

## Plants of Arthur's Pass National Park

### Hebe

This medium sized shrub is a member of another very large family, the hebe. Members of the hebe family can be recognized by the arrangement of the leaves opposite each other in a cross shape.

Hebes require a lot of sun and so at Arthur's Pass they are found growing on the edge of the forest, in forest clearings or in a riverbed. Some varieties grow in the **alpine zone**.

There are several **species of hebe** or **koromiko** growing at Arthur's Pass. You may recognize some varieties growing in your garden. This hebe has lovely big white flowers that insects love. A lot of native flowers are white and have a nice scent to help in attracting the insects to them. This is an **adaptation** of the plant.

Hebe was the Greek Goddess of Youth. The Maori people chewed the leaves as a cure for dysentery.

**Activity** Find a variety of hebe growing near you.

### Grass tree

This is a medium sized **shrub** that grows in open exposed areas in the higher parts of the forest, and above the bush line in the **alpine zone**. It has long skinny leaves or needles which allow it to survive above the bush line in winter when the ground is covered in snow for three or four months. This **adaptation** lets the snow slide off so that the leaves can still be exposed to sunlight.

It gets its name from its appearance - grass tree. It is also called the **turpentine bush** because of its flammability. The leaves go brown in autumn and winter, and the shrubs can easily be spotted above the bush line from the valley floor.

The **pineapple tree** shown in the photo gallery is the sister of the grass tree. They are both members of the dracophyllum family.

### Beech

This is the **dominant tree** in the forest at Arthur's Pass. It makes up 99% of the **canopy** of the forest. When you look at the forest from afar this is the tree that is most obvious. The forest at Arthur's Pass is therefore called **mountain beech forest**, although as we will see, there are many other plants growing in the forest. The beech forest is the home for many **species** of plants, insects and birds. Mountain beech trees are the biggest tree in the forest at Arthur's Pass, and grow up to 15 metres high with a trunk diameter up to 1 metre. Some trees may be as old as 400 years.

Beech leaves are very small. This is partly to shed snow in winter. The leaves are grouped together on the branches in a horizontal arrangement so that they form a lacy umbrella. This filters the rain and sunlight to the plants growing in the **subcanopy** underneath the beech trees. It feels like you have a leafy ceiling when you walk amongst the trunks of the beech trees in the

forest. The mountain beech is evergreen. Leaves drop off the tree all year round and form leaf litter on the forest floor that decays to provide nutrients for the forest plants.

The response of beech trees to sun, wind and temperature is very dramatic, as you will see at different places in Arthur's Pass. This results in many different sizes and shapes of beech trees. As you go higher up the mountainside, the trees become smaller and more stunted.

Beech trees become the home for other **perching plants (epiphytes or parasites)**, for example the New Zealand mistletoe likes to live off the beech tree, and gets its **nutrients** from the trunk. The beech tree flowers irregularly from year to year. It has a red flower in December. There are several other beech tree types that grow in different locations all over New Zealand.

### Activity

Find what other types of beech trees are native to New Zealand. Find some other big trees that have lots of tiny leaves.

## Ribbonwood

Most native plants are evergreen. The mountain ribbonwood (botanical name *hoheria*) is deciduous. The leaves turn yellow in April and fall before winter. New leaves grow in November. The leaves are big with a serrated margin. They are light coloured and quite flimsy. Compare the leaves with the broadleaf. Evergreens have much stronger, tougher leaves to withstand the rigours of the winter. The ribbonwood has beautiful white flowers that blossom in February. It is quite a big tree, growing up to 10 metres. It really likes the sun and grows on the edge of the forest in full sunlight but sheltered from the wind. The ribbonwood is also called lace bark which tells you something about the appearance of the bark.

### Activity

What trees do you know that lose their leaves in winter? What trees around you are evergreen?

## Broadleaf/Papaumu

The most distinctive feature of this plant is its large bright green leaves, which make it easy to pick out from a distance. It is very easy to find in the beech forest at Arthur's Pass, as, along with the **three finger**, it is one of the few **large leaved evergreen** shrubs in the **subcanopy** of the forest.

