English translation

of the texts in the permanent exhibition of the Natural History Museum of Thurgau

2nd floor

November 2024

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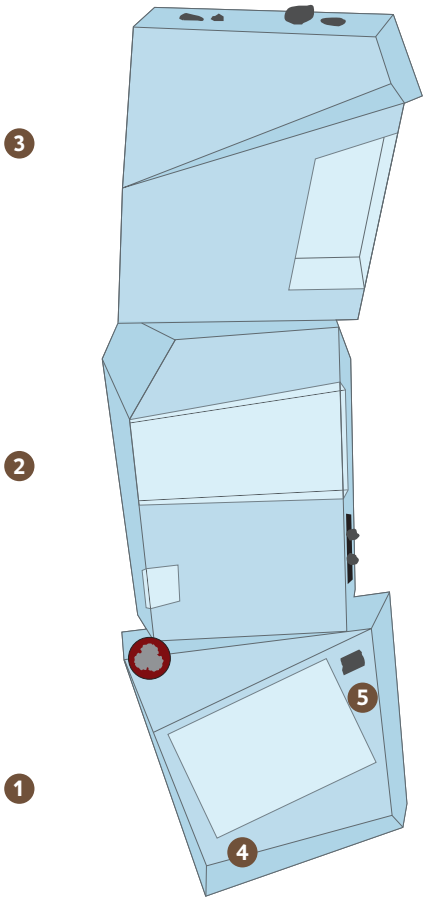
2nd floor

Canton Thurgau in the past

Rocks contain information about the processes that were involved in shaping the landscape of Thurgau over millions of years. While there are no spectacular cliffs, fossiliferous or mineral deposits, it is all the more worthwhile to look at rocks and fossils, the windows to our primeval past.



1 How it all began

The Earth is approximately 4.5 billion years old. No traces have ever been found in Canton Thurgau of its earliest period. However, the appearance of the landscape, evidence pointing to volcanic eruptions and mountain folding as well as fossilised remnants of plants and animals provide us with an insight into the eventful history of the Thurgau region dating back many millions of years.

2 Elephants and rhinos in the Thurgau region

During the period of the Upper Freshwater Molasse, which began 17 million years ago and ended around 12 million years ago, the Thurgau region was warm and humid like the subtropics are today. The landscape was characterised by a wide network of rivers and lakes. Forests of bay trees and redwoods were teeming with monkeys. Rhinos and prehistoric elephants roamed the landscape, turtles and crocodiles sunned themselves on the riverbanks. Fossilised remains from that time long since past can also be found in Canton Thurgau.

3 Icy periods

In the past 2.5 million years, there were several periods during which the Thurgau region was covered with large glaciers. The last of these Ice Ages occurred between 27,000 and 14,000 years ago. It is hard to imagine that the whole of present-day Canton Thurgau was once covered with a layer of ice up to 1000 metres in thickness. Only the tip of the Hörnli mountain would have been visible, like an island in a sea of ice. The Thurgau landscape still bears traces that attest to this icy period.

4 Geological raised-relief map

Around 100 million years ago, Africa and Europe began to move towards each other. The Alps were formed when the tectonic plates collided and the ground was pushed upwards, in some areas to elevations of up to 6000 metres! At the same time, the foreland, which is where Canton Thurgau is located, subsided. Debris, sand and mud resulting from erosion during the formation of the Alps were deposited in the depression. This rubble, or molasse, now covers large parts of the canton and is itself overlain in many areas by more recent deposits from Ice Age glaciers. The relief map shows the extent of the molasse and other geological formations.

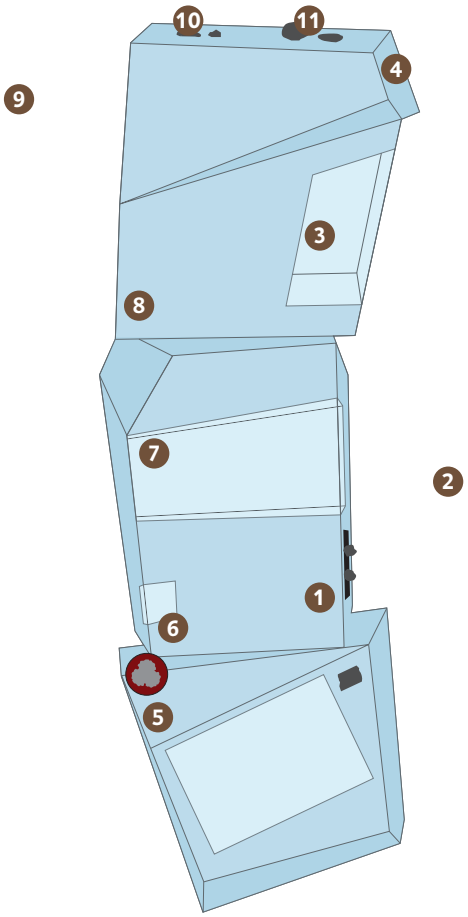
Geological raised-relief map of Canton Thurgau and its neighbouring regions
Scale 1:75 000, vertical exaggeration 2x, 10 metre equidistance
modelled in c. 1970, restored and modified in 2006

5 The oldest Thurgovian

This stone was brought to the surface during oil exploration from a depth of 2560 metres. It is approximately 300 million years old, a time before even the dinosaurs were roaming the Earth. The object is the oldest ‘tangible’ Thurgovian stone.

