Flat and unique basement rock

In Slättbergen Nature Reserve you can walk over flat rocks that are not only unique for Trollhättan, but also for Sweden and the rest of the world. The rocks are strangely flat and were formed more than 600 million years ago. The nature reserve also has an exciting flora and fauna.

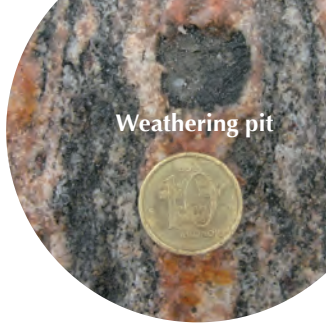
Constantly changing landscape

Landscapes are formed by constructive and destructive forces. The constructive forces create mountain chains and volcanoes. The destructive forces break down rock into gravel, sand and clay, which are then transported by water into the sea.

If only destructive forces worked on the earth's surface, all differences in altitude would eventually level out. In theory, the earth's land areas would, over time, develop into extremely flat surfaces at sea level, so called peneplains. But since the continents are moving, land masses are constantly being pushed together into new mountain ranges. Volcanoes also contribute to the forming of new mountains, so it is unlikely that the earth will ever become completely flat!

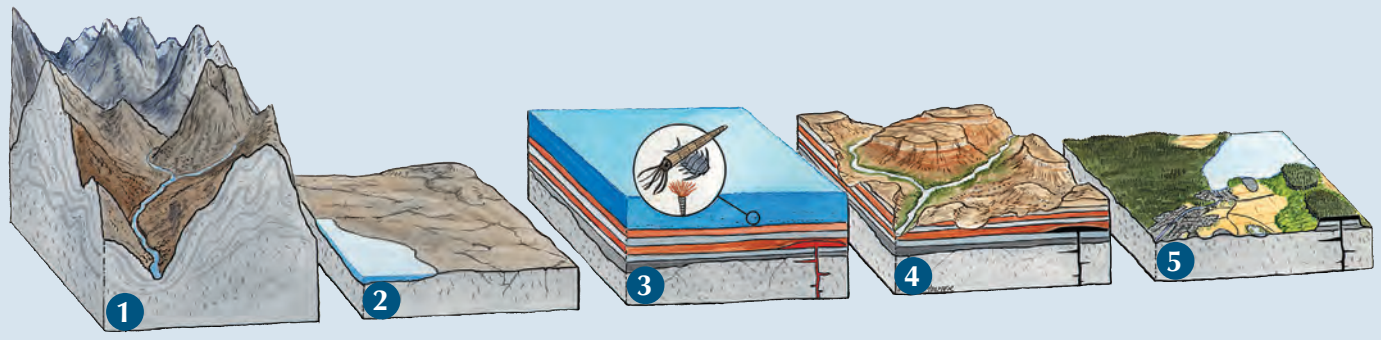
History of Slättbergen

The flat rocky plains in Slättbergen Nature Reserve were formed during a time of crustal calm. Erosion had free play over a long period. The primary rock was, slowly but surely, eroded down to crystalline basement. For a long time, the basement was covered by sea water. With time, particles that sank to the bottom of the sea converted into different types of rocks, such as sandstone, limestone and shale. When the ice sheets spread, large parts of these rock types were chipped away and the basement rock was once again bared. In a few places in the world, this flat basement rock surface is visible. Slättbergen is one of them.



Traces in the rock

Ice sheets and weathering have created different shapes in the rock. They are best seen if you visit the area when the light is fading. Glacial striations are elongated scratches in the rock. They were created by rock fragments embedded in the ice cutting into the bedrock. Ridges and grooves were also formed due to minerals in the bedrock differing in their resistance to weathering. In some places you can see loose, thin flakes of rock. This phenomenon is known as exfoliation and is created when weathering forces the top layer of rock to detach from the surface.



1. Around 1,500 million years ago, a majestic mountain range stretched across the country. The types of rock that you walk on today were formed inside this range. 2. Water, wind and ice eroded the mountain range over several hundred million years. Around 600 million years ago, the range had converted into a crystalline basement – a peneplain. 3. 3000 million years ago, the peneplain was under the sea water and became covered with sand and clay. The sediments were eventually pressed together to form a kilometre thick layer of sandstone, shale and limestone. 4. Much later, the basement rock rose from the sea. Water, wind and glaciers eroded away the sedimentary rock types. 5. In most places, the basement rock is cracked, worn round, or covered with till. But in some areas, for example in Slättbergen Nature Reserve, the peneplain is preserved and fully visible.

