

Store Mosse National Park

Ancient and New Born
The Swedish bedrock was formed around three billion years ago. The bedrock separated, fused, melted and then set into new formations during these millennia. The evidence of these significant geological events can be found under Store Mosse. 1 000 million years ago the ground cracked to create an 800 kilometre long fault. The granite of Småland and the gneiss of south-west Sweden met and new bedrock was formed. Wind and water sculpted the rock to create an almost completely level surface. Mounds of rock which remained became islands in a sea of stone. Some of these mounds still protrude from the flat surface of Store Mosse today.

The last ice age began 115 000 years ago when ice covered almost all of Scandinavia and part of Central Europe. The ice transformed the landscape; it broke off boulders from mountains and gathered up loose material which it then crushed and blended together.

The ice began to retreat 18 000 years ago and melted to leave rivers and extensive lakes of ice. A large amount of sand and moraine whirled with the currents and was deposited in the lakes. There are islands of moraine within the National Park; Lövä and Södra Svanö as well as a ridge formed by a torrential ice river; Växudde. A new-born but still ancient landscape appeared. Large blocks of ice were left behind and when they melted they left distinctive hollows in

Photograph: Olof Hedlund



Bird tower by Kävsjön

the ground. One of these ice hollows can be found at Kringselbårö. **Fornbolmen and the eskers called Rocknarna** 13 500 years ago Bolmensånkran (the Bolmen depression) and Store Mosse were covered by the lake called Fornbolmen. To the north the giant glacier was still in place. As the ice retreated the land rose and began to tip to the south which meant that the outflow of the lake changed direction and the ice-lake was emptied through the river Lagan. Lakes like Bolmen provide a reminder of the great ice lake.

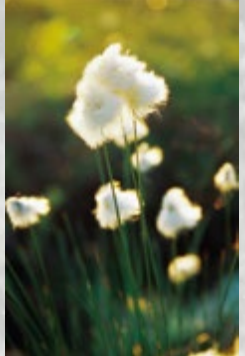
The sand which had been eroded by the waves of Fornbolmen lay unprotected on the dried out lake bottom. The wind then created dune ridges and islands of deposited sand. These sand dunes, called “rocknar” in Swedish branch out like a network through the National Park.

From death springs life

From the devastated landscape, came life; grasses, herbs, mosses, lichens and mammoths followed the retreating ice. The wet ground lay exposed to the intense rays of the sun and a unique mixture of Northern, Alpine plants and Southern Steppe plants grew side by side. A park-like tundra was formed from bushes of Willow (*Salix sp.*), Sea-buckthorn (*Hippophae rhamnoides*), Dwarf Birch (*Betula nana*) and the first trees. Pine (*Pinus sylvestris*) and Hazel (*Corylus avellana*) arrived 10 000 years ago. Two thousand years later the climate grew milder and heavy rainfall caused the water level to rise. The sandy heath became waterlogged and *Sphagnum* Mosses began to colonize. Dead plant material was unable to decompose in the oxygen poor environment and thus layer after layer of semi-decomposed *Sphagnum* Mosses were laid down to create the mire. 5 000 years ago the climate changed (once again) and turned cooler and the water levels reduced. The plants lost contact with the ground water and thus the area developed into a bog.

The bog is one of the harshest environments in which to live and only a small number of plant species can survive; those which are evolved to live on nutrients which arrive with precipitation. Dry hummocks and wet hollows interchange with one another over time. In Store Mosse National Park the hummocks are colonised with half-meter high Dwarf Birch, different species of *Sphagnum* Mosses and gnarled Pines. Thousands of silvery cotton balls decorate the bog when the Hare’s-tail Cotton Grass (*Eriophorum vaginatum*) sets seed. In July the Bog Asphodel (*Narthecium ossifragum*) flowers and in August the honey-coloured Cloudberry (*Rubus chamaemorus*) tempts. Once the leaves of Cloudberry turn a beautiful red colour; the berries are ripe. Sundew (*Drosera*), a plant that is not satisfied with what the nutrient poor hummocks have to offer can also be found. It attracts insects with the help of shimmering red droplets on its leaves. The insects get trapped in the viscous droplets and the plant makes use of the desirable nutrients contained in the animals. In the hollows *Sphagnum cuspidatum* (a bog moss) grows and the handsome Bogbean (*Menyanthes trifoliata*) can be found by the lake shore.