It is quite a large shrub or small tree, growing to a height of five metres. It is called **broadleaf** because it has large, shiny, smooth, leathery leaves more or less egg-shaped in outline. The leaves are very strong and hardy to withstand the extreme conditions encountered at Arthur's Pass.

When other forest fruits were scarce, the Maori ate the black berries of the **papaumu**. The leaves were bound with flax as a dressing to heal wounds.

## Haumakaroa

The most distinctive feature of this tall shrub is the way the new leaves on the mature plant vary from those on the young plant. The young **haumakaroa** has narrow, glossy leaves with very irregular **margins** and these leaves usually grow in groups of three. However, the mature

haumakaroa has long, glossy leaves that have serrated margins (a bit like the teeth of a saw), which do not usually grow in groups.

The haumakaroa is found in the **subcanopy** of the forest at Arthur's Pass, and occasionally grows up to eight metres high.

## Celery pine/Toa toa

It is called the **celery pine** perhaps because the leaves look a little like a celery plant. The leaves are not actually true leaves, but flattened out stems. The celery pine, or toa toa, has red flowers in December, and later produces tiny nuts. The leaves are very fragrant when crushed and smell quite spicy.

## Bush lawyer

This is the only climbing **creeper** found in the Arthur's Pass beech forest. The stem is covered in lots of little prickles, which it uses to cling to the trunk of beech trees and climb up them. This is an **adaptation**. It is a nasty vine to come across when you walk in the forest because of its vicious prickles. Some say this is how it got its name "**bush lawyer**" because it will "rip the shirt off your back!"

The bush lawyer has narrow pointed toothed leaves grouped together in threes. It has lovely white flowers. The berries are small and yellow, and were often eaten by the Maori people.

**Question:** What are two common prickly thorny bushes that have yummy fruit are in the same family?

## Three finger

The leaves of this small tree are grouped in threes or fives. This gives rise to its name - **three finger**. It has beautiful small scented flowers in November. Have a look at the photograph of the three finger's flower (in the photo gallery). These flowers change into small black berries which hold the seed. The three finger has long spindly branches. The botanical name, **pseudopanax**, means "**false finger**".

## Stinkwood

The most distinctive feature about this **shrub** is its smell. It stinks! Hence it's name **stinkwood**. It is a small spindly shrub that grows up to four metres tall. It grows in the **subcanopy** in the beech forest. In autumn the stinkwood can be recognized by the bumps on its small oval shaped leaves. These bumps are typical of the **coprosma** family which is a very large family of plants that the

## Prickly shield fern

This **fern** is found on the forest floor. It likes a cool, shady, moist environment. It has a prickly covering on its stem, and that is why it is named the **prickly shield fern**. There are many different types of ferns in New Zealand. The prickly shield fern is one commonly found in Arthur's Pass.

Like all ferns, the prickly shield fern has leaves, known as **fronds**, that uncurl themselves from the centre. The fronds grow up to 100 cm long. Most plants have flowers which allow the plant to reproduce. A fern has no flowers. On the underside of a mature frond you can see very small brown spots (these are lines on some ferns), that contain **spores** which are similar to seeds. The brown spots dry out and split open to release the spores, which fall to the ground and may grow.

## Lichens

At Arthur's Pass there are a variety of **common lichens**. These three demonstrate some of their forms and **habitats**.

The greyish **lichen** shown at the top is commonly found growing in clumps on rocks. In Arthur's Pass this lichen grows in the river beds, and on the forest floor.

The **coral lichen** has stiff branches that grow up in a coral like fashion to about 8 cm long. If you look closely at the coral lichen you will see that each branch has a brown head which is the **fruiting body**. This fruiting body contains **spores** which are similar to seeds.

The pale green flat **lichen** with the brown plate like spots grows on the trunks of trees in the forest and on the forest floor. We think that this lichen looks like flaky paint so that is what we have named it. Those brown plate like circles are the **fruiting bodies** for the **flaky paint lichen**. Water splashing on the fruiting bodies washes the **spores** (seeds) out and spreads the lichen.