



UMHVERFISSTOFNUN



## Environmental Issues

The main environmental issues in Mývatn district are related to energy production and the soil erosion. Plans for large-scale power plants in the Laxá river led to the Laxá river dispute in 1970 and subsequent legal protection of the area. A nature research centre was established in the aftermath. The geothermal power plant Krafla has a noticeable impact on the landscape. There is some cinder mining in the area, especially in Jarðbaðshól hills. A great deal of erosion has occurred east of Mývatn lake, and the vegetation and landscape of Dimmuborgir is severely threatened for some time. The causes of the erosions are most likely related to interplay between atmospheric changes and volcanic activity in Vatnajökull glacier. Soil cultivation is underway to put an end to the erosion.

## Dear Visitor

Lava formations are easily damaged if trod on. Birds are sensitive to humans. Never leave garbage behind and keep the area clean. Off-road driving is prohibited. The diversity of life and landscape, must always be treated with respect. Be especially careful in geothermal areas. Similarly, the local inhabitants must also be shown consideration. Enjoy your stay!

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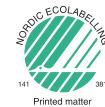
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## Nature Conservation

Lake Mývatn and the Laxá river region are now protected according to law no. 97, 9th of June 2004. The objective of the law is to promote nature conservation according to the principles of sustainable evolution, and to ensure that the ecological limits of the region will not be endangered. The law is to ensure the protection of the biological diversity of the large water region of Mývatn and Laxá and to protect the geological formations and landscape with active nature conservation, especially from a scientific, sociological and aesthetic standpoint. The laws pertain to a 200-metre-wide stretch of banks along lakes, rivers and springs and the following wetland regions: Sortulækur, Geirastaðhraun, Sandvatn (ytra), Belgjarskógur, Sýja, Neslandtang, Framengi, Kráká from Stregjabrekka to Laxá, Grænavatn, Helluvaðsá and Amarvatn. The law also protects the water catchment area of Mývatn and Laxá.

Details regarding necessary protective acts, further protection of natural artefacts, exploitation of land, and public and tourist access will be put forth in a management plan for the entire district. Mývatn lake and Laxá river are listed as internationally important wetlands according to the Ramsar Convention. The Icelandic Environment Agency is responsible for the surveillance of the area and ensures that its ecology is not disturbed. Wardens operate in Mývatn district and provide tourists with assistance and information. Tourists are asked to treat this sensitive area with care and avoid interrupting its wildlife. Other nature protection areas in Skútustaðarhreppur district are Skútustaðagígur craters, Herðubreiðarfirðland and Vatnajökulsþjóðgarður.

## Mývatn Lake

Mývatn lake is about 37 square kilometres in area, incised by numerous inlets and creeks, and dotted with around 50 islands and islets. The average depth is 2.5 metres, and the natural depth only around 4 metres. Mývatn's ecosystem is unique. The name of the lake is derived from the myriad of midges in the area. The bird life is varied, and more species of duck are said to live there than in any other place on Earth. Mývatn district is varied in nature, and its landscape unique, being formed by intense volcanic activity.

## Geology

Mývatn area is on the boundary between the North American and Eurasian plate. They drift about 2 cm apart each year, and lava wells up and fills the rift. This has caused great volcanic activity here through the ages.

## Hverfjall (Hverfell) Mountain

Hverfjall mountain is a beautifully formed, 2700-2900 years old, tephra crater. The crater is about 1 km in diameter and around 140 metres deep. The round shape of the crater is disrupted by a landslide that occurred at the southern edge of the crater during the eruption. In the Settlement period, lava flowed from Svörtuborgir almost encircling Hverfjall. At the same time Dalífall mountain erupted. Craters of the same type as Hverfjall are uncommon in the world, but there is another crater, Lúdentarskál crater, which is much older, southeast of Hverfjall mountain.