Store Mosse National Park consists of several raised bogs, intermingled with fens and esker-like sand dunes. In the fens the roots of the plants have contact with the ground water and the nutrient levels of the area dictates whether the vegetation is lush or poor. Around the raised bogs you often find narrow, wet fens that collect water from the surrounding woodlands. Discover one of these fens to the south of Lilla Lövä, but take care, it is very wet!

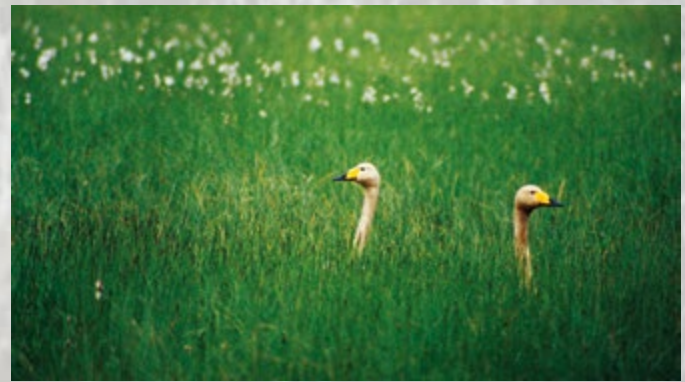


Photograph: Mattias Bokinge



Photograph: Olof Hedlund

Oblong-leaved Sundew (*Drosera intermedia*)



Photograph: Mattias Bokinge

Whooper swan (*Cygnus cygnus*)

Consider the following when visiting the National Park:
The complete list of rules and regulations for visitors can be found on the information boards at the entrances to the National Park.

Fur and plumage

Reindeer (*Rangifer tarandus*), Giant Deer (*Megaloceros giganteus*), Wild Horse (*Equus caballus*) and Wolverine (*Gulo gulo*) roamed the barren tundra by the ice lake Fornbolmen.

10 000 years ago Bear (*Ursus arctos*), Wolf (*Canis lupus*) and Otter (*Lutra lutra*) were numerous in the area. A couple of thousand years later it was Elk (*Alces alces*), Roe-deer (*Capreolus capreolus*) and Red Deer (*Cervus elaphus*) which were common. Store Mosse National Park is still rich in wildlife and there is a good chance of meeting some. Creaking branches and swaying bushes give away an escaping Elk. At dusk Fox (*Vulpes vulpes*), Badger (*Meles meles*) and Weasel (*Mustela nivalis*) begin to emerge and the odd Lynx (*Lynx lynx*) may even visit.

Store Mosse National Park is a water-rich area. Swampy wetlands, open water, shorelines and reed beds attract bird species like Jack Snipe (*Limnocyrtus minimus*) and Whimbrel (*Numenius phaeopus*). In particular the lake called Kävsjön provides valuable habitats for birds and excellent opportunities for bird-watchers. The long-legged birds of the bog; Crane (*Grus grus*), Golden Plovers (*Pluvialis apris*) and Curlew (*Numenius arquata*), can be seen from the bird tower or the Visitors’ Center (naturum). The Osprey (*Pandion haliaetus*) can be seen searching over the lake. During the spring and autumn the Gungfly areas are flooded by migrating birds. Greylag Goose (*Anser anser*) and Bean Goose (*Anser fabalis*) form V-shaped formations in the sky.

Despite the fact that Lake Horsjön is still called a lake, it consists only of fens and only lives up to its name during periods of high water. In some years hundreds of Whooper Swans (*Cygnus cygnus*) gather here on the waterlogged ground during migration. The song of the rich bird life by Lake Häradsösjön is drowned out every spring and summer by a colony of Black-headed Gulls (*Larus ridibundus*). Tufted Duck (*Aythya fuligula*), Horned Grebe (*Podiceps auritus*) and Shoveler Duck (*Anas clypeata*) live under the protection of the noisy gulls.

When the daylight has faded and the gulls are resting an eerie call can be heard over the darkening waters. The Loon (*Gavia arctica*) gives character and soul to the barren lakes of the bog. Birdlife is scarce during the winter months in the National Park. Golden Eagle (*Aquila chrysaetos*) and White Tailed Eagle (*Haliaeetus albicilla*), our largest raptors over-winter in the area in the company of Ravens (*Corvus corax*). The raptors are fed between November and March.



