Pelorus Bridge

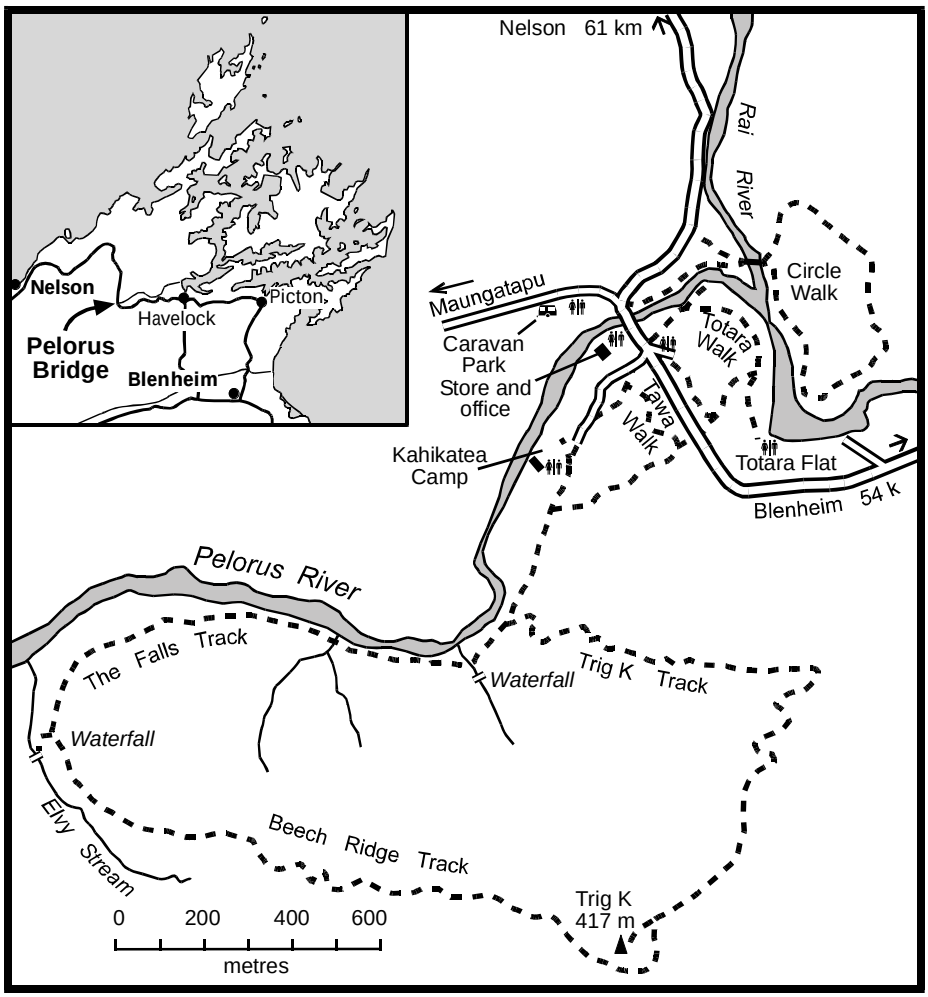
Themes that are developed at this site:

- Bush studies and revegetation principles
- Kayaking, orienteering and general outdoor skills
- Longer tramps and mountain biking nearby

The Pelorus Bridge Scenic reserve is one of the most accessible examples of mature native forest in the region. This site is ideal for groups wanting to study birds, pests, or rivers and to begin learning about forest ecosystems and trees in particular. Some simple plant identification techniques can be taught and there is also potential to talk about the exploration and exploitation of the land by Maori and early European colonists. The river provides swimming and kayaking opportunities.

HOW TO GET THERE

Pelorus Bridge Scenic Reserve is located 18 km from Havelock on State Highway 6, between the townships of Havelock and Rai Valley.



FACILITIES CHECKLIST

- Parking: ample parking for buses and cars.
- Wheelchair access is good with bush tracks suitable for wheel chairs.
- Toilets are excellent.
- Water available.
- Picnic areas and tea-rooms.
- A variety of easy tracks and good quality bridges.
- On information panels. Seasonal audio-visual show. Copies of this on video covering logging of the catchment and other history of Pelorus is available from DOC in Picton.
- Open spaces for games.
- While the tracks near the bridge are easy and jandals would be adequate, if you are venturing up the more remote tracks sturdy footwear is required.