## Younger-Laxárdalshraun Lava Field

A great eruption occurred in a 12-km-long fissure south of Hverfjall mountain 2300 years ago. Several bizarre formations are in this lava, which has been called the Younger-Laxáhraun lava field. A great row of craters called Lúdentarborgir was formed on the fissure. Prengslaborgir is the name of two prominent craters towards the south of the fissure. The Younger-Laxáhraun flowed over most of Mývatn district and covered and destroyed a large lake. The lava then flowed on through Laxárdalur valley, reaching the sea through Aðaldalur valley. Wherever the lava encountered lakes and wetland, steam explosions formed craters. Such craters are called pseudocraters since they are not outlets for lava but steam. There are clusters of beautiful pseudocraters all around Mývatn lake and also in Laxárdalur and Aðaldalur valleys. Many of the craters are double and some even triple. The largest are found near Vindbelgur mountain.



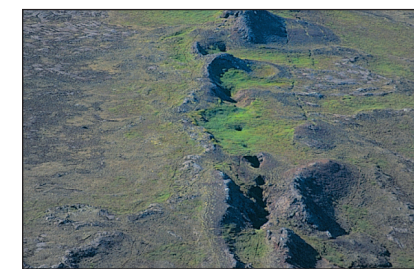
Laxá river



Skútustaðagígur - pseudocraters



Hverfjall, a crater



Lúdentarborgir, a row of craters

## Dimmuborgir

Dimmuborgir is a very peculiar lava formation. A pool of lava, about 2 kilometres in diameter, formed there during an eruption in Lúdentarborgir. This pool later drained in the direction of Mývatn lake, leaving behind high pillars of lava. It is believed that these pillars were formed in the pool when steam rose through the molten lava and cooled it. The sinking surface also coated the pillars with lava slag, which can be seen in many places as a thin coating with vertical etchings. Lava formations like Dimmuborgir have been found off the coast of Mexico, but are not known to exist on dry land anywhere but here. The lava pillars at Höfði (Klasar and Strípar) are similar formations.

## The Krafla Volcanic Area

The Leirhnjúkur area is a central volcano. One hundred thousand years ago, there was a volcanic cone here that caved in after erupting. The caldera thus formed is now filled with younger volcanic material. Below at a depth of about 3 km, however, there is a magma chamber. Volcanic activity in the area occurs at intervals of several centuries. Magma flows into the chamber, which expands and raises the ground. The chamber then bursts and magma flows through underground fissures to the north or south. A part of the magma may then surface in an eruption. As the pressure in the magma chamber decreases, the land subsides quickly. This process repeats itself every few months for several years running. The Mývatnseldar eruptions (the "Mývatn fires") in 1724 began with a great volcanic explosion which formed the crater Stóra-Viti. In the following years, a series of earthquakes and eruptions occurred in the vicinity of Krafla mountain. The greatest eruption took place in 1729, when lava flowed from Leirhnjúkur mountain down to Mývatn lake. Eldhraun, the lava field formed during the eruptions. A new series of eruptions (the "Krafla-fires") began in Krafla in 1975, after an intermission of about 250 years. In the following nine years, nine eruptions occurred.