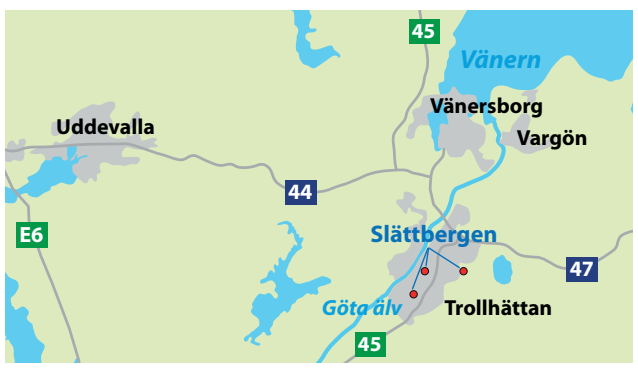
Everything weathers – even old rocks! Differentiated weathering means that various minerals in the bedrock weather at a different pace. The result is the formation of centimeter high ridges, grooves or layers. To the left and top right you can see ridges and grooves. The bottom right picture shows so called exfoliation.

Hare, roe deer, red squirrel, badger and hedgehog live in the three areas of the nature reserve. The animals are active at dawn and dusk, and this is when you are most likely to see them. Should you hear a drumroll during your visit, look up to the tree trunks and you may discover a greater spotted woodpecker. This bird, Sweden's most common woodpecker, is non-migratory and can be seen all year round.

Natural environment of the reserve

The natural environment in the three areas of the reserve is characterised by the nutrient-poor bedrock and the thin or non-existent soil cover. The vegetation is dominated by lichens, such as star-tipped reindeer lichen, reindeer lichen, tree reindeer lichen and Iceland moss. Here and there in the barren pine forest you encounter heather, bilberry and mat-grass. Flowering herbs can also be seen occasionally, for example rock campion, narrow-leaved hawk's beard and orpine. In the slight fissure valleys between the flat rock surfaces there are small bogs with sallow, bog myrtle and purple moor-grass, or more enclosed stands of alder swamp forest.

Lichen can survive in the scanty conditions offered in the nature reserve. You may recognise the star-tipped reindeer lichen, used for decorating Swedish advent candle sticks at Christmas time. Together with other fruticose lichens they create carpets on the rocks.



Find the way!

You find the three areas of the reserve with the help of the following coordinates:

Eriksro 58°15′50.5″N 12°16′56.4″E

Hjortmossen 58°16′41.0″N 12°17′35.3″E

Sandhem-Halvorstorp 58°16′55.4″N 12°19′59.8″E

The coordinates are given in WGS84 format.

The nature reserve comprises around 83 ha, divided into the areas Eriksro (around 11 ha), Hjortmossen (around 20 ha) and Sandhem (around 52 ha). The purpose of the nature reserve is to preserve the peneplains in the area and to safeguard the area for outdoor recreation and nature studies. The nature reserve is managed by the City of Trollhättan.

§ Welcome to walk in the beautiful peneplain environment. Please show consideration and care. Remember that you are not permitted to litter or to:

- light fires other than in own grills
- drive motor vehicles other than on designated roads
- camp or park caravans
- dump garden refuse or litter
- dig up plants, collect lichens or mosses, break off branches or in any other way damage vegetation.

Trollhättans Stad

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Nature Reserve SLÄTTBERGEN

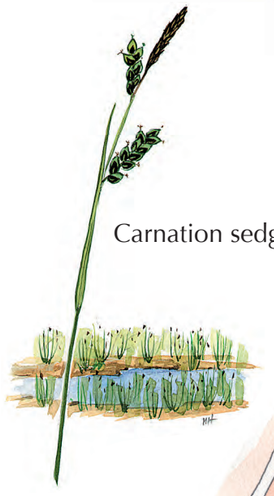
Slättbergen Nature Reserve is divided into three areas – Eriksroparken, Hjortmossen and Sandhem-Halvorstorp. The reserve contains remarkable geological formations by way of flat rock surfaces. These so called peneplains are more than 600 million years old and form part of an ancient crystalline basement. The peneplain has been buried beneath a kilometre thick layer of sedimentary rocks. Over a long period of time, water, wind and inland ice eroded away the protective cover and finally laid bare the rock.

THREE OF A KIND IN SLÄTTBERG!

Rock campion

Hjortmossen

Eriksro



Carnation sedge

Sandhem-Halvorstorp

Narrow-leaved hawk's beard

N

Symbols

- reserve boundary
- paths
- peneplains
- flat rock forest
- parking area
- geological points of interest:
  1. sandstone dyke
  2. peneplain
  3. roche moutonnée
  4. weathering types: exfoliation
  5. weathering types: ridges and grooves, weathering pits