

Hastings Cave and Thermal Springs

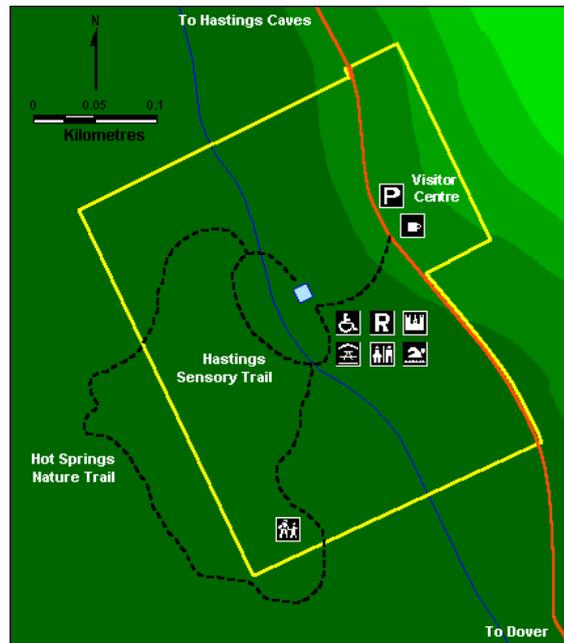


Teachers Notes The Hot Springs Trail

Welcome to the Hot Springs Trail. This trail will take you to the famous Hastings hot springs and introduce us to the many plants and animals that live here. As we walk, keep your eyes open for wildlife as you go – tick them off your list and see who gets the most! If you can't identify what you see, ask a Guide when you get back to the Visitors Centre.

Please remember the Golden Rules – take nothing but photos, leave nothing but footprints and kill nothing but time – and be quiet! You will see much more.

Make sure you have your thermometer with you.



Be careful and work safely, particularly near the stream.

1. Start by the Paddling Pool

How warm is the water running out of the paddling pool? Measure the temperature. _____

The Thermal Pool is filled by water that has been forced under pressure at least 1500m or more underground, where it was heated before it came back up to the surface through small cracks in the rock. It comes to the surface at about 30°C but cools a little before it gets to the pool.

From the paddling pool follow the signs on your left to the Hot Springs Circuit.



2. A safe place to grow

These tall plants on the edge of the forest are called man ferns (*Dicksonia antarctica*), a type of tree fern. They grow best in wet areas where there is plenty of light. They can live up to 1000 years! Their average rate of growth is about 4cm per year: how old do you think the tallest one here is? _____

They also offer a safe place for other plants to grow, particularly ferns. Plants that grow on other plants are called epiphytes. How many different kinds of epiphyte can you count on one man fern?

Why is this a good place for them to grow? _____

Follow the track to the bridge.

3. Bridge

Have a look at the metal signs on the bridge. Can you see any of the animals mentioned?

List any you are lucky enough to see. _____

What is the temperature and colour of the water in the creek here? _____

Is it the same water as you measured before? _____

Where has this water come from? _____

4. The big tree (*Eucalyptus obliqua* – the stringybark)

Much of this area was logged over 100 years ago and most of the big trees you see are **regrowth**. This monster is one of the originals. Why did the loggers leave it behind? (check the info on the panels).

5. By the stream

In a wet eucalypt forest like this, the tops of the trees join together like a roof to form a **canopy** overhead, making a very different environment from the 'outside' world – look around you; what is the major difference that will affect plants?

What are the commonest colours you can see? _____

Do the sun's rays actually reach the forest floor? _____

Is it usually wet /cool or hot/ dry in the forest? _____

Turn left onto the Hot Springs Circuit _____

6. Understorey

On your right as you walk, can you see that there is a 'layer' of smaller plants, mainly ferns and mosses and small spiky shrubs, living on the forest floor under these big trees?

Ferns and mosses are also common growing under the shrubs, but this is a difficult place to grow. Can you guess two reasons? _____

Ouch! Why do you think some of the lower plants aren't often eaten by animals? _____

A bit further on, this low layer changes. Now it is mainly a variety of broad-leaved shrubs (e.g. dogwood, tallowwood, blanket bush, musk). What has changed in the environment? _____

7. Silent stop

Stop where the duckboard starts and listen... you will all need to be very quiet! What can you hear? _____

Count the number of different bird species calling in the forest.. _____

The forest provides many habitats for animals and plants to live, places that contain everything they need to survive: food, shelter and a safe place to breed. Scientists have found 22 species of mammals in our forests and 21 species of birds. Have you see any animals yet? Don't forget to tick them off your list!

8. Where hot meets cold

The platform marks where two streams meet. Carefully measure the temperature of both and see if they are from the same spring. Temperatures: 1 _____ 2 _____

Are both streams from underground? _____

Notice the colour of the colder stream – the dark 'tea' colour comes from rotting vegetation in the button grass plains through which the stream flows.

Walk on till you come to a post.

9. On the fringe

As you walk along the track, the soil is changing and so is the vegetation. This is the edge of the Lune River flood plains, where the river floods in time of heavy rain. This is also one of the few areas where glaciers in the recent ice age (12,000 years ago) reached the sea.

Banksia (can you see the large brown cones?), tea trees and bauera all grow here; beyond are the button grass plains.

The plants here are very different and form a thick barrier. Can you see any physical differences in the type of plants here as you walk? List some of the differences in the environment here from that in the forest _____

Can you see cutting grass? Do you know why it is called that? Very gently, run your finger up one of the leaves – can you feel the sharp edge? It is made from silica, a natural glass.

10. A warm spring

If you look carefully you can see a 'bubbler' where spring water is coming out of the ground. Check the temperature here. Is it the same as the other springs? _____

The water in the spring entered the earth at the base of the mountains to the west of here and has resurfaced in several local springs, heated by the hot rocks deep in the earth and by the friction created by it moving through the rocks as it was forced upwards under great pressure.

Often there are piles of cutting grass seeds left here on the railings. They have been regurgitated (sicked up) by currawongs who can't digest them. Why is this good for the cutting grass? _____

11. The forest edge

The soil and the drainage have changed again here, and this is reflected in a change in the vegetation. This a zone of paperbark trees on the edge of the forest. There is often water standing in pools here – these trees get their roots wet! As you walk along, look out for the 'stags', the white trunks of dead trees. What do you think might have killed them? _____

How do you think the soft bark protects the paperbark trees? _____

12. Forest floor

Suddenly we are back in the forest. What do you notice about the size of the trees and the environment, compared with the last area? _____

Forest floor litter and rotting logs are **micro-habitats** (little places to live) for an amazing variety of tiny animals, the invertebrates (animals without backbones). There are approximately 30,000 different types in Tasmania, including insects, spiders, snails, leeches, earthworms and crayfish. The forest floor is covered by fallen logs and rotten stumps. Why is important that these aren't cleared away? _____

Why aren't there many plants growing here? _____

Turn left at the track junction.

13. Hot and cold

From the bridge you can see two small streams. Are they the same colour? Try the temperature test with the taps (let them run for a few seconds before you try it); do you think the water comes from the same springs? _____

If you are lucky you might see a lyrebird, famous for its song and lovely tail (which is said to look like the musical instrument called a lyre). The birds were introduced about 80 years ago from the mainland and have been described as 'ecosystem engineers' as they move tonnes of earth each year. They could, over time, completely alter Tasmania's mixed-forest system.

What do you think the birds are feeding on? _____

Can you think of two ways they might change the forest? _____

14. The pool

And so, back to the pool. Did you see any birds? Or a platypus?

We hope you have enjoyed this short introduction to our forest and understand a little more about the animals and plants that live here.