Growan
Deep oil drilling Kreuzlingen TG, 1962
from a depth of 2560 m, c. 300 million years old

2nd floor Canton Thurgau in the past



1 Fossilised

Remnants of plants and animals can survive the passage of time in a fossilised state. Most fossils are petrifactions, i.e. the organic material in the animal has gradually been replaced by minerals from its surroundings. As you will notice, the process changes the weight of the object.

Display case, centre:
Mastodon *Gomphotherium angustidens*
Tusk fragment
Müllheim TG, 1876
Display case, from left to right:
Coral
Thurgau, 1902
Mastodon *Gomphotherium angustidens*
Dorsal vertebra
Helsighausen TG
Tortoise *Testudines sp.*
Shell fragment
Kalchrain TG, 1917
Rhinoceros *Rhinoceros sp.*
Molar
Schlattingen TG, c. 1920
Dinotherium
Molar
Helsighausen TG

2

Fossi, the fossil
2.05 mins

3 Mammoth & co.

Over the past 2.5 million years, the climate has alternated between Ice Ages and warm periods, during which the glaciers retreated back to the Alps for a few millennia. In the ice-free times, the animals and plants in the Thurgau region were the same as those which are native to northern Europe today. Past inhabitants of present-day Canton Thurgau included the European bison, the elk and the now extinct mammoth.

Display case, back:
Woolly mammoth *Elephas primigenius*
Tusk
Schlatt/Paradies TG, 1905
Display case, right:
European bison *Bison bonasus*
Femur fragment
Steckborn TG
Display case, front:
Woolly mammoth *Elephas primigenius*
Molar
Wagenhausen/Kaltenbach TG

4 Also durable: mummies

Bodies are fossilised when temperatures are very low, or the air is very dry. Mummies can survive for several millennia. Once they have been around for more than 10,000 years, they are considered to be fossils. This fish mummy, which was left in a blackbird's nest by a stone marten, is a few decades old.

Fish mummy in a blackbird's nest
Deposited in the nest by a stone marten, Thurgau

5 Drilling for oil

People once drilled for oil even in Canton Thurgau. None of the deep drilling projects at Kreuzlingen (1962), Berlingen (1964) or Herdern (1982) brought to light any substantial oil reserves. They did, however, provide insight into the geological past of the canton.

Drill bit
Used during deep oil drilling at Herdern TG, 1982

6 Oil from the Thurgau region

Petroleum and coal originated from organic deposits dating from the molasse period. In Canton Thurgau people also searched for these raw materials. No large deposits were found, however. This bottle contains a small sample of Thurgau crude oil.

Crude oil
From deep oil drilling at Berlingen TG, 1964

7 Oysters, palm trees, elephants

An ocean covered the Thurgau region approximately 20 million years ago. Sharks swam in the water and oyster beds could be found along the shoreline. Around three million years later the landscape had completely changed, and the ocean had been replaced by an open riverscape. The climate was similar to that of the Canary Islands today. Fossils attest to a rich flora and fauna. It is hard to believe that palm trees grew on the riverbanks or that elephants and rhinos grazed the grasslands of what is now Canton Thurgau.

Display case, top:
Mastodon *Gomphotherium angustidens*
Tusk fragment
Müllheim TG, 1876
Display case, from left to right:
Palm tree
Base of the trunk
Frauenfeld TG, 1935
Crocodilian *Crocodilia sp.*
Tooth
Schlatt/Paradies TG, c. 1900
Oyster *Ostrea gingensis*
Shells
Schlatt/Paradies TG, 1942

8 Art from the gravel pit

What looks like a piece of contemporary art is in fact a cellulose lacquer peel taken from the wall of a gravel pit. Towards the end of the last Ice Age, some 17,000 years ago, a meltwater lake developed in the area of the gravel pit. Sand and gravel deposits formed on the lakebed and water currents, bank erosion and sediment deposits left striking patterns in the sand.

'Sand image'
Cellulose lacquer peel taken from a pit wall
Gravel pit at Ebnet near Willisdorf TG, 2002
Thurgau Geotope Inventory, no. 142

9

Icy times in Canton Thurgau
3.5 mins

10 Moved by glaciers

The last great Ice Age began some 27,000 years ago and ended 14,000 years ago. The glaciers continued to flow from the Alps in the direction of the Swiss Plateau. Like a giant conveyor belt, they transported rocks from their original locations into the Thurgau region. It could take up to 3,000 years for a rock to travel all that way. When the climate warmed up, the ice melted, and the rocks were left behind. Such 'glacial erratics' can be found in many places today.

Wall, from left to right:
Shelly limestone
Provenance: near Rorschach SG
Findspot: Märstetten TG
Julier granite
Provenance: Julier GR
Findspot: Frauenfeld TG
Verrucano rock
Provenance: near Ilanz GR
Findspot: Frauenfeld TG

