

Guide Walk around Lake Kävsjön 12 km

This is how it works:

- You will find numbered poles along the trail
- In this guide you will find texts corresponding to the numbers
- Combine the text with what you see around you

The staff at Store Mosse National Park wish you a pleasant and informative walk



Walk

Lake Kävsjön round trip

The track is 12 km long and starts from the main parking area near the Visitor Centre, naturum. It is an easy trail with board walks across the wet parts. Never the less, the board walk can be very wet and slippery, especially during rainy seasons and when it is minus degrees.

This guide follows the trail clock wise. From here you follow orange-red colour markings leaving the parking area. The area adjacent to Lake Kävsjön is a restricted area during the summer season, but the actual trail is open all year round. It is also permitted to follow the trails to the bird watching towers by the lake side.

10 Glacial striations

The glacier has left visible traces in the bedrock. The heavy 2000 metre thick ice sheet did not only push the crest of the earth down it also scratched the bedrock with frozen rocks and boulders embedded in the base of the glacier as it moved during more than 100.000 years. This area was cleared of ice about 14.000 years ago. The glacier retreated to the north

The weight of the ice was enormous; In this part of Sweden the ground was pushed down about 100 metres. At Store Mosse the ground has now returned to its original height, but in the north of Sweden on the east coast, "The High Coast", the land up lift still continues with almost 1 centimetre a year. The world record for land uplift!

During the Quaternary Period, the last 2.6 million years there have been several ice ages. Between the ice ages, the climate has been similar to today, and we are probably in a period like that now. The interglacial periods usually lasts about 10 000 to 15 000 years.

11 Fläsebäcken

Fläsebäcken is a canal dug for reducing the water level in Lake Kävsjön. In 1840 the surface of the lake was lowered about one metre. This was done due to the need for more grazing and agricultural land. Times were poor, and more land to support the growing population was needed. On parts of the dried up lake floor a quagmire was established, where hay was harvested. The main part of the quagmire is situated on the southern side of the lake. It consists of a mat of entangled roots and plants which float on top of the water's surface. On top of this quagmire, often roe deer and occasionally moose can be spotted eating from the bushes. During early summer you can enjoy Bog Arum, *(Calla palustris)* which grows in the water near the bridge.



Grey lag Goose (Anser anser)



Bog Arum (Calla palustris)



Marsh Harrier (Circus aeruginosus)

Lilla Tornet (The small bird watching tower)

Lilla tornet is an excellent bird watching place. The most common birds in this area are: Crane, whooper swan, grey lag goose, several waders and also predatory birds like marsh harrier, white tailed eagle, golden eagle and osprey may show up. During migration hen harrier and rough legged buzzard pass by.

Grey lag goose is easily recognizable; its bright red beak showing up clearly. The marsh harrier flies slowly and low across the landscape looking for rodents and other goodies. The female is easily spotted with her yellow-white coloured crown.

12 The ditch.

Follow the ditch and you will end up admiring the flower symbol of Småland, The Twinflower, (*Linnea borealis*). They thrive here but please, just look at them, don't pick. This part of the track was renovated 2011 by volunteers, members of the Store Mosse National Park Association.

13 The old road

This is the old church road from the farms at Svänö to the local church at Kävsjö village. On Sundays all year round after a hard week's work on the farm, the farm people followed this old road to and fro the church where they had to listen to the preaches and maybe if lucky, take a secret nap.

Södra Svänö farmstead

There used to be two farms at Södra Svänö. Svänö is an island consisting mainly of moraine encircled by bogs and Lake Kävsjön. It is an old cultural landscape where people have lived for hundreds of years. In between copses of deciduous trees the ground was cultivated for years. Today cattle do a good job in keeping the landscape open by grazing. This makes the flora very rich in species. On a grazed and unfertilized meadow in Sweden one may find up to 50 different species of plants in one square metre! This is more than one finds in a square metre, in the rain forests of the Amazonas.

While in Svänö, please remember to shut the cattle gates when you pass, it saves a lot of time and work for us and the farmer. Also Please do not bother the cattle, they may be very nosy and curious, but they can also be easily frightened, run off, and hurt themselves.

The main building is now used as hostel. We belong to the Swedish Tourist association STF. You can book your stay on line, www. svenska turistforeningen.se. You can also book at naturum Visitor Centre, 010-223 61 30. There is more information about Svänö inside the rest hut.

