

Description of the ecological trail "Hennes-Moysalen 1262 m".

THE FOREST PART OF THE TRAIL

The territory of the National Park Moysalen (MNP) includes into the boreal vegetable zone. Characteristic features of the boreal zone are coniferous forests, through which it is called a zone of boreal coniferous forest or taiga.

The area of the park has an unique flora and fauna. The biodiversity and abundant growth of various species of flora are conditioned by parent rocks that are rich in nutrients (calcium carbonate) and also by cross-country terrain, providing a variety of conditions for growth. The first tens of meters of ecological trails pass through the spruce forest. Spruce is a shade-hardy breed with a horizontal surface root system and broad crown that makes it unstable against strong winds. More precisely the vegetation of this area can be defined as different stages coniferous forest with an admixture of birch.

The main forest-making species are spruce, pine, birch here. Spruce is represented by two species: Finnish spruce (*Picea fennica*) - the most common type up to the upper border of forests, and Siberian spruce (*Picea abovata*). Among birches the most common are - common birch (*Betula verrucosa*) and subarctic (*Betula subarctica*). Ash, aspen and willow are found not so often as the main tree

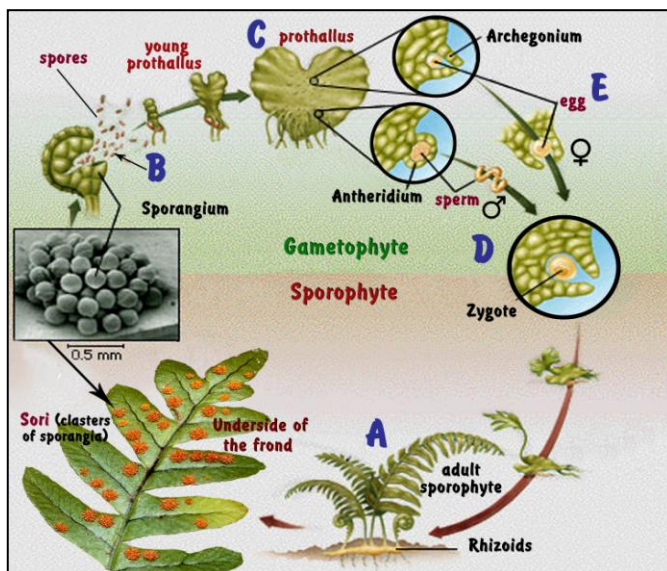


Campanula rotundifolia

species. Along the shore of the fjord you can see the birch forests, free of admixtures.

Young regrowth is also represented by spruce, pine and birch. The subshrub stage is very diverse too. Basically berry dwarf shrubs are common here: cowberry (*Vaccinium vitis*), crowberries (*Empetrum hermaphroditum*), bilberry (*Vaccinium myrtillus*). Herbaceous plants are dominated by a Blue Bell (*Campanula rotundifolia*), Willow-herb (*Chamaenerion*

angustifolium), Wood cranes - bill (*Geranium silvestris*), Dwarf Cornel (*Chamaepericlymenum suecicum*), Goldenrod (*Solidago lapponica*), Queen - of the - meadow (*Filipendula ulmaria*), various species of ferns, horsetails and club-mosses, such as Western Oakfern (*Gymnocarpium dryopteris*), forest horsetail (*Equisetum sylvaticum*) and Wolf s - claws (*Equisetum sylvaticum*).



Fern life cycle

Among the diversity of plants ferns have a special structure and reproduction. The ferns asexual generation - sporophyte - is the fern, consisting of roots (or elevated trunk), the roots and the leaves; the core of its cells are diploid (double) number of chromosomes. On the lower side of leaves sporangiums form. Sporangiums are collected in groups. Wall of sporangiums

forms after the reducing division of the cell nuclei numerous dark spores, serving for asexual reproduction of ferns. Thrown out of sporangiums and dispersed by air currents spores, in favorable conditions, grow and form a so-called sprout. It usually has the form of a small (2-5 mm in diameter) cordate green form plate attached to the soil by rhizoids. The sprout has cells



Solidago lapponica

with the haploid (single) number of chromosomes and is the sexual generation of the fern - its gametophyte.

On the bottom of the sprout his sexual organs are formed: antheridium (male) - closer to the bottom and archegonium (female) - closer to the top (excavation). Antheridiums are microscopically small and rounded. They produce sperm. Archegoniums have the form of cones, which abdominal part is immersed into the tissue of the sprout, so that only a short cervix is granted out. There is an ovule in its abdomen. Fertilization occurs in the presence of drop liquid water.