10 Scratched by glacial ice

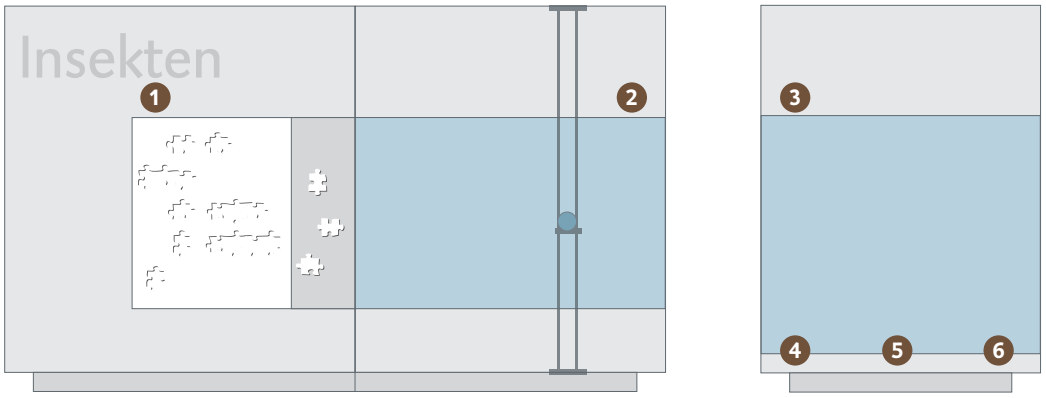
Even the toughest rock bears the scars of its kilometre-long journey with the glacier over hundreds of years. The scratches are clearly visible on the rocks. The distinctly parallel scrapes indicate the direction of glacial flow.

Glacial erratics with scratches
Frauenfeld TG, 1909

2nd floor

Insects

Insects have inhabited the Earth for almost 500 million years. More than two thirds of all organisms known worldwide are insects. They can be found in every environment except the oceans. So far, 1 million species have been described, and new ones are being discovered every day.



1 Orderly diverse
Some 30,000 insect species are known in Switzerland. Half of them can be found in Canton Thurgau. Insect family trees are used to keep track of the unbelievable variety. Who can place the pieces of the puzzle in the correct family tree?

2 Magnificent diversity
The variety of shapes and colours of our insects is endless. All species shown here are part of the museum's collections and are or were native to Canton Thurgau. The view through the magnifying glass reveals them in all their glory.

3 Colony-building insects
A special feature within the world of insects is the fact that some live in colonies. Each individual within a colony of insects has a clear task assigned to it. A colony of ants, for instance, consists of workers, soldiers and those who look after the nest. Only a small number are in charge of reproduction, and in many cases, the entire colony is descended from a single queen. Each colony lives in its own nest.

4 Ant nests in wood
Using their mandibles, some species of ant chew through rotten wood and even living trees to build their nests inside. They build a network of tunnels inside the tree, taking care, however, not to disrupt the flow of water or nutrients so that the tree can carry on living.

5 Honeycomb, the honeybee's nest
Honeybees' nests consist of many hexagonal cells combined to form honeycombs. Wax secreted by the bees' glands is used as a building material. From 1 kg of wax, bees can make 80,000 cells and this takes approximately 66,000 hours.

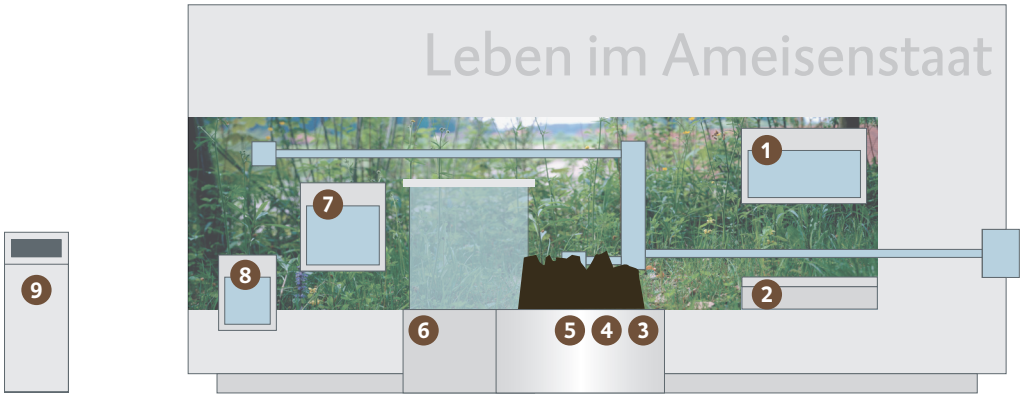
6 Wasps' and hornets' nests
Wasps and hornets build their nests in decayed wood. They chew the wood and mix it with saliva. The resulting lightweight building material is similar to cardboard. Their nests have several storeys attached to each other by columns.

On the wall of the display case, from left to right:
Bee's Honeycomb
Saxon wasp
Paper nest
Frauenfeld TG, 1999
Hornet
Paper nest
Thurgau, 1990
On the floor of the display case, from left to right:
Carpenter ant
Nest in a wooden telephone pole
Frauenfeld TG, 1945
Jet black ant
Nest in the trunk of a spruce tree
Pfyn TG, 1937
Hornet
Nest in a beehive
Frauenfeld TG, 1926
German wasp
Paper nest
Thurgau, 1990

2nd floor

Life in an ant colony

Ants can be found all over the world and in every habitat except water and high mountain ranges. A small number of species existed as early as 100 million years ago, at a time when dinosaurs still roamed the Earth. The ants' success story was based on their social structure; every one of the 14,000 species known today forms colonies.



1 Not all ants are the same

A total of 14,000 species worldwide have been identified so far. Switzerland has approximately 140 species. They are divided into four groups: Myrmicinae, Formicinae, Dolichoderinae and Ponerinae. The petiole, a segment between the anterior and the posterior part of the body, is an important distinguishing feature; it is marked in the models.

