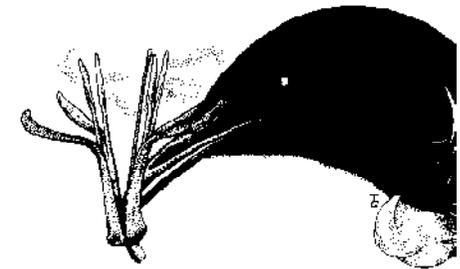


Yellow mistletoe seedling on mountain beech

From a distance, red and scarlet mistletoes can easily be mistaken for rata (*Metrosideros* spp.) because both have red flowers. However, rata usually grows in podocarp or broadleaf forest, while beech mistletoes usually grow in southern beech (*Nothofagus*) forest. Yellow and red mistletoes usually grow on mountain beech (*N. solandri* var. *cliffortioides*) in the central and southern Alps, while scarlet and red mistletoes are found on silver beech (*N. menziesii*) in South Westland, Fiordland and the Catlins. All of the beech mistletoes flower in December or January.

Exploding flowers!

Beech mistletoes are one of the few plants in the world with "explosive" flowers. To be pollinated, these flowers must be twisted open by native birds, such as tui and bellbirds. When twisted, the flower petals of the ripe buds spring open and spray the bird with pollen. This pollen can then be transferred to the next flower the bird visits, which allows that mistletoe plant to produce seeds.



Tui opening a red mistletoe flower

Amazingly, a tiny native bee only one-quarter the size of a single red mistletoe bud can also pollinate this plant by twisting open flowers. No other plant in the world is known to have such an unusual pollination system!

Mistletoes and native birds have developed a mutualism, a specialised relationship that benefits both species. Birds rely on mistletoes for fruit and nectar, and mistletoes depend on birds for pollination and seed dispersal. This mutualism may be dangerous because if either species declines then the other is in trouble. Introduced birds also cannot replace native birds as pollinators. They rarely open flowers, possibly because they have not lived with mistletoes for long enough to have learned this behaviour.

Why are beech mistletoes threatened?

In recent years, native mistletoes have disappeared from many areas of New Zealand, particularly in the North Island. Browsing by possums, forest clearance and overcollecting have all contributed to their decline. Another threat may be introduced predators such as stoats and rats. These animals prey on tui and bellbirds, which mistletoes require for pollination. Unpollinated mistletoes cannot produce seeds, and without seeds, no new plants can grow to replace old and dying mistletoes.

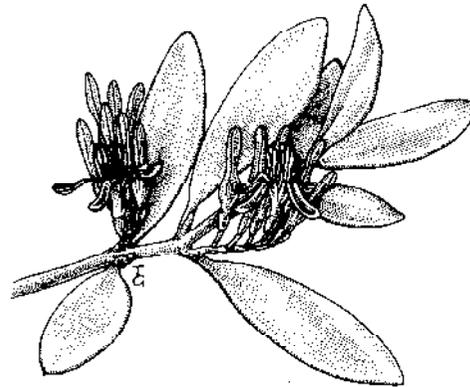
What can be done to save mistletoes?

One way to protect mistletoes is to prevent possums from reaching the plants by wrapping host tree trunks with slippery aluminium bands or by caging the mistletoes. However, these are short-term solutions and cannot protect mistletoe populations over large areas indefinitely.

The best way to protect mistletoes, as well as many other native species, is by controlling pests such as possums, stoats and rats. Possums are currently being controlled in some areas with healthy mistletoe populations. The Department of Conservation is also developing new integrated pest management systems, which would kill many pests simultaneously. Such management benefits mistletoes directly by decreasing possum numbers and indirectly by killing stoats and rats that prey on native birds. The Department of Conservation has established a Mistletoe Recovery Group to prioritise mistletoe work.

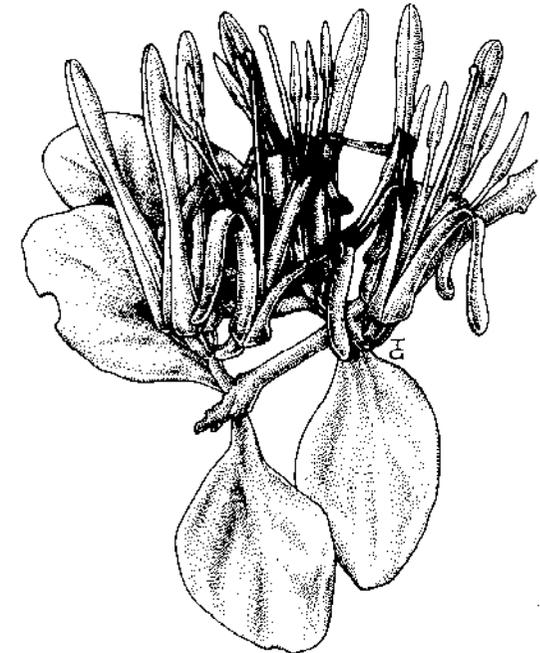
What can you do to help?

You can help save native mistletoes by refraining from damaging or collecting plants! Although it is a popular tradition in Europe to hang boughs at Christmas time, their mistletoe species are very common and grow much more quickly than New Zealand mistletoes. Our species take many years to replace lost branches. For more information about mistletoes, contact your local Department of Conservation office.



Alepis flavida (yellow mistletoe)

NEW ZEALAND'S NATIVE BEECH MISTLETOES



Peraxilla colensoi (scarlet mistletoe)

For more information or copies of this pamphlet please contact: PAMS Dept.
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Also see our website at:
www.pams.canterbury.ac.nz/105mtd.htm

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