HAZARDS

- This is such a well-maintained site, it seems unlikely that anything could go wrong. Don't be fooled, students have drowned here.
- Deep flowing river water, all necessary precautions should be taken when near the rivers.
- There are wasps in the reserve, and places further away from the main visitor area may have more wasps.
- The main road bridge is heavily used and single lane. Take extreme care crossing the main highway.
- A swing footbridge crosses the Rai River, do not allow intentional bouncing.
- Jumping from either bridge is not permitted.
- This is a high public use area. Have adequate precautionary supervision available.

NATURAL HISTORY

The forest is mature lowland forest with large matai, kahikatea, rimu, totara and miro trees as well as red, silver, black and hard beech trees. A complete understorey exists including kamahi, tawa, lancewood, hinau and pigeonwood with many ferns, epiphytes, mosses, lichens and liverworts. Many birds use the area including kereru (NZ pigeon), bellbirds (korimako), tui, greywarblers (riroriro), and fantails (piwakawaka). Less easily seen but worth keeping an eye or ear out for are browncreepers, parakeets (kakariki), kaka and moreporks (ruru) at night. Around the river you may see kingfishers (kotare) and little shags (kawau-paka).

In the river are native and introduced fish species. Although the native species are usually nocturnal and secretive, you may see a trout if the water is clear enough.

HISTORY

History tells us that many different iwi have occupied this area. The first Europeans to arrive in 1843 found a few remaining Maori producing flax for Te Rauparaha. The route to Nelson over the Maungatapu Saddle took travellers past the site and after the Rai Saddle route was discovered the first bridge was built around 1860. The present bridge was built in the 1950's. It was intended to be the site of a new township. The plans were deferred, and in the early 1900's, the designation was changed to preserve the scenic values.

ACTIVITIES

Pre-trip classroom preparation

As an introduction to your visit to Pelorus Bridge you might like to get the students learning about forests, reading simple maps, and doing observational drawings.

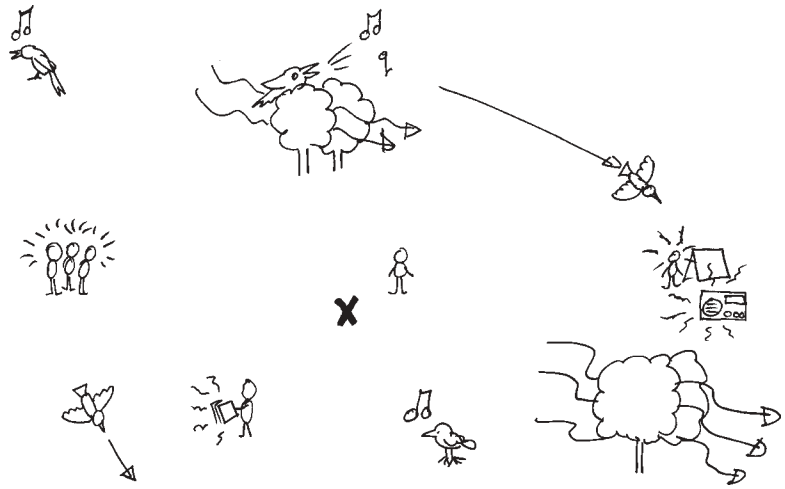
Things to bring

- Paper and pencils, or felt tip pens for sound map drawings.
- PVA glue and black paper (leaf pictures activity).
- Enough blindfolds for one between two.
- Some examples of real estate advertising jargon e.g. Property Press.
- A piece of 'Old Mans Beard', the invasive clematis vine (be very careful not to leave it behind!).
- Tree identification books.

STARTER ACTIVITIES

Sound map (from Cornell)

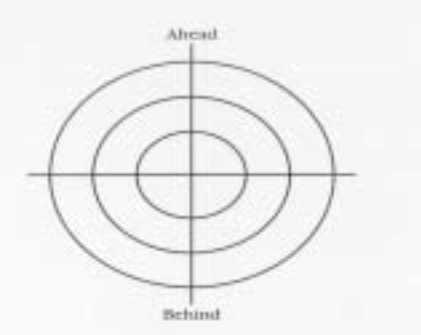
You will need a piece of paper or card and felt pen or soft pencil for each person. This activity works well when arriving in a new area and before the group has got their bearings. Or as a comparison between sites.



Most people are familiar with ordinary maps that graphically represent what is in reality on to two-dimensional paper. In this activity we want to "map the sounds" for the area. Of course there are no firm conventions to use when creating a sound map - so encourage inventiveness. A birdcall might be drawn as a musical note or it might be a picture of the bird. Traffic noise could be drawn as a series of wobbly lines or as a vehicle and some arrows to show the direction of movement.