Display case, from left to right:
Myrmicinae, 70 species in Switzerland
Two-part petiole, no scale on the petiole
Formicinae, 57 species in Switzerland
Upright, large, scale-like petiole
Dolichoderinae, 5 species in Switzerland
Scale on petiole small or absent
Ponerinae, 5 species in Switzerland
Constriction of the first and second segment.
Thick scale on petiole

2 Ants up close

There are considerable differences in size between individual ant species. Use the magnifying glass to study some of the species in greater detail.

3 Graveyard

Over the course of approximately six years, the entire ant colony is replaced. In a large nest of 2 million animals, c. 1000 die every day. The 'corpses' are deposited in a graveyard far away from the nest.

4 Ant food

Ants in the wild feed on lots of different things, including other insects, plant juices, berries and seeds. The ants in our arena are fed a pre-prepared food substitute (in little bowls), honey water (in dispensers), pieces of apple and crickets.

5 An arena of ants

This arena allows us to observe a colony of ants all year round as they go about their business. In spring and early summer, the males and young queens take to the air on a nuptial flight to begin new colonies.

6 The nest

Our ants are building a nest with a dome. The part of the nest that is below ground is at least the same size as the part that is visible above the surface. Ants like to build their nests on the edge of forests, in sunny spots that are sheltered from the wind.

7 Model of a red wood ant nest

The ants have built their nest around a tree stump, one part above ground, the other below. The dome or hill on top consists of plant material. The interior is divided into chambers where supplies are stored and offspring are reared.

1 The stump of a tree serves as the core of the nest
2 Tunnels
3 Storage chamber
4 Brood chamber containing larvae
5 Eggs
6 Transportation of pupal cocoons
7 Transportation of larvae

8 Mortal danger

The larva of an antlion builds a funnel-shaped pit and sits at the bottom of it waiting for prey. If an ant falls into the funnel, the larva showers it with loose earth until it loses its foothold and slips into the antlion's mouth.

1 Cocoon
2 Antlion at the bottom of its pit
3 Antlion
4 Empty cocoon, cut open
5 Cocoon with empty pupa
6 Adult antlion
7 Remains of prey

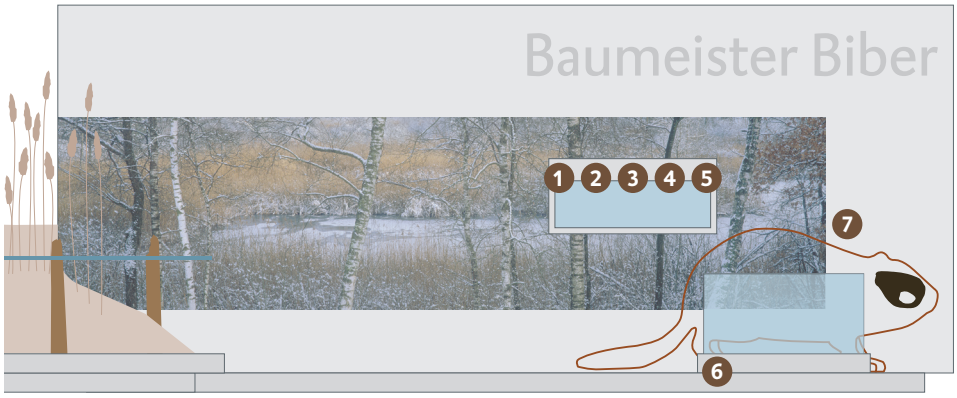
9

The antlion, 3.5 mins

2nd floor

Beaver the master builder

Beavers enjoy a lot of goodwill from people. Their way of life is fascinating and their accomplishments as lumberjacks and builders amaze us. Unlike most other wild animal, beavers actively shape their surroundings, creating habitats for other plant and animal species. However, beavers also share the same space with people, and this can sometimes lead to problems.



1 Rodents

Animals' teeth tell us what they like to eat. The beaver is the largest indigenous rodent, the harvest mouse is the smallest. Typical features of rodent teeth are long incisors and broad molars.

2 Predators and carnivores

A fox's teeth are characteristic of a predator's and a carnivore's teeth, with pronounced and pointed canines that serve as fangs. Its molars are narrow and sharp.

3 Insectivores

Insectivores such as hedgehogs have lots of pointy, sharp teeth with which to grasp their prey and crack the exoskeletons (external skeletons) that many insects have.

4 Herbivores and ruminants

Roe deer are herbivores and ruminants. Their molars are broad. They have a bony pad in the upper jaw. Their food is partially digested and then regurgitated to be crushed a second time between the pad and the tongue.

5 Omnivores

Humans are omnivores, i.e. they eat everything. Their teeth are neither pointy nor sharp. Their molars are not as broad as those of herbivores.

Display case, from left to right:

Skull of a harvest mouse
The smallest rodent in Switzerland

Skull of a beaver
The largest rodent in Switzerland

Skull of a fox
Carnivore and predator

Skull of a hedgehog
Insectivore

Skull of a roe deer
Herbivore and ruminant

Human skull
Omnivore

6 Europe's largest rodent

Beavers belong to the order Rodentia. With more than 2500 species, rodents are the largest group of mammals. At over a metre in length and weighing up to 30 kg, beavers are the largest rodents in Europe.