The grey Lady and the silver treasure in Hanö

There are some exciting stories about the Ghost Lady, "Svänödamen". This Lady is supposed to guard a treasury of silver from the 14-1500s. The church silver treasury from the village of Kävsjö was hidden secretly to avoid plundering from the Danish army. However, the poor man who hid the treasury died before he could tell anyone about the place.

The Grey Lady is somehow connected to the northern farm at Svänö (which is now a hostel) and she does her outmost to prevent the discovery of the treasury. There have been many disillusioned treasure hunters giving up the search scared away by supernatural events. There is also a bat roost under the tiles of the main building. During the summer evenings in July you can watch the bats emerging from under the tiles at dusk for their nightly food hunt.

Hanö grave field

The oldest evidence of people in the National Park are remnants found at the grave field at Hanö. These gravestones were raised during the Iron ages about 2000 years ago. This is a favourite spot for the Grey Lady who likes to sit on these burial stones.

From Hanö burial grounds there is a trail to the bird watching tower (Svänötornet) next to Lake Kävsjön.



Osprey (Pandion haliaetus)



Common greenshank (Tringa nebularia)

Svänötornet

Here is a good view of the north eastern part of Lake Kävsjön. During normal water level in the lake, the sand shores are visible and during low water, even more sand dunes emerge. This is the time for spotting wading birds. The waders forage on the wet sandy shores.

The ospreys are often seen hunting over the lake. Sometimes they sit and rest on the fence poles along the lake side. The osprey hovers over the lake and when it spots a fish it dives for it, hitting the water feet-first.

Greenshank is a wader that regularly breeds in the National Park. Its long and broadbased bill has a slight or distinct up curve. The waders can be seen walking on their long legs foraging on the sandy shores for worms, insects, plants and small fish.

Waders usually produce 4 eggs. The eggs are large compared to the size of the bird and 5 eggs are one too many to keep warm when sitting on them. It is usually the males job to sit on the eggs. The females migrate back to Africa early, leaving the poor males to do all the hard work bringing up the kids.

14 The stream

The water in this stream is running from Lake Häradsösjön to Lake Kävsjön. During the 1840s when the farmers in the area lowered the water level in Lake Kävsjön about 1 metre, the water level in Lake Häradsösjön also diminished about 1 metre and all that water came through here.

Along the stream the vegetation is completely different from the bog. This water is nutritious and full of oxygen which creates conditions for much more demanding vegetation.

15 The edge of the bog

Here you can see the bog plain towards the south west. Take note of the raised surface in the centre. This is characteristics of a raised bog, a raised centre sloping down towards the edges. In a peat bog there is a lack of oxygen. And due to that there is very little decomposition as decomposers and bacteria do not survive in this harsh environment.

Dead half decayed plants are stored on top of each other, layer after layer raising the level of the bogs surface. The plants on top have lost contact with the ground water, leaving the plant to survive only on the nutrition from rain and snow.

The further away from the edges of the bog, the less decomposition and the more the bog grows in height. The depth right here may be only a couple of metres, but further out on the bog plain it may up to 5 metres down to the firm ground.

16

At the crossroads, do you vote for the left or the right? No worry, both trails will end up in the same place.

The Eastern trail (left) will follow the sand dunes (rocknarna) to trail Svartgölsleden (the trail adapted for wheelchairs) and Östra Rockne car park, and further to the trail Gungflyleden and back to naturum. To follow the eastern trail you continue reading at number 5 below.

The Western trail (right) goes closer to Lake Kävsjön and is the shortest trail back to naturum. To follow the western trail you should jump over number 5, 4, 3, 2 and go to **17** in this guide.

5

This is the starting point of the footbridge that takes us over the bog to Lake Svartgölen. It is about 500 metres to the lake and there are picnic facilities next to the water. Along the way, there are 3 resting points with benches inviting you to a have a break and admire the bog. As you leave the sand dunes, you will notice that the pines become smaller and smaller. This is due to the poor nutrition in a raised bog.

Nutrition from the vegetation on the sand dune is brought by the rain water to the edges of the bog making it more nutritious. Further out on the bog plain the pines become very small and tiny. They might only reach 1 metre in height, and the age might be up to 100 years.

The depth of the bog in this area is about 5 metres down to the old sandy floor of Lake Fornbolmen. Those 5 metres consist of peat moss, ("Sphagnum moss") that has been preserved for thousands of years.

Sphagnum moss, There are about 50 different species of Sphagnum moss in the northern hemisphere, and in Store Mosse National Park we have about half of them. A sphagnum moss has the shape of a tree, a stem with branches and on top a head. Sphagnum moss is the main vegetation of a peat bog and is what turns into peat after thousands of years.