Begin by sitting everybody down in a comfortable spot or allowing them to spread out and find a quiet spot of their own. There will need to be silence for listening. Begin by placing a cross (x) in the centre of the paper, this is your position. Try to place each sound on the sheet relative to that fixed position. Distant noises need to be drawn further from the centre.

Listen for the sounds of the river, other visitors, and the breeze - which way is it blowing? Can you hear which tree is tallest? Allow about 5 minutes for drawing and then ask members of the group to share their maps. Try to work out how many different life forms the class has heard altogether. This activity is useful as it allows children to locate various sound sources prior to heading deeper into the bush, and lessens the sense of fear of getting lost some children experience.



An alternative is to make up sheets like this and put nearby sounds in the inner circle and further away ones further out.

Leaf pictures (from Leisure Crafts)

On a smooth piece of ground or a sheet of black paper, children can create a picture using leaves gathered from the forest floor. It helps to give younger children a theme like "leaf birds" or "leaf fish". Encourage the children to think about colours and textures, and if they are inventing a new type of animal or bird, what sound might it make if it were alive? Encourage the work to be finished off with a frame of sticks, patterned leaves or bark. Please emphasise that no live material is to be used in the creation of these artworks. If the children are working on black paper, you may like to have a squeeze bottle of PVA to glue down particularly fine masterpieces. You may like to collect up some pretty leaves of your own to award as exhibition prizes.

IN THE ENVIRONMENT

A. The tree game (from Cornell)

This is a great activity to help children understand how a tree works.

Begin by finding some dry ground and place one tall and fairly strong child in the centre. This person represents the **heartwood** of a tree. Although heartwood is strong and by far the hardest and most durable part of a tree, it is also dead.

Around the outside of this core is the **xylem**, these are the water pipes that take the water from the roots up to the top of the tree. Four or five children now take on the role of xylem and their job is to transport water up the tree with an appropriate noise ("Glug, glug, glug"!). Trees usually grow a new set of pipes each year giving the annual rings you can age a tree by.

Connected to the bottom of the xylem are the **roots**, which take up water and nutrients from the ground water. Four or five people preferably with long hair lie on the ground with their feet into the centre and head outermost. The hair represents the root hairs which absorb the water from the soil. The roots need to be making some sort of slurping noise to show they are sucking up water.

Around the outside of the xylem is the **phloem** (pronounced "flow'em"). This area is made up of the tubes that bring the sugary food made by the leaves down the tree. This fluid is sometimes called sap, and it's what supplies all the living parts of the tree with energy. Another circle of people needs to take their place to act as the phloem to bring the food down the tree, taking care not to tread on the roots! They should use their arms and sounds to represent catching the food from the sun and pushing it down the tree.

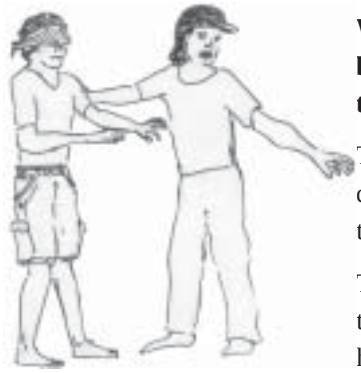
The last layer to go on is the bark. Bark is tough, bark tastes revolting, and bark is full of nasty chemicals. Bark is there for protecting the tree from insects and browsing animals so they don't tap into the food supplies under the bark. The final needs to be linking arms ready to ward off any attacking insects, and need to be saying a threatening "bark, bark, bark"

And so the tree is complete, get the xylem, phloem, roots and bark all doing their bit, and being the tree.

As a bit of extra fun have one of the adults pretend to be a bark boring insect and try (gently) to attack the tree to get a drink of tasty sap. Be wary of the poor old roots underneath!

B. Make friends with a tree (from Myers and Cornell)

WARNING! This activity involves leading blind folded people and requires care. Talk the person being lead through the process, "Now step over a small branch, now we're going down a slope, bend your head for a branch at chin height…"etc. A blindfolded person is completely dependant on the guide. Being a guide is a serious business. Children need to be eight years old to do this adequately.



Wasps are another problem the guide must check the tree for wasps BEFORE the blindfolded person starts to touch it. Be especially careful of any tree trunks growing the black sooty mould, as there is likely to be honeydew and wasps also.

This activity is carried out in pairs. Begin in an open area, where there are a variety of trees in clear sight. One of the pair is blindfolded (or they can simply close their eyes) and is led by the other to a tree.