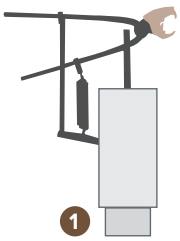
Skeleton of a beaver
Uesslingen TG, 2004

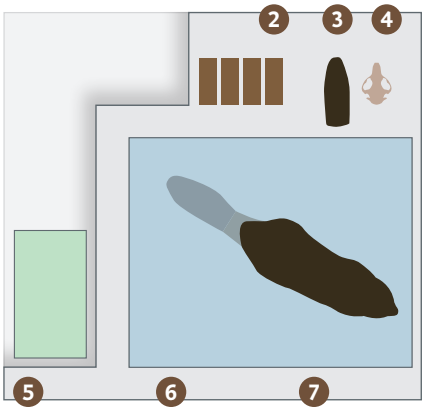
7 Giant beavers

The first beaver-like animals appeared some 50 million years ago. Over time, various species evolved, including the giant beaver, *Castoroides ohioensis* in America. It could grow to 2.5 metres in length and weigh approximately 200 kg.

Giant beaver *Castoroides ohioensis*
North America and Europe, became extinct c. 10,000 years ago
Skull cast and body silhouette

2nd floor Beaver the master builder





1 Rather beefy!
A beaver's jaw produces approximately 80 kg of bite force per square centimetre. Humans can manage half of that, at best. Who can produce 80 kg using the beaver skull to squeeze the pliers?

2 Protective fur
Some 20,000 hairs grow on each square centimetre of beaver skin. The fur keeps the animal warm, and is also water-repellent. To ensure its service it has to be carefully maintained and lubricated with a glandular secretion. Hardly any other wild animal's fur is as dense as a beaver's. See for yourself.

Furs to touch, from left to right:
Beaver
Badger
Stone marten
Roe deer

3 A multifunctional tool
The tail of a beaver is a multifunctional tool. It acts as a rudder when diving, as a store of fat in winter, as a support when chopping down trees and as a padding to sit on when grooming. Beavers also use their tail to warn others of danger by slapping the water surface with it.

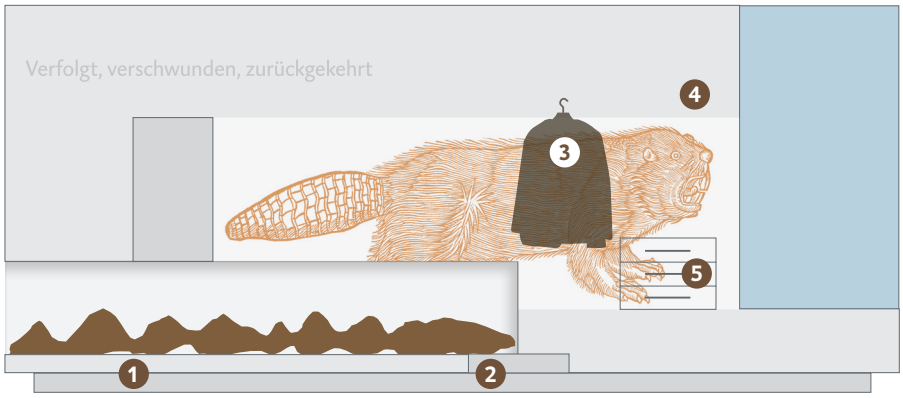
4 A handy gap between the teeth
A beaver's jaw has a so-called diastema or gap behind the incisors; it is followed by flaps of skin which seal off the oral cavity. This means that beavers are able to chew branches even under water without wood chips or water getting into their throats.

5 Model of a beaver's hind foot
Operating the metal button on the handle will fan out the flipper-like model, thereby increasing resistance when it is drawn back. This is how the webbing works on the hind feet of a beaver.

6 Webbed feet
A beaver's strong hind feet are the size of a human hand. The toes are webbed. When the beaver swims around in the water, his toes fan out thus enlarging his feet and making them a rather efficient propulsion tool.

7 Adapted to a life in water
Beavers are adapted to living in water. Their stocky, streamlined build conserves energy when swimming and reduces the loss of body heat. Nose, ears and eyes are all arranged in a line and are always held above water. Thanks to their strong lungs, beavers can swim underwater for up to 15 minutes.

Taxonomy • rodents • 2 species: the Eurasian beaver and the North American beaver • **body length** • between 80 and 100 cm, lifelong growth • **weight** • up to 30 kg • **diet** • vegetarian • food storage • **dentition** • 20 teeth • incisors grow continuously • **senses** • acute sense of smell • good hearing • well-developed sense of touch • weak eyesight • **age** • in the wild 10 to 12 years • **reproduction** • mating season from December to February • gestation period approximately 105 days • litters of 2 to 3 kits each year • sexual maturity at 2 to 3 years • **behaviour** • small family units • active at dusk and during the hours of darkness • build structures, dams and channels • **territory** • along rivers and streams • 0.7 to 3 km stretches depending on food availability • young animals leave the group in their third year • **long-distance dispersal** • up to 100 km, even overland



Persecuted, disappeared, reintroduced

The beaver disappeared from Canton Thurgau in the early 19th century, mainly due to extensive hunting. Beaver meat was a delicacy, the soft fur fetched a high price and the 'castoreum', a glandular secretion, was considered a miracle drug. Between 1966 and 1969, a total of 18 beavers were released into the wild in Canton Thurgau. Today, the thriving beaver population in Canton Thurgau is once again one of the largest in Switzerland.

1 An artist at work

This was not created by a wood artist but by a beaver. Using their sharp incisors, the hard-working animals can sometimes create veritable works of art. This tree trunk carved into a spiral was found in the alluvial forest at Niederneunforn. Why the beaver decided to create this beautiful shape will have to remain its secret.