Curlew (*Numenius arquata*)

Photograph: Reine Johnsson



Store Mosse National Park

Store Mosse National Park lies in the south Swedish highlands with bird-rich lakes, bogs and one of southern Sweden’s largest raised bogs. The landscape has a feeling of desolation and untamed wilderness. Marked paths and boardwalks lead you to the pleasant cultural landscape and over seemingly bottomless marshes. Store Mosse is also a worthwhile experience for those who ski during the winter.

The footpath Svartgölsleden is recommended for wheelchair-users and families with push-chairs. You can have a picnic or barbecue over hot coals at our designated barbecue and picnic places. Day visitors can seek shelter from the wind or light a fire in the shelters which are always open. The view point and bird tower are also worth a visit. If you want to stay overnight, it is possible to hire one of our simple cottages, or for more comfortable and wheelchair-accessible accommodation there is Kittlakull.

The Swedish National Parks aim to protect large areas in their natural state for both research and recreation. It is intended that they be accessible for all without losing their original character.

Additional information:

County Administrative Board Jönköping, 551 86 Jönköping
www.storemosse.se, www.lansstyrelsen.se/jonkopring, www.facebook.se/Store.Mosse.Nationalpark



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Photograph: Olof Hedlund

Insects

Store Mosse National Park attracts insects that demand moist ground or open water to develop and survive. Swarms of mosquitoes dance at sunset. During the day, the acrobats of the air; dragonflies (Family *Odonata*), can be seen criss-crossing the wetlands hunting for prey. Several species of Horsefly (Family *Tabanidae*) are amongst the dragonflies prey.

Selected by the Ramsar Convention and awarded the European Diploma

Store Mosse has been selected as an internationally important area under the Ramsar Convention, or Wetland Convention as it is also called. The Convention is a world-wide agreement aimed at conserving wetlands. It was created in 1971 in connection with concerns about the drainage of many species-rich wetland areas.

Store Mosse National Park has also been awarded a European Council diploma for protected areas. This means that Store Mosse is an important part of the European nature and landscape legacy and is protected by the European Council. Store Mosse is also a Natura 2000 site. Natura 2000 is the European network for the protection of valuable areas for nature conservation and threatened species.



Photograph: Mattias Bokinge



STORE MOSSE NATIONAL PARK





Photograph Mattias Boklage



Photograph Olof Heclund

Stora Gungflyet

South of Kävsjön there is a large mat of plant material which floats on its intermingled roots and other plant parts. This quagmire called Stora Gungflyet is approximately two kilometres long and one kilometre wide. There is still a lake under the mat of vegetation and the quagmire therefore rises and falls with the level of the water.

Stora Gungflyet formed after the lake level of Kävsjön was reduced in the 1800's and parts of the exposed lake bottom became covered with colonising plants.

Up until the 1950's Stora Gungflyet was used as a wet hay meadow. When hay cutting stopped the area became overgrown. It now grows without human intervention and has a thick layer of dead plant material. The area is largely free from trees, but bushes and Birch (*Betula sp.*) are steadily colonising.

The open areas are covered with Bog Myrtle (*Myrica gale*). Water Horsetail (*Equisetum fluviatile*), Bogbean (*Menyanthes trifoliata*) and Bottle Sedge (*Carex rostrata*) can be found growing around the edges.

Every year, ten or so pairs of Crane (*Grus grus*) nest here.



Common Crane (*Grus grus*) and Water Horsetail (*Equisetum fluviatile*)

Photograph: Johan Rova



Marsh Helleborine (*Epipactis palustris*) above and Narrow-leaved Marsh Orchid (*Dactylorhiza traunsteineri*) to the right, both from Björnekulla-kärret.



Traces from ancient man

Remains of fire sites, rubbish and stone tools reveal that people have lived in the area since the Stone Age; approximately 10 000 years ago. People were attracted to Store Mosse because of the availability of water, fish and animals to hunt. Evidence of Bronze Age man has also been found nearby the National Park. There is a flat rock south of Kvarnaberget where there are round, kidney and heart-shaped depressions. It is likely that human hands have created these hollows. The oldest evidence of man to be found in the National Park is Hanö burial ground. The burial ground contains stones which were erected during the Iron Age.

