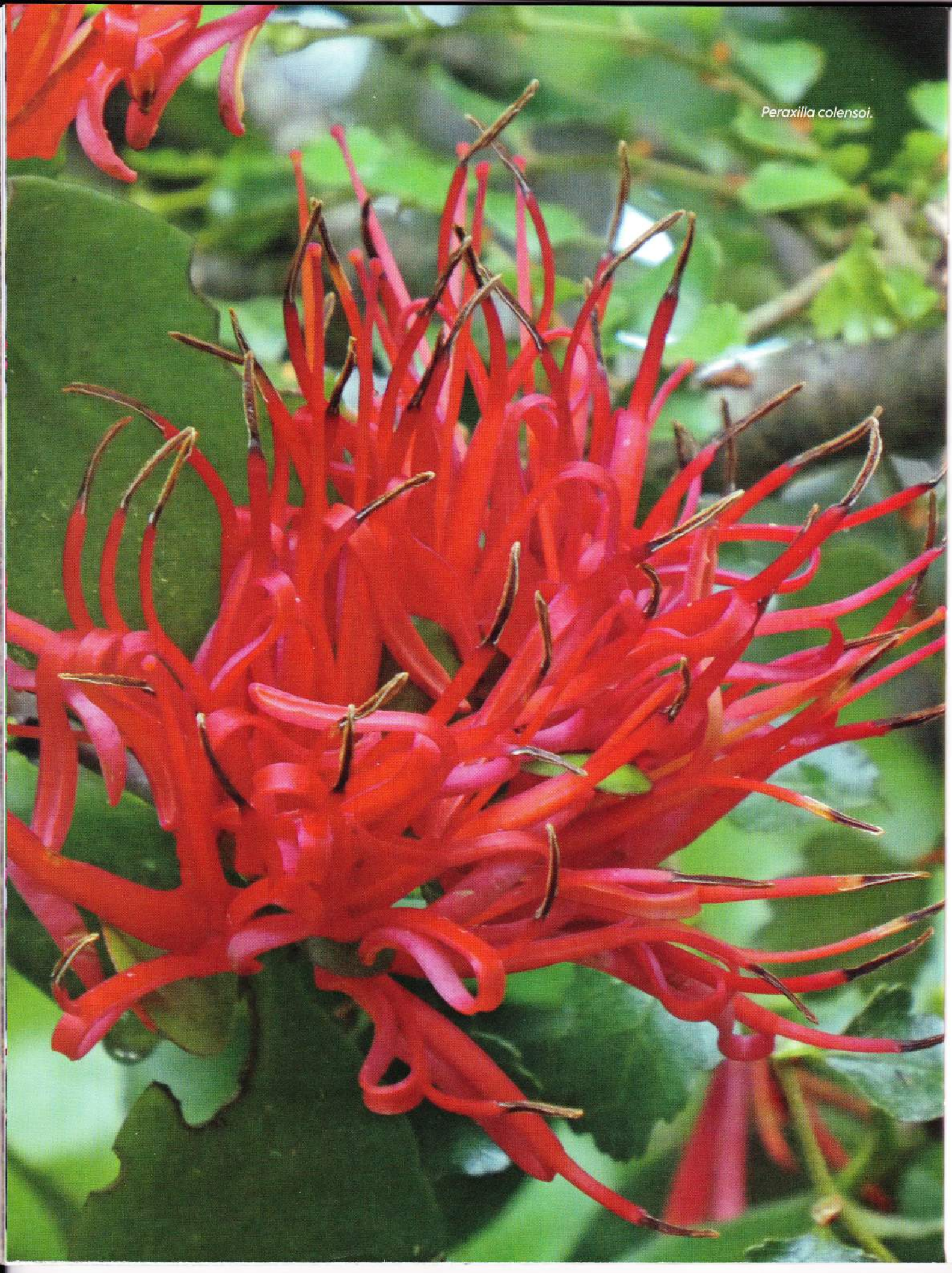
*Peraxilla tetrapetala.*

# native mistletoes

Christmas has not always been a New Zealand tradition, but one of the plants closely associated with the festivities has always been a part of our landscape.