Willow trunk gnawed by a beaver
Niederneunforn TG, 1990
Bequest A. Krämer, Frauenfeld

2 Caught in a trap

The soft fur of the beaver is still used today in the manufacture of coats and hats. Besides cage traps and fish traps, foothold traps were used to hunt beaver for a long time. The advantage of trapping the animals instead of shooting them was that traps did not damage the valuable pelts. In Switzerland beavers are protected today and the use of foothold traps is prohibited.

3

Beaver fur coat
Second half of the 20th century
Bequest I. Diesmann, Porto Valentina

4 Mr. And Mrs. Beaver's neighbours

A beaver family use up to 3 kilometres of near-natural riverbank. They share their habitat with many other animal species. Where river sections are upgraded to promote beaver welfare, it can also benefit other animal and plant species.

1 Alpine newt (female)
2 Northern crested newt
3 Smooth newt
4 Palmate newt
5 Muskrat
6 White stork
7 European tree frog
8 Little bittern
9 Great reed warbler
10 Common ringed plover
11 Agile frog
12 Common toad
13 Natterjack toad
14 Common frog
15 Yellow-bellied toad
16 Common midwife toad (male carrying a string of eggs)
17 Common reed bunting
18 Eurasian reed warbler
19 Western marsh harrier
20 Sand martin
21 Water rail
22 Corn crake
23 Kingfisher
24 Common cuckoo
25 Grey wagtail
26 Corn bunting

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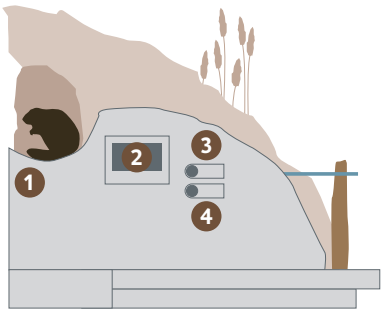
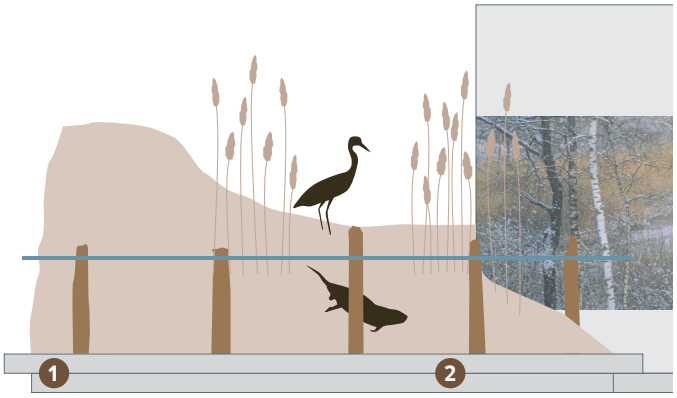




1 Family life
Beavers form small family units consisting of the parents and the kits from the past two years. The parents stay together for life. They look after their young together and are helped in this by the offspring from the year before. Each family defend their own territory. Depending on the available food sources, territories can stretch from a few hundred metres to 3 km along a river or lake.

2
Beavers on Barchet Lake
17 mins

3 Scent marks for the neighbours
Beavers use scent to mark their territory. They secrete a pungent oily substance, the castoreum. Humans can also smell the intense odour. Find out for yourself.

4 The beaver as a perfumer
Castoreum has been used in the production of perfume for a long time. 'Shalimar', a perfume which has been on the market for over 100 years, now contains manmade castoreum as its basic component. Find out for yourself.

1 Life below ground
In Switzerland beavers dig burrows in the ground, while classic beavers' lodges are rarely found. If the roof of a burrow collapses, it is repaired using branches, mud and grass. Burrow entrances are always under water. If the surface of the water is in danger of sinking below the entrance, the beavers build dams to regulate the water level. In Switzerland, dams only tend to be a few metres long. In Canada, dams of over 500 metres have been recorded. Beavers store food for the colder months.

2 Master builder for many
Beavers' building activities are also beneficial to many other plant and animal species. The felling of trees allows more light to flood into the area and encourages plant diversity on the ground. The building of dams creates water bodies for aquatic insects, dragonflies, amphibians and fish. Dammed areas eventually silt up leading to the formation of bogs and marshes.

1 Grey heron
2 Nuthatch
3 Eurasian water shrew
4 Bullfinch
5 Common moorhen
6 European polecat
7 European crayfish
8 River trout
9 Winter supply (sugar beet)

5

Top drawer:

Why was the beaver exterminated?

Hunted and disappeared

Intensive hunting in the early 19th century resulted in the collapse of beaver populations. Their soft fur was used to make clothes. Castoreum, a secretion from between the beaver's anus and external genitals, was believed to be a panacea and potency remedy. The tail was a delicacy and because beavers were considered to be "fish-like", eating their flesh was permitted by the Catholic Church on Fridays and even throughout Lent. Beavers were unjustly persecuted for allegedly stealing fish and crabs.

Conrad Gessner's (1516–1565) ‹Thierbuch› [Book of Animals] contains numerous recipes for remedies to treat various conditions and illnesses using the body parts of beavers.

> Beaver fur for treating heart attacks and strokes
>
> Beaver urine is a cure-all
>
> Castoreum helps to fight hair loss

Illustration:

For a long time, beavers had a bad reputation for stealing fish, which was one of the reasons why they were so intensively hunted.

Illustration: from Conrad Gessner, ‹Thierbuch›, 1669

Window:

Castoreum used to be considered a miracle cure. It actually contains a salicylic acid compound that is still used today in medications to treat pain and fever such as Aspirin.