Blådöpet

A wide marshy belt extends like a blue and green band right across the southern part of Store Mosse. The marshy belt is called Blådöpet, is between 50 and 400 meters wide and lies 20 centimetres lower than the surface of the raised bog. The water in Blådöpet drains from Kalvasjön.

Blådöpet is rich in water and is full of Bottle Sedge (*Carex rostrata*), Water Lillies (*Nymphaea*), Bog Arum (*Calla palustris*), Bogbean (*Menyanthes trifoliata*) and Marsh Cinquefoil (*Potentilla palustris*).

For the farmers on Lövä, Blådöpet was an important site for its hay crop. The fodder was driven home in the winter when the frozen ground could take the weight of the horse and carts.



Photograph: Johan Rova

Bogbean (*Menyanthes trifoliata*) to the left and Marsh Cinquefoil (*Potentilla palustris*) below.

Photograph: B Granelli



Photograph: Mattias Boklage

Lövä

Lövä was a croft which was part of the Herrestad estate. It was originally built during the 1600's. In the 1850's, the freehold was bought by the then crofter Magnus Andersson. He constructed new buildings and the first road to Lövä, which stretched across the sand dunes between Lövä and Hädinge. Nowadays there is a board walk which follows the old road.

The landscape of Lövä is strongly influenced by mans activities. Pollarded trees and meadows with amongst others Lesser Butterfly Orchid (*Platanthera bifolia*) can be found here. There is also a tar kiln in the area.

Folklore

According to folklore there are lots of supernatural beings to be found in bogs. In the twilight feared elves can be seen dancing over the bog. Light from lanterns can be seen wandering at night, which comes from the lantern men who entice people out into the bog. When horrible screams cut through the silence, it is said to be children who have been killed because they were unwanted or have not been christened. Those who dare to stay overnight on Södra Svänö may meet the "Grey Lady". It is said that she guards treasure which is buried outside Hanö burial ground. The treasure is thought to be church silver which was hidden during troubled times.

On a mountain plateau directly south of the bog there is a triangular holy well with miraculous water. The well was used to cure illnesses, probably up until the end of the 1800's. The holy well was often used as a place to leave "offerings". Money, bread or meat was left in exchange for relief from illness. The power of the well was said to be at its greatest during midsummer night.



Photograph: B Granelli

Pasture with pollarded trees by Södra Svänö

Södra Svänö

Around the village of Södra Svänö extends a landscape with ancient ancestry. Between the copses of deciduous woodlands, old strip fields, pastures and hay meadows can be found. The hay meadows have become partly overgrown but are used for grazing today. The grazing animals keep the landscape open, which means that the grassland still has a species rich flora.

Up to fifty different plant species can be found per square meter in the Swedish hay meadows. Not even in the Amazonian rain forest are so many species found over such a small area. On Södra Svänö there are a large number of pollarded trees. Pollarding involved cutting branches and leaves from the trees and drying them to provide winter fodder for the farm animals. When pollards become old and gnarled, there are several rare mosses and lichens which grow on them.

The Early Marsh Orchid (*Dactylorhiza incarnata*) is plentiful in the marsh area between Svänö and Kävsjön.

After the land reform in 1848 a brewery was built which is now used as a shelter. The dwelling house from 1907 is now used for overnight accommodation for visitors to Store Mosse National Park.

Remains of buildings can be found across the whole area. Ramps made of stone constituted driveways up to the lofts of the barns, earth cellars remind us of the traditional, effective and natural way to preserve food.



Photographs: B Granelli



Milestone to the left and a road maintenance stone above

Historical road markers

There is a milestone north of Kittlakull. The foundation is intact but the pole is newly restored in cast iron. The pole has ¼ M inscribed on it. The milestones were created to assist in the organisation of an early form of public transport, which involved the State being responsible for providing transportation and accommodation for travellers. It was expected that there should be a place to stay and food for the travellers and their horses every second Swedish mile along main roads. (A Swedish mile at that time was 10 688 meters, compared with today at 10 000 meters). As a consequence inns grew up at regular intervals and milestones were set up along the main roads. They indicated distances every quarter, half and whole Swedish mile.

