HEPOKÖNGÄS

In today's frantic world not many people stop to think about where a stone that hits their windshield or the peat burned at power plants come from. This trail will take you on a journey through time, and give you a peak into the Earth's history while enjoying the area's rich nature.

Hepoköngäs Nature Reserve was established in the area surrounding one of Finland's highest natural waterfalls. The protected area is part of the Finnish Natura 2000 network and spans 150 hectares. In addition, the River Heinijoki is classified as an environmentally valuable minor water body.

Hepoköngäs Waterfall is located in the Kainuu hill landscape, which is characterised by the richness of its nature and abundant spruce forests. Half of the conservation area consists of spruce-dominated old-growth forest with patches of herb-rich broadleaf forest. Fertile mires, i.e. eutrophic fens, spruce swamps with springs and flood forests can be found along the river valley's slopes. Roughly half the area consists of managed young forests. A tenth of the area is covered by mires. In addition to the River Heinijoki, there are three brooks in the area.

Hepoköngäs: Horse Rapids

You might be able to guess at why the waterfall is named Hepoköngäs (Finnish for Horse Rapids) if you look at how the water flows down from the cliffs. In high summer the water flowing in Heinijoki is sometimes reduced to a small trickle down the waterfall's main channel, whereas in flood season even those viewing the waterfall down on the beach can get wet.

Heinijoki is part of the larger Kiiminkijoki river system. In the late 1960s plans were drawn up to regulate the flow of water in River Kiiminkijoki and the possibility of building an artificial lake upstream from Hepoköngäs Waterfall was investigated. The project was, however, abandoned. Logs were floated down River Heinijoki in the early 20th century, but the log floating was discontinued as unprofitable. The last logs were floated down Hepoköngäs in the spring of 1941.

Dead trees give new life

Damage to the forests in Hepoköngäs Nature Reserve is caused by both floods and beavers. Damaged and dead trees are a vital to the survival of many species of bracket fungi and insects, but cavity-nesting birds make use of them as well. Decaying trees are one the most important factors that increase biodiversity.

1. In the trees around Hepoköngäs you can spot e.g. the false tinder polypore and the hoof-shaped tinder fungus.

2. Larvae of the Rose-chafer beetle live in decaying tree stumps or ant hills.

3. The peppermint drop lichen grows in mires and also on decaying trees in old forests.

HEPOKÖNGÄS GEOLOGICAL NATURE TRAIL

This is the staring point of the 1.5 km long geological nature trail.
The trail exhibits geological objects and Heinijoki river valley's rich nature. The trail is partly equipped with duckboards, but can in certain places be difficult to traverse and is open only when the ground is not frozen.

The Earth - a blender for stony batter
Throughout its history, the Earth has been changing shape, both on the surface and within: mountain ranges and seafloors are formed and disappear while the continents shift. All these events occur too slowly for them to be discernible during a human lifetime. The way in which bedrock and soil are arranged in layers is the key to events that occurred billions of years ago. Layers of soil types, the bedrock and the peat in mires contain a lot of information on how the landscape has developed.

Bedrock as cake base
The oldest parts of the bedrock in Kainuu were formed 2,500–3,000 million years ago, at the time when the first volcanoes erupted. The rock types in the bedrock in the Hepoköngäs area are proof of the ancient volcanoes, the sea that once covered the area as well as a mountain range similar to the Alps that stood in Kainuu.

Soil forms as frosting
A continental ice sheet many kilometres thick moved across Kainuu and Puolanka several times, depositing different soil types and changing the landscape. The flow direction of the last ice sheet in the Hepoköngäs area was from the northwest to the southeast. This mass of ice and its melt waters purged the Heinijoki canyon valley of loose stone material and deposited it in layers in an ancient sea. When withdrawing from the Hepoköngäs area 11,000 years ago, the ice sheet left a thin layer of moraine on top of the bedrock.

Decorations on the bedrock
Most of the bedrock in Hepoköngäs is covered with mosses and lichen. They attach themselves onto small hollows in the bedrock and thrive in places where other plants cannot grow.
A small area of bedrock can house dozens of species of lichen and moss. Some species thrive in dry spots that are exposed to sunlight while others prefer shaded slopes and moist grooves in the bedrock.

Boulder fields of granite
These reddish granite rocks are the oldest part of the landscape around Hepoköngäs, at over 2,500 million years old. As you walk along the trail you will notice the colours and shapes of the rocks surrounding you begin to change, which also means you are seeing new types of rock.
The boulder fields on both sides of the River Heinijoki have been created by frost. Water in the crevices of the rock freezes and expands, shattering the rock. The roots of trees growing on the slopes also penetrate deep into the crevices and this causes boulders to break off from the bedrock.

Freezing drizzle
The trickle of freezing water causes a chilly, cellar-like climate in the hollows of the bedrock, even in summer. The canyon valley with is sun-baked rocks and shaded slopes provides a varied but demanding habitat for plants. Snow may remain on the slopes far into the spring and the water that trickles down from crevices in the rock creates beautiful ice sculptures.

Volcanic ash
The cracked rock wall visible on the right side of the trail consists of alkaline volcanite. This rock formed out of ash and lava is a visible piece of evidence of the ancient volcanoes. These alkaline volcanite areas provide many demanding plant species with a place to grow.
Granite and quartzite are the most nutrient poor of the types of substratum in Hepoköngäs, while mica schist and alkaline volcanite provide a more fertile base.

From sediment to stone – beavers as loggers
The striped grey rock visible on the opposite side of the river is an example of how sediment can turn into stone. The clay was deposited in layers in the sea hundreds of millions of years ago. The weight of all the matter piled on top of it first transformed it into shale, and later the process that formed the mountains turned it into the mica schist that you now see on the beach.
While walking to the next information board you will notice a tree to the left of the trail with large tooth marks on its trunk. The marks were left by a beaver that lives and builds dams in the area but has left its job unfinished.

Swept away
The Heinijoki River and the brooks that run into it erode the bedrock and soil, and as a result material gets carried away by the stream. Some of the material is deposited on the beaches or the riverbed, and some gets swept up by the river.
Minerals that have dissolved into the river from the bedrock may end up as building material for fish bones and the smallest clay particles can travel as far as the Bay of Bothnia.

Bedrock provides nutrients for plants
This little open mire is called an eutrophic fen due to its richness in nutrients. It gets its water and nutrients from the surrounding alkaline bedrock, which has a strong impact on the vegetation. The eutrophic fen is home to the following nutrient demanding plants: early marsh orchid, Scottish asphodel, lesser club moss and marsh grass of Parnassus; as well as the mosses Tomentypnum nitens and Campylium stellatum.

Peat from cotton-grass
The surface layer of the mire consists of living vegetation, but at a depth of only 15 cm the plants die and start turning into peat. The peat layers of mires grow on average one millimetre a year, but the thickness of the peat layer in different mires of the same age varies depending on the vegetation, water and temperature conditions as well as terrain forms. The peat layer in this sedge fen is only 1.5 metres thick, while the eutrophic fen you just passed has a peat layer of almost 5 metres.