Middle drawer:

How did the beaver make its comeback?

Return of the beaver thanks to human intervention

Between 1958 and 1977, some 140 beavers were introduced into the wild in Switzerland, mainly by dedicated private individuals. Unfortunately, this was not done systematically nor was it underpinned by a scientific concept, which meant that for a long time, beaver populations remained small and isolated. This madae interbreeding between populations difficult, although it would have been very important to promote genetic variation. Since the mid-1990s, however, beaver numbers in Switzerland have been steadily increasing and the species is spreading.

Distribution information:

Today, beavers can be found in almost all large bodies of water on low-lying ground throughout Switzerland and the Principality of Liechtenstein. At this stage, suitable habitats for beavers to spread further are becoming rather scarce in some areas.

> Home ranges of individuals/pairs
> Home ranges of families

Distribution information: info fauna Biberfachstelle Schweiz, 2022; background map: swisstopo

Photo:

In 1968, the first Norwegian beavers were introduced into Lake Nussbaumersee in Canton Thurgau. The project had been initiated by Anton Trösch (1921–2003, wearing a check shirt in the photo), who would later become known as Thurgau's "Father of Beavers".

Photo: Naturmuseum archive

Window:

Branches debarked by beavers

Bottom drawer:

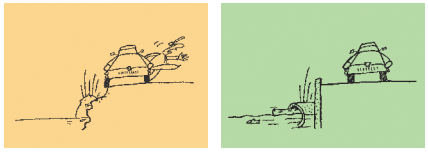
How can we solve our problems with beavers?

Beavers can also cause problems

As a human-adapted species, beavers share their habitat with us. The more beaver numbers increase and the more they spread, the more conflict occurs. The fact that beavers sometimes chop down trees, undermine walkways along shorelines, flood cultivated land and cause damage to crops can lead to rather heated debates. Many of these problems can, however, be very easily solved. It remains unclear to what extent the hunting of beavers prevents conflict or regulates numbers.

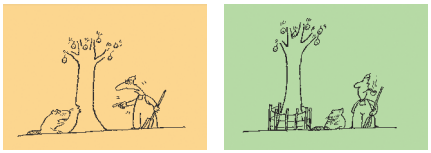
Problem:
When beavers chew on cultivated trees and even chop them down, it can be a financial loss for forest owners. Trees that are planted close to water are particularly vulnerable.

Solution:
Damage is best prevented by planting trees at some distance (at least 30 metres) from the water.



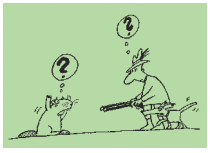
Problem:
Burrowing activity by beavers can undermine the stability of flood dikes and embankments.

Solution:
Exposed areas can be protected by inserting artificial constructs made from concrete pipes or by sinking chain-link fencing to prevent beavers from undermining riverbanks.



Problem:
In the summer and autumn months, beavers chew off branches of fruit trees or chop down entire trees close to water so as to get at the fruit.

Solution:
Wrapping chain-link fencing around vulnerable trees protects them against the beavers' sharp teeth.



Problem:
Large predators such as wolves, bears, wolverines or white-tailed eagles help to keep beaver populations under control. In areas where there are no such natural predators, numbers can increase steadily, which also leads to more conflict.

Window:
Corncob chewed on by a beaver

Solution:
It may become necessary to hunt beavers in the future just to regulate their numbers.

2nd floor

Small-scale museums

This section presents two treasures from our collection. Both the wooden library and the wax models of fruit varieties were created around 1800. What seems unique today was in fact produced and distributed in various limited series. The volumes in the wooden library and the fruit models were created to provide easy-to-understand illustrations to accompany works of expert literature.

Their beauty was striking, even at the time they were first made, and they imparted knowledge in a hands-on manner. Both wooden books and wax fruits were intended to educate people and to bring them joy – and that is why we can view them as small-scale museums.

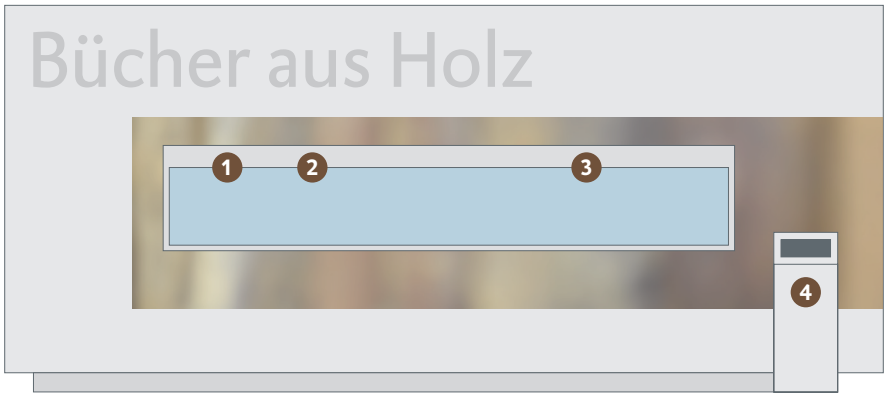
2nd floor

Books made of wood

The wooden library by Candid Huber

Between 1790 and 1804, the German Benedictine monk Candid Huber created several wooden libraries. Each of the 135 volumes of the *Ebersberg wooden library* on display here was made of the species of wood which it represents, and each volume contains a herbarium of parts of the tree species concerned. In addition, Candid Huber wrote a textbook to accompany the wooden libraries. The expert knowledge contained in both the textbooks and the libraries was aimed at helping aristocrats and monasteries who owned woodlands to properly maintain their resources.