East of Kittlakull there are two road maintenance stones. Every village had the task of maintaining particular roads and bridges within the parish and the road maintenance stones indicated the management boundaries.



Photograph: Cla Larsson

Växudde in Herrestadsjön

Men, Women and Children

To survive life on and nearby Store Mosse demanded effort from the entire family. The well-being of livestock was of critical importance. The animals were milked and groomed by the women, and put out to pasture by the girls and boys who tended them. The man of the house cut the meadows with a scythe, whilst the family raked and bound the sheaves. The marshes and lakes gave the household other gifts. Tar and charcoal were extracted from the resin-rich pines and stumps that grew on the bog. Women and children picked berries and mushrooms, small boys caught pike and the men hunted game. Even the smallest of hands were important and the children collected and cut wood, salted the meat and looked after their younger siblings.

Handicrafts gave ready money which was valuable for the family's survival. In the light of oil lamps the women sat and transformed wool to fine woollen fabrics and soft flax fibres to hard-wearing linen. These hard-working women from Småland were often seen walking with a ball of wool in their pockets, constantly knitting, or with pliers and wire industriously manufacturing hooks and eyes.

There are obvious signs of man's past activities in the National Park. Remains from cultivated fields can be seen particularly on Södra Svänö, but also by the Andersberg-Kvarnaberget-Lövä footpath on Lövä. The most obvious signs are the neat piles of stones which have been gathered together from the fields. There are also terraces, old field boundaries and piles of waste stones. Well-preserved hollows indicate where the linen was dried. To the north of Lövä there is a tar-kiln and the bases of old kilns which bear witness to the once active charcoal production. On Lövä and Johansberg strange objects can be seen in the trees. These are the remains of a wind-power station which provided the estate with electricity. In the early 1900's four families lived on Lövä almost entirely self-sufficiently.



Photograph: Mikael Olsson

Store Mosse naturum - a meeting place for the curious

In Store Mosse's naturum (Visitors' Information Centre) you can learn about the development of the bog or gain inspiration for your own ideas. A reference library, a comfortable armchair and a warming wood stove satisfies many senses. Wide windows and a permanent telescope afford views over the rich bird life at Kävsjön. From above "Granis", the stuffed Brown Bear looks down on visitors. Those who dare can climb up and stroke his paws. Granis wandered around a large part of Sweden and was shot at Björnakullen in 2 000, which lies adjacent to Store Mosse. For children there is a cosy corner in the Visitors' Centre and the exciting footpath called Transtigen outdoors. Along the 300 meter trail you can meet the Cranes Mostafa and Mosselina. Join a guided tour or book a place in the meeting hall or group room. For times and prices, contact the manager.

Telephone: +46 10 22 361 30
E-mail: storemosse@lansstyrelsen.se.



Photograph: Charlotte Liljeqvist

Store Mosse National Park Society (Föreningen Store Mosse)

The Store Mosse National Park Society is a non-profit organisation for those interested in nature, culture and environmental conservation in and around the National Park. They are committed to promoting the continued development of the National Park. New members are always welcome! Bank account number (Plusgiro) 97 25 11-0.

Churches, landed gentry, crofters and yeomen

During the early middle ages, the Catholic Church gained a foothold in Sweden and a multitude of churches were built and amongst those the parish church in Kävsjö. Parishioners visited the church every Sunday and the route was well trodden. The footpath between Södra Svänö and Kävsjö Church contains the remains of the old church road.

Gradually the Herrestad Estate developed and had a big influence over the district. The Herrestad estate took over the southern part of Store Mosse.

Herrestads owners needed workers and therefore a multitude of crofts were established. On an island of moraine the croft Lövä was built and to the southwest a number of other crofts and huts. The Andersberg-Kvarnaberget-Lövä footpath passes the remains of many of them.

The crofters were responsible for carrying out the day to day work for the land owners, which could amount to two hundred working days per year. Men and women walked along the roads and paths to their duties, some with infants on their backs, others barefoot, summer and winter.