Dimmuborgir lava formations



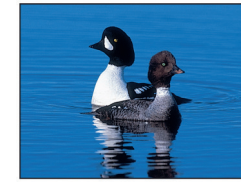
Leirhnjúkur and lava from Krafla

## Flora and Fauna at Mývatn Lake and Laxá River

Mývatn lake was created when the Younger-Laxárdalshraun Lavafield blocked a river course in Laxárdalur valley. Precipitation water is quickly absorbed into the bedrock and surfaces as spring water. Mývatn lake is one of the spring water areas. About 35 cubic metres of water flow each second from a myriad of cold and warm springs, at the lake's banks. The water is rich in minerals, and is the main reason for the fertility of the lake. With the aid of sunlight, which is unusually bountiful in this area, a great amount of algae grows in the lake. The algae provides sustenance for midge larvae and crabs, which are important food for birds and fishes. Mývatn lake is large enough and its renewal of water slow enough to sustain a flourishing ecosystem despite its altitude of 278 metres above sea level. At the bottom of the lake, an abundance of midge larvae thrives, transforming into pupae and growing into midges during the summer, particularly at the beginning of June and August. The male flies gather in swarms at the lake's edge and over knolls and hills on still days. These midges are called chironomidae (rykmy) and are plenty but harmless. Laxá river flows from Mývatn lake in three channels. It alternately cascades or flows in still pools among beautiful islets grown with wood cranesbill, angelica, buttercups and willow. The river is home to Barrow's Goldeneye and the Harlequin Duck, and it is among the best trout fishing rivers in the world. The water in Mývatn lake often takes on a greenish or brownish tinge in the summer due to blue-green algae (Cyanophyta) that inhabit it. The algae is carried into the Laxá river, together with plankton and turbidity, and provides the basis of the food chain. Laxá river is the most fertile stream in Iceland. Blackfly larvae sift substances from the water and constitute the river's most important food. The female flies suck blood from livestock and people, and thus gain nourishment for increased breeding.

## Birdlife

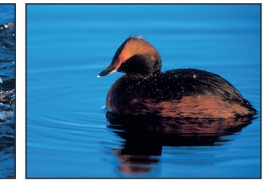
Barrow's Goldeneye is the most characteristic bird on Mývatn lake and Laxá river. The population, consisting of some 2000 birds, is dependent on the ecosystem of this lake area. It is a non-migratory bird and stays on holes in the ice which can be found on the river and lake throughout the winter. Barrow's Goldeneye is one of the few species in Iceland that originated in the western hemisphere. In the Rocky Mountains of North America, it nests in holes in trees, but at Mývatn lake, it nests in holes and crevices in the lava field. A considerable number of nests can be found in sheep houses and barns, where nesting boxes have been provided for the birds. The largest habitation of Slavonian



Barrow's Goldeneye



Harlequin Duck



Slavonian Grebe

Crebe in Iceland is in the Mývatn district, with more than 200 pairs nesting there on average. The bird builds floating nests in vegetation at the bank of the lake, most often under bushes that droop over the water or in duckweed.

Two other species that can rarely be found in Iceland live in the area. These are the Common Scoter and Gadwall. The Common Scoter is a diving duck, and is most commonly seen on the west part of the lake. The males are easily recognizable due to their all-black colour. The Gadwall is a dabbling duck and is scattered all over the area.

Harlequin Ducks can be found all over Iceland, but they are more common in Laxá than anywhere else. They live only on rivers during the summer and cannot be found on Mývatn lake. All species of Icelandic water birds, apart from Common Shelduck, nest in the Mývatn and Laxá area. The Tufted Duck is the most common, but Scaup, Wigeon, Teal and Red-breasted Merganser are also common. The Red-necked Phalarope is also very common. Whooper Swans and Greylag Geese are often seen, and a large flock of swans resides in the Mývatn area throughout the summer. Pink-footed geese nest in the highlands south of the lake, and to some extent by the lake. A few pairs of Great Northern Diver and Red-throated Diver nest in the Mývatnssveit district. Blackheaded Gull and Arctic Tern are common, and most species of waders, Passerines and birds of prey can be found in the area. Ptarmigans are particularly common, and several pairs of Gyrfalcon nest here, as well as some pairs of Short-eared Owl and Merlin.

## Trout

River trout is caught in great abundance in Mývatn lake, but Brown trout can be caught there also. A special variant of the Arctic Char can be found in the cold spring areas in the lake, but in caves in the lava field, there are small Char called "gjárfontur". In the upper part of Laxá river, Brown trout is the main catch, but a little Arctic Char is sometimes caught there, too. Salmon migrates from the sea to the lower parts of the river. Farmers lay nets in Mývatn lake in the summer and winter, and they fish using a hook and line in late winter. Near Laxá river, you can buy a licence to fly-fish.