The wooden library at the Natural History Museum of Thurgau is one of the largest examples created by Candid Huber, of which around a dozen are still in existence throughout Europe.



1 By order of use
The wooden books are divided into seven classes of timber, each in a different format. The largest books are dedicated to the most valuable timbers suitable for construction while the smallest deal with woody climbers and creepers such as the blackberry.

2 Loaded books
The book covers are hollowed out and filled with various parts of the trees or shrubs represented. They include a branch from summer growth, one from winter growth, the fruit of the tree and its seedling with roots. Some volumes also contain a root wood plaque or a pest insect.

3 A sensory experience
The wooden books portray each species of wood while also allowing the audience to feel the weight, hardness and structure of the wood with their own hands. They vividly demonstrate how each type of wood can be worked with a saw, a plane or a carving knife.

Display case, from left to right:
Class I
Construction timber
Class II
Construction timber size I
Class III
Construction timber size II
Class IV
Construction timber size III
Class V
Shrubs
Class VI
Subshrubs
Class VII
Woody climbers and creepers

4
Activate the touch screen and delve into the world of the wooden library.

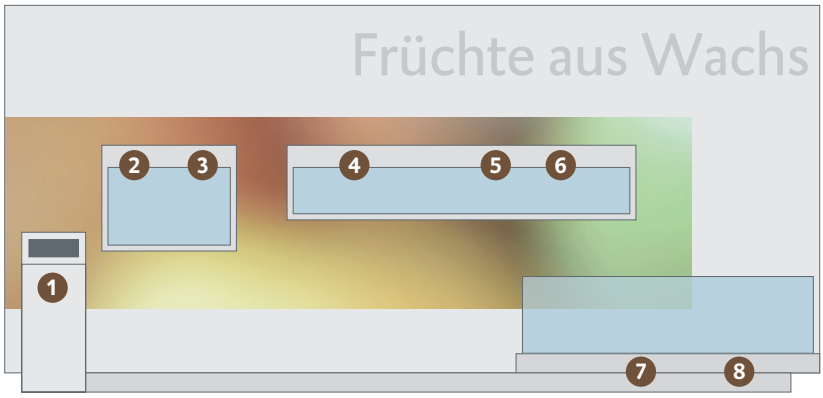
2nd floor

Fruit made of wax

The *Pomologisches Cabinet* by J. V. Sickler

Johann Volkmar Sickler, a clergyman and pomicultural expert from Thuringia had these 299 wax models of various pome and stone fruits made between 1795 and 1811. He distributed the *Pomologisches Cabinet* [Pomological Cabinet] in conjunction with his specialist journal *Der Teutsche Obstgärtner* [The German fruit grower]. Pomology, the study of fruit cultivation, experienced its heyday around 1800. Identification, classification and knowledge of fruit varieties is a basic prerequisite for the successful cultivation and production of fruit.

Eight series of models by Johann Volkmar Sickler still survive today. The Natural History Museum of Thurgau acquired this well-maintained, almost complete and excellently preserved collection from the Hess Family in Zurich in 2016.



1

Activate the touch screen and delve into the world of wax fruits.

2 Pomology in 22 volumes

In 1794, Johann Volkmar Sickler began to publish *Der Teutsche Obstgärtner* [The German Fruit Grower], a specialist pomological journal. In the beginning there were eight publications issued annually, with the number rising to twelve from 1797 to 1804. Here, all issues are gathered together in 22 volumes, forming a comprehensive work on fruit cultivation.

3 Expertise to suit all budgets

By publishing individual issues several times a year Sickler made it possible for his target audience of ordinary citizens and farmers to buy the journal in instalments. This was easier than paying a large sum for a whole textbook. In this way, Sickler shared his knowledge with the general public – entirely in keeping with the Enlightenment.

4 Fruit from the confectioner

When a reader of *Der Teutsche Obstgärtner* [The German Fruit Grower] suggested that the different varieties could be reproduced in wax similar to the lifelike anatomical models used by medical students, Sickler commissioned a series of wax fruits from skilled confectioner Ernst Heinrich Gebhard.

Display case, from left to right:
Medlar
Hazelnut
Peaches
Apricot
Cherries
Plums
Pears
Apples

5 Just like a chocolate bunny

Sickler selected typical fruits. Gebhart used them to create plaster casts into which he poured a thin layer of wax. Once the wax had cooled, he opened the mould and took out the fruit, polished and coloured it and added replicas of the stalk and calyx.

6 Deceptively real

The basic material used to make the models was beeswax. The surfaces were painted with transparent colours to make them look natural. A fine powder was added to the dyes used for apricots, and fibres were mixed in with the peach dyes to imitate the natural surface structure of these particular fruits.

7 The lord of the Brandschenke manor

In the 18th and 19th centuries, the ancestors of the Hess Family ran the Brandschenke manor in Zurich, which also included a tree nursery and an orchard. The lord of the manor probably had a subscription to *Der Teutsche Obstgärtner* [The German Fruit Grower] and its wax fruits.

8 A well-organised repository

To store his wax fruits, the lord of the manor had 14 boxes made with compartments for each individual model. The compartments are labelled with information, cut from the delivery slips, about each variety, including the name of the variety, the ripening season and its storability.