STORY & PHOTOS: ALAN JOLLIFFE • ADDITIONAL PHOTOS: TE PAPA



*Peraxilla colensoi.*

*When ripe, these flowers explode and spray the bird with pollen while they are feeding on the nectar.*

New Zealand has eight living species of mistletoe but only two red ones (the red and scarlet), both of which flower around Christmas time.

Other species include the yellow mistletoe, the Antarctic mistletoe, the green mistletoe and three species of tiny mistletoes. There was one other species but it is now extinct.

Nowadays, we associate mistletoe with Christmas due to many of the stories of our English ancestors. However, the importance of mistletoe in European culture goes back many centuries to Roman times when it was a symbol of fertility, peace, love and understanding. There are also references to it being used in important rituals and for medicinal purposes.

Mistletoe is the floral emblem of the US state of Oklahoma and the flower of Herefordshire in the UK, and every year, the British town of Tenbury Wells holds a mistletoe festival and crowns a Mistletoe Queen.

In the UK and US, kissing under the mistletoe at Christmas (it's not flowering then as it is winter) is a tradition borne of myths and legends which have changed over the years. Today, kissing under the mistletoe relates to love, long life, happiness and prosperity.

Mistletoes attach themselves to trees and grow in various places on the tree as desired by each mistletoe species. To spot them, one has to look into the trees and pick out the telltale signs and shapes. Once you've spotted them a few times, it becomes quite easy.

New Zealand mistletoes are hemiparasitic – they can produce food on their own with their large leaves through photosynthesis, and use their special roots (haustoria) to push into trees and extract water and nutrients from their hosts. Where they attach usually causes some swelling of the stems of both host and parasite.

New Zealand beech mistletoes are one of the few plants in the world with large exploding flowers. For pollination to occur, the flowers need to be twisted open by native birds such as tūī and korimako (bellbird). When ripe, these flowers explode and spray the bird with pollen while they are feeding on the nectar. When the bird visits the next flower the pollen is transferred to it to allow that plant to produce seeds. A tiny native bee can also open the flowers.

Mistletoe populations in New Zealand have declined over the years due to browsing by possum, but some smart people have been collecting the seed and glueing them onto new trees so they can grow; this has been successful in some areas. Where trapping and use of poisons has controlled possum numbers, mistletoe has come back slowly.

## Our New Zealand mistletoes

*Red mistletoe, pikirangi, pirita, roeroe, pirinoa*

A visit to Bealey Spur track near Arthur's Pass a week before Christmas is a joyful walk to the hut at the end of the track. Walking through beech forest, perched wetlands and tussock country coupled with fabulous views of the valleys below is a nice start to the Christmas holiday season. You do not have to walk very far up from the beginning of the track through the mountain beech to come across some large red mistletoe growing at about head height.

This is *Peraxilla tetrapetala*, a fleshy leaved shrub to about 3m wide, growing on inner branches of beech trees, with glossy green fleshy paired leaves. A key identification for this species is that its leaves are up to 2.5cm long, diamond shaped and have conspicuous blisters on the leaves.

It is not quite on the walking track but keep scanning the forest on each side and you should see it. Red mistletoe mainly grows on mountain beech (*Fuscospora cliffortioides*), though it also grows on red beech and silver beech. They flower in December and January, in time for Christmas and New Year.

Producing masses of red tubular flowers about 3-4cm long which grow from the leaf axils, they have an expanded base which narrows down and then becomes bulbous at the tip. Often with different colour shades along its length.

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*As with the red mistletoe, the native birds give the mature flower buds a quick twist so that they explode, covering the bird with pollen while they drink the nectar.*

Renowned conservationist Gerry McSweeney tells me this species can produce a range of coloured flowers.