The living conditions in a peat bog are very poor, there is a lack of oxygen and nutrition, and very few plants can survive in this harsh environment. There is a minimum of decomposition, dead plants are just left piled on top of each other, and after a few thousands of years it results in peat. Sphagnum moss is also naturally antiseptic.



Sundew (Drosera anglica)



(Sphagnum cuspidatum)



(Sphagnum rubellum)

From here it is about 500 metres boardwalk to Lake Svartgölen where you read number 6 and 7. Then you return the same way. Otherwise you continue to number 4.

6

Sundew is the vicious predator of Store Mosse. Sundews are abundant on the open bog plains at Store Mosse National Park. It must be tuff for a small insect to avoid all dangers from spiders, bird's and other predators, let alone to keep away from blood thirsty little sundew plants.

Sundew produces small droplets on the leaf, which attract insects. The insect gets entangled by the sticky hairs and the plant absorbs the nutrition from the insect. This is the way to live in this very poor environment of a raised bog. All sundew species can be used to curdle milk. Used as a poultice, it has a healing effect on the skin. The plant was also used as treatment for whooping cough.

In this area you might hear or see the wood sandpiper. It usually breeds here, and during breeding season, if disturbed, it anxiously flies around, keeping a check on the visitors. Wood sandpiper is a very typical bird of Store Mosse. It has green legs and a long beak, and it is one of few waders that you might see perching in a tree.



Wood sandpiper (Tringa glareola)

7

Lake Svartgölen is about 4 metres deep. The vegetation on the bottom consists mainly of various sphagnum mosses. Svartgölen is one of very few lakes in the county of Jönköping that is totally empty of fish.

You are much welcome to a swim in the lake, we can guarantee that no pike will bite you...it is easier to get in than to get out, but the large pine tree next to the water, by the platform has some roots under the surface that work as stairs.

Take a closer look at the trees around the lake. You can see that all around the water's edge, trees are standing tall, and further away from the water they become smaller and smaller. The lake drains the bog of water at the edges, causing more oxygen to enter. This starts the humification, and the soil becomes richer with nutrition, making the trees grow tall.

This is a good place to have your picnic and enjoy the view over Svartgölen.

From the crossing to Lake Svartgölen, towards Östra Rockne car park and naturum.

4

Due to several reasons a tree may die while still standing upright. There may have been disturbances in the ground, causing the roots to either dry up or get swamped.

When a tree has been weakened, there are a great number of insects, plants and fungi that arrive to this smorgasbord for a good meal. At the end of a trees life span, a large variety of organisms, takes it in turns to finish off the tree until it all disintegrates.

Some common beetles that prefer pine trees are timber man and pine shoot beetle. The larva of timber man also feeds of the pine shoot beetle.



Timber man (Acanthocinus aedilis)



Pine shoot beetle (Tomicus piniperda)

3

At the bottom of an uprooted tree the fine grained sand of the dunes becomes visible. It also shows clearly that the top layer of soil is very thin. Spruce prefers a richer soil than pine, but despite that, an occasional spruce has managed to root itself here as well.

It is a dramatic end of a long life when an old tree falls. A large number of animals have used the tree as shelter, feeding place, or nesting, over the years. Suddenly a new empty place opens up and there are many other organisms that now have the opportunity to take over. Dead wood host a very large number of organisms and they will multiply dramatically.

Fungi, insects, parasites, worms, vascular plants, mosses, and lichen take over and use the nutrition now available from the tree. Depending on what species and other circumstances, it may take between a few and to up to several hundred years for a tree to disintegrate completely.

A beetle that the Swedish public has heard much about from news media is the Spruce bark beetle. It prefers weakened newly dead spruce. They have thrived in this part of Sweden, due to heavy winter storms some years ago. When these beetles become abundant they also attack living spruce, and cause great economic damage.

However, some do like this beetle, for instance the ant beetle, which is the main predator of spruce bark beetle. Both as an adult beetle and as a larva they eat spruce bark beetle.

2

Ridges of various height and length crisscross the landscape. The ridges are called "Rocknar" in the local dialect. They were created about 12 000 years ago by the wind. "Lake Fornbolmen" the ancient old lake that had been created by the melt water from the glaciers was drained of water due to land uplift. The very fine sand from the lake floor became visible, and the icy winds blew the sand together into Rocknar.

In Between the dunes it became swampy, and eventually developed into the raised bog of today. The ridges that rise over the bog are usually covered in pine forest. On the ground you find various wild berries such as bilberries and cowberries.

