

MIT UNTERSTÜTZUNG VON BUND, LAND UND EUROPÄISCHER UNION
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11 Dry meadows – islands of diversity

The extreme climate of the central Alps has created islands of diversity which are unique in Central Europe. Already in Middle Ages the south oriented forests were cleared for pasture management. Over the centuries more than 400 sheep and goats prevented these grasslands from reforestation: the biggest complex of arid meadows in Tyrol were established through this traditional use and a rare flora and fauna evolved - more than 1.100 species of butterflies and 500 plant species are endemic and adapted to these special conditions. The natural park Kaunergrat tries since its foundation – in corporation with farmers of the region – to strengthen the traditional pasturing, to conquer natural reforestation and to promote the enormous biodiversity of this special habitats.



PREHISTORIC FINDINGS AT THE „PILLER SATTEL“

The "Piller Sattel" is well-known for its prehistorically findings, even in the countries next to Tirol. The discoveries are descended from the Middle Bronze Age (beginning in 1500 BC), the Hallstatt period (450 BC), until the modern era (500 AD) and have changed the present conception of history about the hill tribes, which are living in this region. The depot find at "Moosbruckschrofen" – it contains ornamental objects as well as objects of utility, which have their origin in the Bronze Age, more than two centuries ago – as well as the Hallstatt findings in Fließ are proving, that the region around the "Piller Sattel" was already in trade relations with several other cultures beyond the alpine region. Especially the "Brandopferplatz", a sacrificial altar, where people donated animals like goats, sheep and cows and later also ornamental objects is of high importance. The ritual cult site was used from the beginning of the Middle Bronze Age until the end of the Roman Empire. The worth seeing discoveries are exhibited in the archaeological museum in Fließ. Opened from May to October, Tuesday till Sunday from 10 - 12 and 15 - 17 o'clock



10 "Kaunerberger Hangkanal" (water channel) – resource of life

The south oriented slopes in Kauns and Kaunerberg are fertile, nevertheless population suffered over decades from crop failure because of water shortage. The result: Closing of farms accompanied by massive migration. To solve this problem a tunnel of 12 km length were built from 1947 to 1954 to use water from the "Gallrutgletscher" (glacier of Gallrut) to irrigate the arid fields and fruit trees. At this time, the Kaunerberger Hangkanal was an engineering masterpiece and was also an important possibility of income for the located people after the war (WW2). The needed capital was given from the Marshall-Fonds (ERP-Fonds). The Kaunerberger Hangkanal is the only project within the Alps which was realised with funds of the Marshall-Plan.



Publication: Martin Frey published an all-embracing documentary about the Kaunerberger Hangkanal (available at the information desk).

A forest

... in the natural park has to fulfil various features.



8 One forest – many features

A forest in the natural park has to fulfil various features. It is habitat for animals, protects settlements of avalanches and mudflows, it provides clean drinking water and is an important economical resource for the region. On the Kaunergrat conifers like spruce, red pine, larch and cembra pine (Pinus cembra) dominate the scenically appearance. High seated spruces grow very slowly and build closely ringed wood which is very valuable. A rare substitute of high seated spruces is the "Haselfichte" (a sort of spruce) which has a valuable sound quality.

The cembra pine builds the timber lane and is the "queen" of the natural park. Single individuals climb up to 2.400 m altitude. However they consist of soft, light and wonderful odorant wood, which is appraised by carvers and cabinetmakers. In addition the essential oils cause healthful sleep and downsize cardiac work about 3,500 beats per night!

9 New life out of "dead" wood

Nothing is more alive than a dead forest. When a tree falls it becomes home to countless microorganism. More than 3.000 different species depend on "dead" wood. For that reason there has to be enough space for dead trees in a healthy forest.



7 Moors – Jewels of the landscape

Moors are children of the Ice Age, their development lasts millenniums. They consist up to 95% of water. If this conservation of nature is destroyed, the accumulated turf is decomposing and the nutrients get released. More than 90% of all moors in Austria were destroyed irrecoverable due to drainage. At the Piller Sattel there are about 70 hectares moors left which are worth to be protected.



Even though moors aren't "hot spots" for diversity of species, they are presumed under highest grade of conservation. Here you can find extreme specialists which couldn't exist anywhere else, e.g. the sundew. This flower covers its demand for nitrate on a murderous way. It builds sticky droplets on numerous tentacles of its leaves which glitter like nectar or thaw when the sun shines on it. As soon as a small insect touches the droplets the tentacles bend to the middle, the leaf curls up ... and the insect is digested by digestion liquids!