The blindfolded partner then feels the tree. This is their special tree, and without seeing it they must get to know it so that they can recognise it again. Feel the bark, the roots, how high are the branches? What do the leaves feel like? Can you reach around the trunk? What does it smell like?

After about two minutes the guides lead the blindfolded partners back to where they began. Removing the blindfold, the 'tree friends' have to re-find 'their' tree using sight.

Cathy Macfie says in her book "In Touch", "Few children ever make a mistake and the possessiveness of their jubilant cry 'here is MY tree!' is immensely satisfying."

C. On track

Many overseas visitors comment on the beauty of the floor-covering plants in our forest. It is a special living carpet!

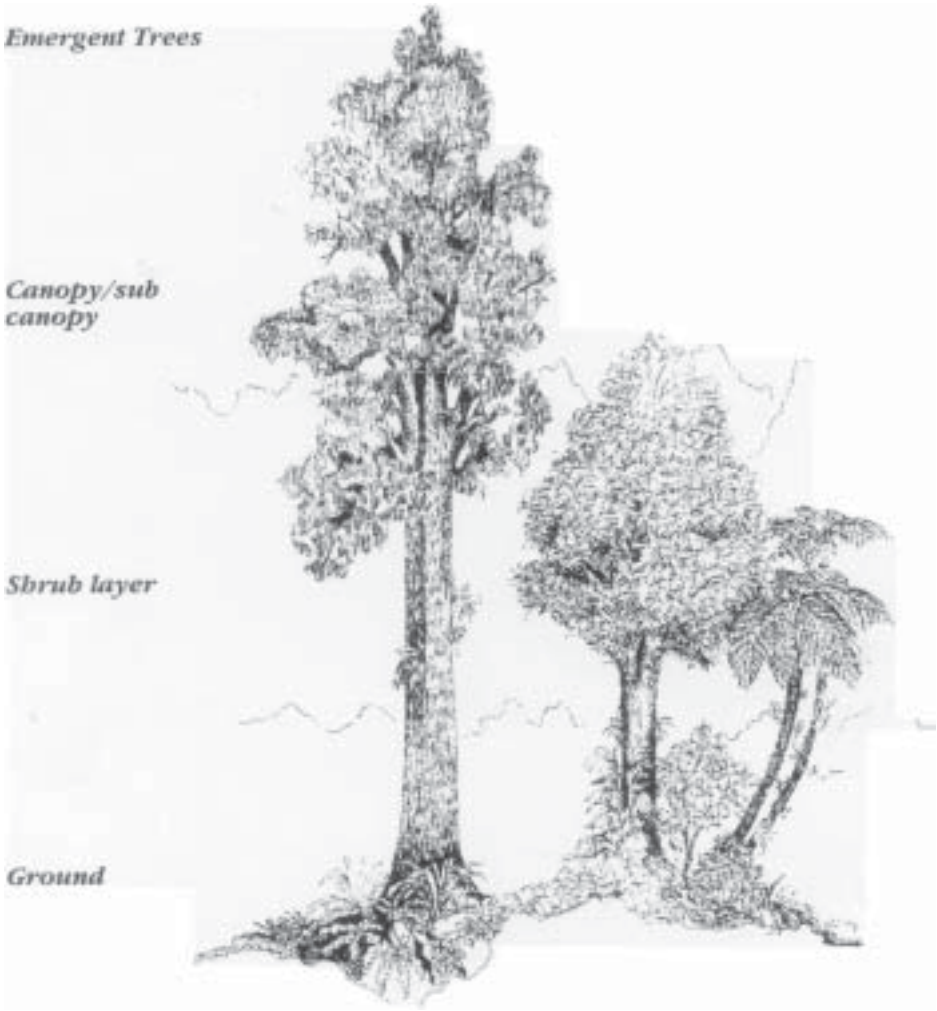
How many different types of ground cover plant can you see within a metre either side of the track?

Can you see places where people have gone off the main track and worn away new tracks?

What would happen if increasing numbers of visitors kept doing this?

D. Stratification - the layered look

Look at the layers of life in this forest. Draw a sketch of the different plants that you can see from your viewpoint and then compare them to the diagram.



Find some foliage that has fallen from the canopy or emergents and compare it to the leaves of trees in the shrub or ground layer. What do you think has caused the differences?

E. Epiphyte fight

Find a tree with a heavy burden of epiphytes. How many different plants are growing on the bark and branches of this tree?

Why are they growing on another tree where there is no soil and where it must sometimes dry out badly?

What defences do some trees have that keeps them relatively clear of the epiphytes?

F. Feel the forest

Record your thoughts and feelings about this type of forest. How does it look, smell and feel to you?