Vindbelgur mountain

mostly angling in the winter and net fishing in the summer and autumn. The trout is frequently flattened and salted overnight, then smoked with dung. Fresh eggs are collected from the nests of the most common birds. A diatomite plant was built at Bjarnarflag in 1966-67, pumping diatomaceous deposits up from the bottom of Mývatn lake. The plant was closed in 2004. The Krafla power plant uses geothermal power to produce electricity. The Mývatn district is one of the most popular tourist destinations in Iceland and provides a variety of tourism-related services. Accommodation in hotels, at farms or at designated camp sites is available. There are also restaurants and grocery shops, birdmuseum, swimming pool and the Nature Baths in the area.

## Archaeology and Folklore

Two widely known archaeological discoveries are related to Mývatn district. A famous Viking board game found in a grave by Baldursheimur is now kept in the National Museum. At Hofstaðir farm, the remains of a 40-metre-long dwelling lodge from the 10th century, the longest of its kind in Iceland, can be found. The most renowned of the local ancient heroes is Víga-Skúta. His story is told in Reykdæla Saga and in Víga-Skúta and Víga-Glúms Saga. He possessed the axe Fluga ("Fly"), and with it, he killed many men. There are few stories of elves and trolls, but the ogress Kráka lived in Bláhvammur on the side of Bláfjall mountain, and she created the river Kráká to wreak revenge upon the district. Another ogress lived in Skessuhali by Búrfell mountain, but she turned into stone in her boat in returning from the lake. The most renowned ghost in the area is Grímsstaðaskotta, a cause of great evil. Many believed the water in Pangbrandspollur at Skútustaðir to have healing powers. Bishop Pangbrandur christened the inhabitants of the district in the pool.



## Hiking Routes

There are many interesting hiking routes in Mývatn district. Below are some brief descriptions of the routes that have been marked out.

### Vindbelgjafjall (Vindbelgur Mountain)

The route to the Vindbelgjafjall mountain starts east of the sideway leading to the farm Vagnbrekka, a walk of half an hour. It takes another half hour to walk up the mountain, which is some 529 metres above sea level. The trail is steep at times, but suits most hikers, and the view of the district from the summit is spectacular.

### Skútustaðagígar Craters

The trail runs around Stakhólstjörn and takes about one hour to walk. There is also a shorter circular route into the western part of the area, which takes about 20–30 minutes. This is an easy walk through pseudocraters and in close proximity to diverse birdlife.

### Kálfastrandarland Area

This is a circular route which begins just inside the gate to Kálfaströnd farm and leads to Klasar, opposite Höfði, and then back to the road. It is an easy walk through bizarre lava formations and landscape.

### Dimmuborgir

Several hiking routes have been marked out in different colours in this area. The "Little Circle" is the route closest to the parking area and is a walk of about 10–15 minutes. The "Big Circle" extends farther into the area and takes about half an hour to walk, and the "Church Circle" takes about an hour. Mellandahringurinn is a 30-minute walk. All of these routes are easy. The Krókastígur trail is a more difficult one and may take about 1 hour.

### Stóragjá Ravine – Grjótagjá Ravine – Hverfjall (Hverfell) Mountain - Dimmuborgir

This route starts at the highway crossroads east of Mývatn lake and is a walk of about 2.5 – 4 hours. This is an easy walk as long as caution is taken. A path on the Hverfjall mountain's northwest side is gently sloping and an easy walk, but the trail on the south side is quite steep and difficult. The walk from Hverfjall mountain to the parking area at Dimmuborgir lies partly through lava arches and tunnels.

### The North Bank Circle

This route takes about 2.5 – 3 hours to walk. The walk begins at the highway west of Reykjahlíð, and follows the northern bank of the lake. On height with Slútnes and Fagraneshólar, the trail crosses the highway so you may choose to begin the journey there. This is an easy walk offering ample opportunities for bird observation.

### Námajfjall Mountain

The hot spring area named Hverir, east of Námajfjall mountain, is one of the largest sulphur spring areas in Iceland. From there, a short but steep trail leads up the mountain, which is 485 metres high. There is a trail along the rim of the mountain and to Námaskarð pass. Hikers must take extreme caution, as the soil may give. People have sustained serious burns in the area. The route is relatively easy in dry weather, but can be tricky and slippery when wet.