Moors conserve history ... through parts of plants, pollen, ash particles or charcoal which are conserved hermetically sealed. By analyzing the formation of poll not only human colonisation but also history of climate can be reconstructed.

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The natural park Kaunergrat

“3000 meters VERTICAL”

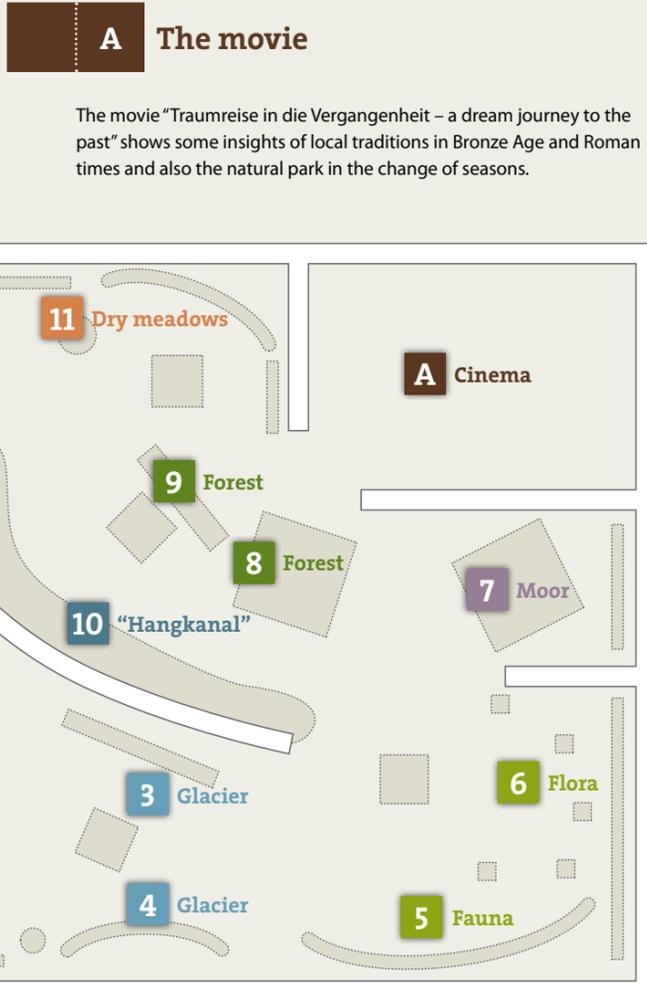


Those who travel from the warm and arid Inntal Valley up to the impressive glaciers – Mittelbergferner (Pitztal), Gepatschferner (Kaunertal) – will experience an extreme change of climate zones within few hours. These climatic changes are comparable with a journey starting in Central Europe leading to the far north ... which would mean a travelling over more than 3000 kilometres!

The exhibition “3000m VERTICAL” refers to the variety of biotopes in this area and invites the visitors to a walk through the natural park Kaunergrat. The walking-tour starts at the rocky and impressive peaks of the Kaunergrat and ends in the Inntal Valley with its dry and sunny slopes.



The natural park Kaunergrat is famous for the cultivated landscape with its rare nativeness, which was created by the hard work done by generations of farmers – and it is obtained till now.



1 From arid climate to the arctic

Through observing the weather over several years, conclusions can be drawn about the climate of a region. **In the natural park Kaunergrat the weather is influenced mainly by its “isolated location”, within high mountain ranges, which are lifting the humid atlantic air, and are acting as “rain catcher”.**

This affects mainly the south facing slopes of the Inntal Valley near Fließ, and the north end of the Kaunertal (Faggen, Kauns, Kaunerberg). These areas get on average only 600 millimetres precipitation every year (rain and snow).

This small amount of water is quickly dried up by the intensive solar radiation and the warm winds coming from the South (“föhn”). But the climate conditions are changing very quickly, according to the enormous differences in altitude of about 3000 meters.



2 From the lows of the oceans to the highs of the mountains

About 30 million years ago the Alps began to lift for about 5 millimetres every year. The reason for that is the crash of the two tectonic plates of Africa and Europe. There **rocks and sediments were pushed up to 5 kilometres deep into the earth mantle** and were melted and transformed under high pressure- and temperature conditions. By elevation, alteration and erosion **those “metamorphic” rocks came again to the surface** and build now the summits of the Kaunergrat.