During fungi season the Yellow Chantarelle may be in abundance, or for that matter, the Gypsy Mushroom, (*Rozites caperata*). Both of them are very delicious to eat. There are also a large number of Boletus or various Leccinum fungi. These are all fungi that thrive on sandy grounds.

If you have a closer look at the pines, take notice that some have dead widely spread branches lower down on the trunk. This tells us that the landscape on the dunes was more open long ago.

Imagine that you suddenly were transported a couple of thousands years back in time. The sand dunes were in the same position as today but a great deal higher over the surfaces of the bog.

During the last 1 000 years the peat layer of Store Mosse has grown about 2 metres in height.

Spruce came to this area about 1 000 years ago. If you take away the spruce, this area probably looks the same as it did thousands of years ago. It is on these trails, on the sand dunes, that people have been travelling for years.

If sand dunes could speak!!



Gypsy Mushroom (Rozites caperatus)



Sand Dune (Rockne)

From here, turn right and follow the signs towards naturum. I f you head straight on you will end up at Östra Rockne car park. Go to 18

17 Water pool

Water pools like this can be an excellent place to spot the acrobatic dragonflies. The dragonfly is a typical predator, as an adult as well as a larva. Flies and mosquitoes are happily consumed for breakfast, lunch and dinner.

Small butterflies and beetles are also on the menu. Dragonflies are strongly dependent on warm weather to be able to fly properly. That's why they are mainly seen flying and hunting during warm, sunny days. When it is cold they hide and do like us, wait for better weather.

Species that may be found here are: Aeshna subarctica, Cordulia aenea, Somatochlora flavomaculata, Leucorrhinia rubicunda, Leucorrhinia dubia, Libellula quadrimaculata, Enallagma cyathigerum, Lestes sponsa.

18 Gungflyleden (Quagmire trail)

Gungflyleden was built during the winter 2009/10. The poles that the board walk rest on are pushed through the root mat and water, down to firm ground, between 2 and 4 metres deep. The quagmire consists of a mat of roots and vegetation entangled and growing together about 20 - 40 centimeters thick. The water is actually the same as in Lake Kävsjön which you can see towards the north.

During the walk across the mire, look for the plants below and the beautiful butterfly, swallow tail.



Early Marsh-orchid (Dactylorhiza incarnata)



Bogbean (Menyanthes trifoliata)



Grass-of-Parnassus (Parnassia palustris)



Swallow tail (Papilio Machaon)

9

This is the end of the Wibeck trail with tables and chairs. It is situated on a little island of moraine, surfacing by the edge of the mire. This area is more nutritious than the surroundings. The huge spruce trees tell us this.

Until 1840 this might have been a little island sticking up in Lake Kävsjön, that's the year the surface of Lake Kävsjön was lowered about one metre.

The old pine was standing, on guard, a monument from old days, keeping an eye on visitors in the park until it fell in the winter of 2008.



It is about 600 metres from here to naturum. This track is adapted for wheel chairs and push chairs. The trail is named after Professor Edward Wibeck born in 1877. Mr. Wibeck was a pioneer in protecting nature, and he was fighting hard to protect the bird life at Lake Kävsjön and its surroundings.

8



Cross-leaved Heath *(Erica tetralix)* Grows along the path. It is a very low evergreen plant. It has pink flowers in bunches.



Sphagnum girgensohnii



Polytrichum commune

In the ditch several species of Sphagnum moss grow and next to it further in among the trees the moss *Polytrichum commune* grows.

Polytrichum commune is one of the largest mosses in size in Sweden. It has a sturdy stem and fibres from it can be used for making brushes. The leaves are similar to needles, due to a wide nerve with a top side covered in lamella. This makes them much thicker than leaves from other mosses.

Polytrichum commune can dominate huge areas in poor nutritious fens and swamps. However, it is a very variable species and it can grow in many different surroundings. Some of the plants that vary more than others have been sorted into their own species.

In this fen, and in the ditch in the wettest parts grow *Sphagnum cuspidatum*, a species that grow in water.

6 Wet Woods and Woodpeckers



Bog Myrtle



(Myrica gale)



Lesser spotted woodpecker (Dendrocopos minor) Photo: Lars Pettersson

At this place near the edge of the ditch, Bog Myrtle grows. It is a low shrub up to a metre high. It has an aromatic smell from glands on the leaves, even the buds smell in winter-time. Twigs are reddish brown and shiny. Leaves are green, narrow and oval.