The families often had many children. The family which lived at Johansberg croft had no less than 12 children over a 24 year period. People who were less well off and less fit for work lived in the huts. Those which lived in the hut in Lilla Udden were described as "penniless and frail". Later a woman who was renowned for doing magic lived in this hut "Maja in Lill-Udd". She was suspected to have bewitched creatures which lived in the area. Her oldest daughter was sentenced to two years hard labour for carrying out illegal abortions in 1899.

In one of the two crofts at Stora Udden lived the skilful hunter and trapper Soldier Johan Berg. He owned a fox trap, which he sometimes put in amongst the potato pits to catch thieves. It is said that he kept control of the women in the area with a big club!

The conditions were different on Södra Svänö, where there were two farmsteads. These private small holders or yeomen, had no commitments to the estate owners but were entirely dependant upon their own efforts, the conditions in the area along with the wind and weather.



Photograph: B Granelli

Ramp to a former barn-loft at Södra Svänö

The Mosse and man

The barren environment of the bog offered a challenging existence for man. Since marshy ground is less suitable for cultivation one had to be dependant upon other means to earn ones living. Fishing in the lakes and hunting game was important. Woodland, swamp and heathland were converted into fine grazing pastures and marshes lush hay meadows. Livestock management became an important source of nourishment. The value of the animals also came from the voting right that sows and bullocks were said to have had. The animals gave an income which in turn gave their owner a number of votes on the parish council. Meat and milk were provided by the livestock, as well as skin, wool, hair and horns which could be used to make handicrafts.

In order to create more meadows, pastures and arable land, the level of the lakes were reduced. Kävsjön was reduced in 1840 by a meter and in the 1870's Horrsjön was also reduced. The original shoreline can easily be seen in particular at Södra Svänö.

It is possible that iron-ore was mined from Store Mosse. This practice was common between the early Iron Age and the 1700's. From open pools lumps of iron-ore were collected from the interior of the mires. The iron was used for tools and weapons. The peat from the bog was used as fuel, insulation, soil improver and for the manufacture of nappies. During the industrial revolution energy needs increased and peat as a source of fuel became important. South west of Kittlakull the remains of Hädinge peat soil factory can be seen and a wide strip of land where the peat has been removed. At the beginning of the 1900's there were hundreds of drying barns and a factory with an 18m high chimney. The factory was originally driven by a steam engine, which was replaced by an electric engine in the 1930's. Peat cutting was carried out in the autumn up until the ground froze. The blocks of peat were piled up in the spring to be dried in the sun. The peat was then transported to special drying barns and then finally to the factory where it was ground, sorted and packed. Bales of peat were exported to America in the 1930's. The factory closed in 1996 after a fire.



Photograph: B Granelli

The evidence of peat cutting is visible as overgrown peat trenches with dark bands of bog vegetation between them



Photograph: Folke Lantz

Kävsjö church

The church in Kävsjö is the third to be built on the same site. The original wooden church was built in the 1200's and was built with standing split logs. The only parts remaining from that church are the font and the crucifix.

The existing vestry is probably a remnant from the second church as its floor is somewhat lower than in the rest of the church.

The existing church was built in stages between 1725 and 1775. It has been restored several times during the 1800's and 1900's.



Photograph: B Granelli

Barbeque at Lövä



Photograph: Folke Lantz

Svartgölsleden, accessible for wheelchairs and prams

Edvard Wibeck and the formation of the National Park

Professor Edvard Wibeck, a well known naturalist born in 1877, fought for the creation of Store Mosse National Park during a great part of his life. When he was in his twenties he observed the unique bird life associated with Kävsjön such as the Broad-billed Sandpiper (*Limicola falcinellus*) and the Jack Snipe (*Limnocyrtus minimus*), which normally only nest in the most northerly parts of Sweden.

Edvard was as well as a naturalist of great measure, also a brilliant nature photographer. Many thousands of pictures of the natural landscape and birds nests are a reminder of his work. During 48 years he used the same type of folding camera. Young boys who lived in the area served as helpers to carry the heavy equipment.

In 1905 he proposed that the bird-life associated with Kävsjön, Stora Gungflyet and the surrounding marshland should be protected. More than twenty years later, the proposal was put into place, but the fight for increased protection continued. In 1950 he proposed that Store Mosse should be made into a National Park. Ten years after his death in 1972, his dream became a reality.



Edvard Wibecks picture of Stora Gungflyet