Typical exponents are “Glimmerschiefer” (mica slate), various types of **sedimentary gneiss** (“Paragneis”, “Orthogneis”) and “amphobolite”. The “Paragneis” which emerged from old ocean sediments is characterising the natural park. According to hardness of the existing rocks, erosion acts differently and produces “soft” or “rugged” landscapes. In the natural park, soft rocks can be found mainly in the area of the Inntal while hard rocks, such as “Amphobolite” and “Orthogneis”, can be found mostly in the Kaunergrat massif.

3 Glacier – eternal ice

Whereas the last two million years there were several stages of glaciation in which giant glaciers were flowing through the valleys of the Alps and only the highest edges and peaks stuck up out of the ice.

The highlight of the last big glaciation which was **about 20.000 years ago** the “Inn glacier” was reaching to the foothills of the Alps. **The Kaunertal (Kaunertal Valley) and the Pitztal (Pitztal Valley) were filled up with glaciers at that time.** These giant glaciers shaped the landscape of the Alps radically.

Due to the flowing of the glaciers there were scraped “hod valleys” and the ridges were dragged roundish. The Kaunertal and the Pitztal are vintage exponents of this form of valley. In many places of the natural park you can see the forming forces of the glaciers, especially in the near of the glacier tongue. Also the numerous cirques were formed by the scraping activity of smaller glaciers (“Kargletscher – Kar glaciers”) in these there can be found beautiful cirque-lakes.



The ice of glaciers is special for its unique turquoise-blue colour. It is a result from enclosure of air which was compressed by the weight of the glacier. Beside the turquoise-blue colour every colour can be absorbed.

4 Glaciers are active

From a deepness of 30 meters, ice begins to “flow” which means that **the ice masses are moving.** Up to 200 meters were measured already on the “Gepatschferner”. The Kaunertalglletscher “Kaunertal glacier” was reaching until Prutz 14.000 years ago and also the “Pitztalglletscher” (Pitztal glacier) didn’t finish until the intersection to the Inntal Valley. During the “Small Ice Age” (around 1850) **the glacier tongue reached nearly to the Gepatschalm** (mountain pasture of Gepatsch) and the “Mittelbergferner” reached to the valley floor of the retral Pitztal.

Life in the mountains

Living in the mountains requires a high degree of flexibility. This is true for animals as well as for plants. However the mountains are rich and versatile in species.

5 Fauna

Animals in the mountains have found adequate answers in the course of evolution to outdare the cold, the long winters, the weather capers of the summer and other adversities of the high mountains.

“Step security” is essential

With their expandable hoof toes and the soft skid-proved pads, the chamois and the ibex have perfect “climbing boots” for cliffs and ice.

“To skip” the winter

Marmot families huddle against each other in a frost-proof sleeping chamber and stay there for seven months. Also snakes, lizards and amphibians are doing hibernation. The bigger part of insects and spiders outlast winter as egg or larva.



“To adjust” to the winter

Only mammals and birds can be active at low temperatures, their body temperature is hooked on the ambient temperature. In autumn mammals are feeding a grease film and get a thick winter coat. Birds have to make their way with better isolated winter feathers – because too much fat would disturb their airworthiness.

Saving energy is the highest bid!

A lot of animals such as red deer, ibex and chamois downsize their body temperature and so the metabolism. Snow grouses, black grouses and arctic hares resist the extreme winter weather in snow caves.

6 Flora

Also the plants of the Alps have developed strategies and adjustments against coldness, heat, wind, snow and shortage of water.



Some of those are:

- **White felted hairiness** (Edelweiss) as protection of intensive UV-radiation and lowering evaporation.
- **Low, cuddly growth** for optimal using the heat of the ground (e.g. “Krautweide”, “Gemsheide”).
- **Modification of leaf plots** such as downsizing, leathery leaf plot, wax coating or a protective envelope out of dead leaves to avoid evaporation.
- **Orpine** “Hauswurz- and stone crop species” like cactuses save water inside their fleshy leaves (succulence).
- **Creation of symbiosis** to avoid lack of nutrition. Through mycorrhiza (mushrooms) plants (e.g. the Alpine rose) can also get hard accessible nutrients of the ground. In favour the mushrooms receive a part of carbohydrates which are produced by the Alpine rose by photosynthesis.