It has been called lowland forest, rain forest, native forest, the bush and the realm of Tane. What name would you give it?

A. Explorer naturalists (adapted from Bert McConnell and Barry Law)

Pretend the group is discovering this forest for the first time. Maybe they sailed out here with Captain Cook and have at last arrived to see this new land for the first time. As a naturalist we have to find out as much as we can about the plants and animals around us. Each group member must go out and find a plant and remove one leaf (ideally each person takes a leaf from a different plant). Using paper and pencil they are to draw the leaf, and annotate the picture. The notes should include the leaf colour, stalk colour, size, growth form - is it in clusters or paired, what texture are the leaves, any hairiness, and any smell (it's best not to encourage taste - just in case it is poisonous!). Of course they must also come up with a name for their plant, it could be simple "Sally's tree" or a fancy scientific name like "*Pricklebushi horrendous*" Once they have finished, collect up the sheets and shuffle them around a bit before handing them back out. They should all get a page belonging to someone else. Now they have to use the picture and description to go and find the plant that the leaf came from. The activity emphasises the need for accuracy when making observations.

Use the plant guides to find the common and scientific names and compare notes.

B. Forest houses

A forest can be likened to a house with walls, roof and floor. Discuss what the floor is made out of, is it carpet or vinyl? Do the walls have wallpaper and is there any artwork on the walls? What is the roof made from? Are there any exposed beams holding the roof up? The water supply may seem a bit rough when it's raining, but the drainage is usually adequate! How good is the lighting, is it enough for the indoor plants? What colour is the roof is it flat or pitched, does it have skylights? Are there any pets that come with the house? Explore the children's ideas.

If they were real estate agents wanting to advertise this forest house for sale how would the do it? The children could draw up a 'for sale' poster for the house in a way similar to a real estate advertisement. They could lead each other through in two's or three's as though it was an 'open home'. Use the 'Property Press' to help with ideas.

C. Sustainable production

Older students could work out the theoretical sustainability of milling trees in the reserve. Since it takes about 150 years for a native tree like rimu or matai to become big enough to mill, one tree out of every 150 trees could be removed each year. How many could be removed each year from this reserve? You will need to count the number of large trees in a defined area of the reserve.

A. Dream forest recipe

Forest like that found in Pelorus once covered most of lowland New Zealand. Today it is rare. The reestablishment of a forest goes through the process of "succession" starting with pioneer species, which have relatively short but productive lives followed by more permanent understorey species which, in turn, become gradually overtopped by the big canopy trees. A revegetation project is often planned to mimic this sequential pattern.

Make up a recipe for a dream forest. Starting with a flat piece of land we want to 'make a dream forest'. Like a cooking recipe you want the list of the basic ingredients, the method and the time needed. Use the information in the Super Sites Borrowing Boxes as the basis for your research. What are the first plants to add, what plants would follow? If we made the forest 100 metres square (1 hectare, or 10 000m2), how many plants would we need of the different sizes? You might need to work out how many trees there are per square metre. How much water do we add? How long will it take to make it perfectly? It is interesting to think that this is almost exactly what the designers of Te Papa had to do on the Wellington waterfront!

B. Revegetation project

This project requires research and expert advice. It could be planned using the action orientated template on page 74 of the Ministry EE guidelines. Plan a revegetation project for an area near where you live. Using the principles of succession to help you plan your approach. Which species you have met today would be grow naturally back in your home town? What order are the plants going to have to be planted? Present your work as a timeline showing when each stage would need to be carried out.

C. Weed scene

This activity would work well as a comparison with other bush areas nearer your school. It relies on some good weed identification skills.

On a sketch map of your study area, mark in areas where plants are growing that shouldn't be there. These might be small weeds, or trees and shrubs that aren't native. From the map and what you know about the weeds what are the sorts of places most at risk of weed invasions? What would be the best ways to control them. Make a list of questions that you could ask a DOC staff member who is responsible for weed control.

Old mans beard is a serious threat to lowland forest like Pelorus where it is controlled by DOC. Learn to identify it and look out for it in the bush at Pelorus. If you would like to be involved in a reserve clean-up, contact your local DOC office.

Old man's beard *Clematis vitalba.*

REFERENCE MATERIAL

Further information about the gold and timber history is covered in the audio visual at the tea rooms or from DOC in Picton on video. Historical expertise is available from the Marlborough Historical Society, at Brayshaw Park, in Blenheim

There is a Department of Conservation brochure available on Pelorus Bridge Scenic Reserve, ($1.00).

NZMS 260 series map.