The flower buds are unable to open themselves. They only open when nectar-feeding birds give the top of the flower a twist. It then immediately opens and then the bird drinks the nectar from a cup inside, fertilises the flower and collects more pollen to fertilise other flowers. Fallen petals will litter the forest floor under plants.

After flowering, the ripe green fruit that develops are eaten by birds which distribute the seed (usually to the fork of a branch, along with some bird poo to act as fertiliser) to grow into a new plant.

The specific name tetrapetala refers to the flowers which, when open, have four petals (sometimes called wings), and long thin anthers and style.

### Scarlet mistletoe, korukoru, pirita, roeroe

*Peraxilla colensoi* is our largest mistletoe, growing up to 3m in diameter, usually high up on the tree and on outer branches. It commonly grows on silver beech (*Lophozonia menziesii*) but has been recorded on 16 other species.

The scarlet mistletoe's Latin name comes from William Colenso (1811-1899) who was brought to New Zealand by the Christian Missionary Society as a printer. He later became a Christian missionary and botanist, explorer and politician.

I first saw this in flower in the Catlins in February 2019. Fortunately, wind had blown a beech tree branch off right beside the road which was heavy with mistletoe. It was in full flower. All the flowers were open so it was difficult to see what it is like in bud. In 2021, I found it again in Tuatapere, a small town in Southland, in early bud and would still like to see it in bud just before opening.

The flowers are spectacular when fully out and again the petals litter the ground beneath the larger plants. Like the red mistletoe, the silver mistletoe's flowers are pollinated by the tūī and korimako. Again, as with the red mistletoe, the native birds give the mature flower buds a quick twist so that they explode, covering the bird with pollen while they drink the nectar.

The leaves are wider and rounder, almost egg shaped and not blistered as in *Peraxillia tetrapetala* – this is a key identification point for scarlet mistletoe – but it grows further out on the branches rather than close to the trunk.

It grows in the lower altitudes (up to 500m) in the North and South Islands, from Mt Te Aroha to Southland.

### Yellow mistletoe, pirita, piriraki

*Alepis flavida* is easily differentiated from the red and scarlet mistletoes by its smaller, yellow-orange flowers. It also tends to grow on branches further out from the host trunk, and its leaves are narrow with a faint red margin.

Yellow mistletoe is the most host-specific mistletoe species in New Zealand, nearly always growing on mountain beech (*Fuscospora cliffortioides*), but it has been recorded on 13 other species.

The Canterbury beech forest contain some of the largest remaining populations of the endangered *Alepis flavida* in New Zealand but I have seen it growing at the Te Anau end of the Kepler track and at Lake Rotoiti, Nelson Lakes.

Its flowering method is quite different to Peraxilla, producing flowering stems directly from branchlets. Its flowers are small, about 2cm long and a nice yellow when in bud. When open they start yellow and change to orange as they ripen. With both colours on the flowers they are very attractive. The yellow tepals open right back like the native *Fuchsia procumbens*. The flowers, which are produced in December to February, are pollinated in the same way as the Peraxilla species.

The fruit are small, shiny, translucent oval berries 4-5mm long and ripen to yellow or gold colour. Again, the flowers are eaten by birds and distributed to other trees along with a little manure.

### White mistletoe, tāpia, pirita, tupia, kohuorangi

*Tupeia antartica* is an interesting-but-not-showy, flowery mistletoe. It is a dense rounded hemiparasitic shrub getting up to about 1m wide while growing on other trees and large shrubs. It occurs in forest or scrub including revegetating areas, on a wide range of hosts, including tarata (*Pittosporum eugenioides*), karo (*P. crassifolium*), kōhūhū (*P. tenuifolium*), Coprosma species, putaputawētā (*Carpodetus serratus*), puahou (*Pseudopanax arboreus*), white maire (*Nestegis lanceolata*) and broom.

Tupeia is named after Tupaia, the 18th century Polynesian navigator; antarctica means southern.