Doubling the number of chromosomes occurs during fertilization. A new plant - the fern with all its organs - roots, stem (rhizome) and leaves began to develop from a fertilized ovule.

SWAMP (bog)

The trail passes through numerous swamps and streams. The bogs are most often bogs with representatives of the sphagnum mosses in the cover and such kinds of shrubs, as Bog whortleberry, bilberry, Labrador Tea, dwarf birch and typical for such places plants. In the swamps you can also find rare and low spruce and pine.



Omalotheca silvatica

Sphagnum is a perennial plant. The moss cushion on peat land consists of great number of sphagnum moss plants, which rise vertically and in the low parts they die, accumulating layer of brown peat. Sphagnum has no roots. It is capable to absorb the water well thanks to the special structure of the leaves. A typical inhabitant of the swamp is cotton grass.

Spruce and birch forest stretches along streams. The coastal vegetation is more luxuriant. Here we can see Wood cranes -

bill (*Geranium sylvaticum*), Globeflower (*Trollius europaeus*), Marsh marigold (*Caltha palustris*), Alpine Ladys Mantle (*Alchemilla alpina*), Cinquefoil (*Potentilla erecta*), Cudweed (*Omalotheca supina*), plenty of the ferns, daisies, different kinds of cereals etc.

Most of the cereals and broad - leaved herbs found in river birch forests. These are Wavy hair grass (*Avenella flexuosa*), Purpur – Reitgras (*Calamagrostis phragmitoides*).

Along the path of the spruce forest we can find wood destroying polypores, which belong to the group of saprophytes. Settling on dead trees, they decompose wood and contribute to the natural purification of the forests. Saprophytic plants prevent the accumulation of dead organic remains and produce their mineralization.



Viola biflora

FOOTHILLS AND FOREST TUNDRA

Gradually the trail goes through the foothill area, then goes to the forest-tundra zone. Here there is a clear vertical zoning of mountains - taiga is replaced by tundra. As we move up the forest becomes thinner. On the border of the forest dwarf birch (*Betula nana*) and spruce are growing. Undergrowth is not thick, we can find rowan tree (*Sorbus glabrata*), juniper (*Juniperus sibirica*),

willow (*Salix herbacea*). In a grassy cover we can see ferns, *Rodiola rosea* (*Rodiola rosea*), sorrel (*Rumex*), (*Cryptogramma crisa*), violet (*Viola biflora*) and campanula (blue bell).

In the forest-tundra woody vegetation is developed very poorly. Here you can find fur trees with a thin crown and of creeping form, in which the trunk is not risen above the lower branches. Birch, being more hardy species, can rise high enough, depending on the relief of the slope. In the cover, together with the already met earlier species, appear plants typical for open tundra spaces, for example, Moss campion and pitchblende Alpine.



Rodiola rosea



Criptogramma crisa

MOUNTAIN TUNDRA

The belt of mountain tundra occupies the whole and the largest part of the mountain massif. For the mountain tundra low-tundra soil is characterized. The belt can be divided into lower and upper part.

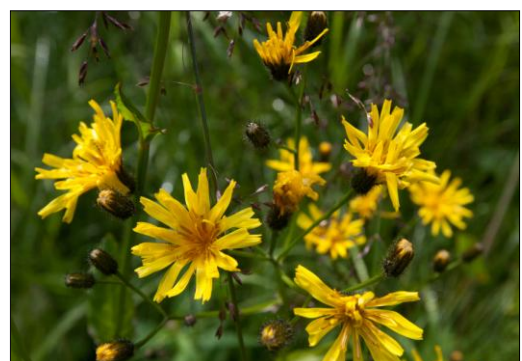


Silene acaulis

Development of vegetation cover - lichen tundra is typical for the bottom part. Among the lichen - (*Cladonia*). A peculiar type is the so-called tundra meadows, that means meadow vegetation in places, where for a long time there is snow. Many of the most common species never meet in other places. So dwarf willow (*Salix herbacea*), Glacier buttercup (*Beckwithia glacialis*), Mountain sorrel (*Oxiria degina*) are typical for the snow meadows.

On the irrigated and very steep slopes meadow vegetation is developed: blue bell (campanula) and Alpine Mouse – ear (*Cerastium alpinum*). For many plants of mountain tundra the presence of glandular hairs, giving to the leaves and stems fur – trimmed effect, is typical, as well as leathery leaves and small flowers. It protects the plant of fluctuations in temperature and moisture loss.

The upper part of mountains is rocky. The rocks are covered with lichens and mosses.



Hieracium alpinum