If you grind the leaves or the buds you get a strong, but pleasant smell. Bog Myrtle has also been used for cleaning wounds, curing head aches, scabies and swellings as well as spicing up the schnapps.

The wet area consists mainly of swampy birch woods with a large amount of dead wood. Here one has a good chance of observing the lesser spotted woodpecker searching for insects in the dead wood trunks. Lesser spotted woodpecker is the smallest of the woodpeckers in Sweden. The size is comparable to a chaffinch.

To be able to breed successfully this species needs an area of about 40 to 50 hectares of unspoilt deciduous woods. Today there are estimated to be only about 5 000 pairs left in Sweden. When breeding it pecks a hole in an old decayed tree trunk about 5 meters up.

During summer, lesser spotted woodpecker has a rather comfortable life, enjoying an abundance of ants, flies, butterflies, beetles and dragonflies. However, during winter season it has the same problem as its relatives, the three toed woodpecker and the white backed woodpecker, as they have to find their food in old dying or dead deciduous trees. This is a serious problem as the forestry of today have a tendency of "cleaning up" too much, and not leaving enough dead wood for the birds and insects. However, in Store Mosse National Park the lesser spotted wood pecker thrive.

5



Chaga (Inonotus obliquus)



Piptoporus betulinus

Chaga: This black conk on the birch is in fact a fungus. The fungus itself is hard and brown and is found inside the hard black surface. It has been, and still is, used for medical purposes, (all sorts of stomach problems), in Russia and Eastern Europe. If crushed in hot water it can be used as tea, it tastes rather nice.

Piptoporus betulinus: This fungus has an antibiotic effect. The Ice Man, who was found recently in the Alps after 5000 years under the ice, had a bit of this fungus in his necklace. One way of using it, is to put it in hot water and make tea. But according to the test panel it was not a gastronomic sensation.







Usnea filipendula

Hypogymnia tubulosa

Platismatia glauca

Old trees may be the home of many different species of lichen. Notice that lichen and mosses grow mostly on the side of a leaning tree that is exposed to rain water. Lichen gets most of its nourishment from rainwater or water that runs on the surface of a tree trunk.

Lichen consists of a symbiosis between algae and fungi; this was found out only 100 years ago. Please note that just under the Chaga fungi no lichen grows. Perhaps the Chaga produces something that the lichen dislikes. Certain lichens are very sensitive to air pollution, and they only grow in places with clean air.



Pine (Pinus sylvestris)



Black woodpecker (Dryocopus martius) Photo: Lars Pettersson

The Black woodpecker was searching for ants and other insects when it pecked in this old pine. The black woodpecker is the largest woodpecker we have in Sweden. It may reach about 50 cm in length and is completely black, except for a red cap on its head.

They are the building workers of the forest, making a new nesting hole almost every year, in this way they provide other birds with nice second hand flats. The Black woodpecker is dependent on big trees, preferably aspen or pine, for its survival and they manage well in Sweden today.

3



In an old log of a dead tree one finds an abundance of life. Actually much more then when the tree was alive. Fungi, insects, mosses and lichen benefit from the leftovers, and live off the nutrition of the dead tree for many years. Finally the tree will disintegrate completely. Then the parts of the tree have returned to the soil where it fell down, or has been eaten by other organisms and the life cycle is completed.

Some examples of the use of dead wood;

Food: Fungi live off dead wood. Insects eat bark, wood, fungi, larvae and other insects. Birds eat insects and larvae.

Home: for lichen, mosses, ants, bees, insects and birds

Protection: Against drought, coldness, wetness and as hibernating place for insects, gastropods and worms.



Standing dead pine, This pine has been dead many years, and now contributes to the biological diversity by serving as a home to lots of small insects. Take a very close look at the trunk and you can see tiny holes. They are the escape holes of bugs that have hatched inside the tree.

The patterns visible on the tree trunk are traces of the larvae when it slowly gnawed its way forward, feeding on all nice titbits between the wood and the bark.

1

This uprooted spruce tree fell in the great storm of "Gudrun" in January 2006. As long as the root is connected with the tree trunk, it cannot fall back and is not a hazard to anyone. Sand and gravel that are attached to the root system, and in this way comes to the open surface, is a vital

necessity for birds like capercaillies. They eat pine needles and need small stones or gravel to grind the needles down to small bits, as they do not have any teeth.

Now you have walked at least 12 km and naturum is in front of you. Naturum is open most Sundays and Holidays and daily during summer.



Järnvägsbron