The plant has white bark, rounded twigs with fine hair, fleshy and variously shaped, opposite, green leaves.

*Alepis flavida.*

*Yellow mistletoe is the most host-specific mistletoe species in New Zealand, nearly always growing on mountain beech, but it has been recorded on 13 other species.*

*Alepis flavida* at different stages.


*Peraxilla tetrapetala.*

In sunny places, it is a little duller and hairs seem to be more pronounced. No other mistletoe has hairs.

The flowers are tiny, arising from the leaf nodes and are yellowish green. Perhaps the most noticeable thing is its fruit which is whitish or blue or pinkish translucent fruit.

It is endemic to New Zealand in the North and South Islands. The easiest place I have seen this is in the Garden of Tane Reserve at Akaroa where it is growing well.

### Green mistletoe, pirita

The most prolific of our indigenous mistletoes, *Ileostylus micranthus* will grow on almost any tree or shrub. It has been recorded growing on over 300 different trees and shrubs including both native and exotic. It can be found on the North, South and Stewart Islands, and also on Norfolk Island.

Green mistletoe prefers a mainly coastal and lowland habitat, and likes shrubland areas and secondary growth. It will grow anywhere including urban areas. Christchurch City Council has had a Backyard Mistletoe Project – boosting our city's biodiversity using this mistletoe. Many locals have obtained seed from the council and "planted" them on host trees at home.

As it does not seem to care about where it grows, the green mistletoe is easily found throughout New Zealand. A trip to the Catlins area south of Dunedin will show many plants growing on low shrubs and taller trees. In Motueka, near

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From left: *Tupeia antarctica*; *Ileostylus micranthus*; *Korthalsella lindsayi*.

the community garden, it grows on Australian wattle trees as well as native shrubs around the estuary. In Tōtaranui, many can be seen on the avenue of plane trees.

It is usually bright green and the many leaves, and stems are quite close together. Flowers are small and green and insignificant. Fruit, on the other hand, is bright yellow, shiny and easily seen when ripe. They are also enjoyed by birds which eat the fruit and distribute it to new hosts.

It is interesting that when the seed grows it develops leaves and exhausts its reserve energy before it sends out its specialised roots.

Young leaves usually have a reddish brown colour for several years before turning green.

### Dwarf or leafless mistletoe

*Korthalsella lindsayi* and *K. salicornioides* are two of our smallest mistletoes, and are easily missed.

*K. lindsayi* stems and branchlets are up to 10cm long where the flattened bead-like stems also act as leaves to manufacture food for itself.

The flowers are tiny, green or creamy green, on a short spike. The fruit is also tiny and rather than the flowers exploding, the fruit is hydrologically projected away from the parent plant or is eaten by small animals on the stem and distributed.

It is endemic and common on the east coast of the South Island and in the North Island from Wairarapa south. However it is so small, it may well occur elsewhere quite unnoticed.

*K. salicornioides* stems are a mass of green to reddish-yellow, round, beaded succulent-like stems about 10cm long growing on branchlets of mānuka and kanuka. It is endemic to the North, South and Stewart Islands from about Te Paki south.

The flowers are also tiny, along with the fruit which is distributed by birds or ejected by hydraulic pressure.

*K. clavata* is a small, flattened, beaded, succulent-like shrub that only grows up to about 8cm long, as a hemiparasite on other shrubs. The "leaves" appear as semi-flattened stems but are not as flattened or wide as in *K. lindsayi*. Flowers are tiny. It can be found in the south of the North Island and throughout the South Island from coastal to subalpine areas.

All mistletoes are subject to being eaten by possum because their succulent leaves are obviously quite tasty. The Predator Free programme operating throughout New Zealand will help reduce and eventually control possum numbers, and enable mistletoe to once again grace many of our native trees. The red and scarlet mistletoes may yet rival pōhutukawa as a Christmas feature.

That would be something special. ■