### Leirhnjúkur Mountain

An easy trail leads from the parking area to the mountain, taking approximately 15–20 minutes. It takes the hiker through the hot spring area, into craters formed in the "Krafla fires" and to the summit. From there, the route lies south and then east of the mountain, back to the parking area. The trail provides an excellent picture of the "Krafla fires". This is a hike of about 1–1.5 hours. The route is relatively easy in dry weather, but can be tricky and slippery when it's wet.

### Hófur Crater

A hiking trail leads from the hot spring area at Leirhnjúkur to the crater Hófur, which is north of Leirhnjúkur. Hófur is a beautifully formed crater dating back to the Mývatn fires. The walk is about an hour long. Do not walk up or on the rim of the crater, as the slag crumbles easily.

### The Krafla Route (Reykjahlíð – Hlíðarfjall – Leirhnjúkur)

A trail leads from the southern part of the Leirhnjúkur circle through a crater area. It runs to Hlíðarfjall along the banks of Eldá river to the swimming pool at Reykjahlíð. This is a fairly easy walk of about 3–4 hours.

### Hlíðarfjall Mountain

There is a marked route from the Krafla Route to Hlíðarfjall mountain. The trail is rather steep and a bit difficult, and takes 30–40 minutes each way. From the mountain, which is 771 metres high, there is an excellent view of inland glaciers and the sea.

### The Dalfjall Mountain Route

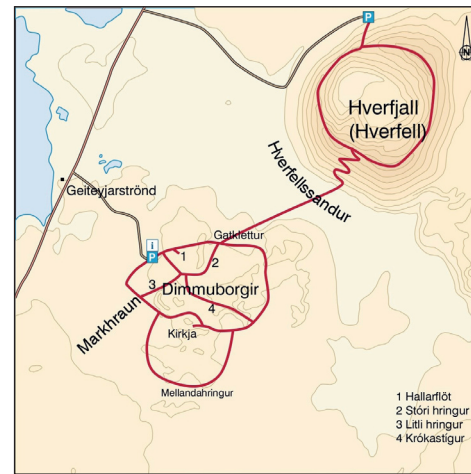
This route begins on the Leirhnjúkur mountain route and provides an excellent view of the entire area. It ends by the highway at Námaskarð pass. The route is varied and interesting and Dalfjall mountain gives a good insight into the process of geological divergence in the area. The walk is a bit difficult and takes 3.5 – 4.5 hours.

### The Stóra-Víti Maar in Krafla Mountain

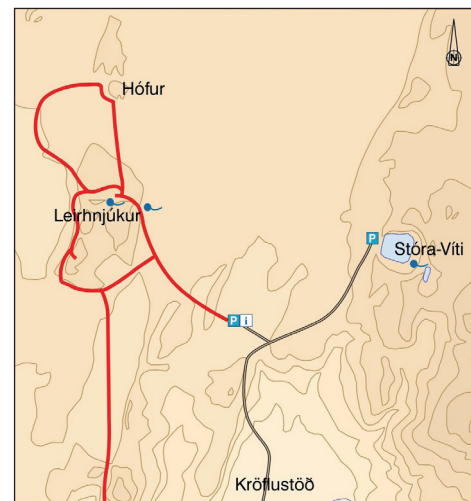
This is a short trail around the maar (or crater) Stóra-Víti, which was formed in 1724, to a hot spring area east of it. The route is relatively easy in dry weather, but can be tricky and slippery when it's wet. The walk takes 45–50 minutes.



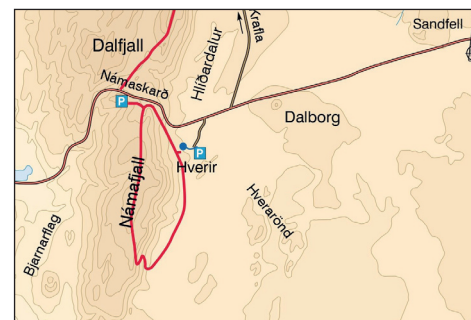
Skútustaðir



Dimmuborgir



Leirhnjúkur



Hverir

