
Estonian
nature

AREA:
45 339 km^2

POPULATION:
1 317 800

POPULATION DENSITY:
29 people per km^2

AVERAGE ANNUAL TEMPERATURE:
+5.4˚C

AVERAGE TEMPERATURE
in February: -5.2˚C,
in July: +16.5˚C

MEAN ANNUAL PRECIPITATION:
550–650 mm

MAXIMUM LENGTH OF A SUMMER DAY:
over 18 h

SHORTEST DAY IN WINTER:
6 h

HIGHEST POINT:
Suur Munamägi, 318 m

LARGEST LAKE:
Lake Peipsi, 3555 km^2,
the 5th largest in Europe

COASTLINE:
3794 km (2540 of which surrounds Estonia's 2222 islands)

LAND BORDER:
633 km

NUMBER OF
grey wolves: 200
brown bears: 700
lynxes: 1000
grey seals: 4500

50% of the territory is covered with forest.
Living bogs (where peat is formed) cover about 6% of the mainland.
23% of the territory and water area is under protection.

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Estonian nature

Spring flooding on the plains of the River Emajõgi.
Photo: Jaak Nilson

The medieval-landscape museum

Climate warming following the last ice age reached its peak about 4,000–8,000 years ago, when Estonia and nearly all of western and central Europe were covered by broad-leaved forests. These were later cut down elsewhere in Europe, but in Estonia the forests fell victim to the Little Ice Age (16th–18th centuries). One lush broadleaved mixed forest has been preserved to this day on Abruka Island. It was in a setting something like this that Robin Hood, Little Red Riding Hood, St. Francis, and Hansel and Gretel all adventured.
Photo: Arne Ader

What was life like for an ordinary person in Europe during the High Middle Ages, in the years 1,000–1,300? He had no spices or medical assistance, much less any money. No doubt he lived in a little hut, was clothed in rags, and survived on a meager diet of gruel. What did Europe look like back then?

When extensive clear-cutting began, the construction of mighty seagoing fleets was launched, and a demographic explosion took place; altogether 94% of Europe's 50 million inhabitants lived outside of town limits. England was home to the 400 km^2 Sherwood Forest, where Robin Hood and his Merry Men hid out. In Central and Western Europe, where almost half of arable land was still covered by thick forest, Hansel and Gretel wandered the woods for several days without finding their way home. Wolves could be encountered everywhere — both on mainland Europe and on the islands. One wolf on the outskirts of the Italian town of Gubbio began ruthlessly slaying its inhabitants; only St. Francis could make the beast change its ways. In France, Little Red Riding Hood had a brush with the Big Bad Wolf while walking through the woods to the neighboring house. Bears, which were already extinct in Britain by the year 1000, still prowled all of continental Europe during the Middle Ages.

The medieval plains of central Europe were crisscrossed by the Rhine, the Elbe, the Oder, the Danube, the Po, and their countless tributaries' floodplains. The Rhine-Meuse-Scheldt delta in the Netherlands had a massive 7,500 km^2 floodplain, for instance. Rivers ran clear and were teeming with fish. European farmers fished important proteins, vitamins, and minerals out of the fresh water.

Brown bear. *Photo: Remo Savisaar*

Since beavers and otters counted as “fish”, they could also be eaten during Lent.

Contemporary Europe is making serious attempts to restore this bygone idyll. A reforestation program has been successful: Europe’s tree-cover has been brought up to almost its High-Middle-Ages level. A few modest wolf and bear populations have been revived. A utopian goal has been set for water policy: to quickly restore all of Europe’s rivers to their natural state.

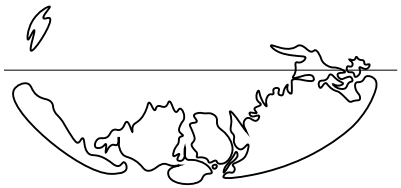
Photo: Kaur Virunurm

The environment has fared better in Estonia. Half of the county’s 45,000 km^2 territory is made up of forests: not as a homogenous mass draped across remote mountains, but as woods interspersed with fields and homesteads. Approximately 400,000 Estonian residents live in small settlements outside of urban areas. The country’s forests, marshes, and villages are populated by a couple hundred wolves, which also cross paths with humans and slaughter sheep. Both wolves and beavers are common hunting prey in Estonia. The woods are crisscrossed by roads and cleared strips, along which people can ski or bike, not to mention snowshoe, ride horses, canoe (see p 30), or just walk. In the forests, you can cook food on campfires and sleep in lean-tos. If you’re lucky, you can find your way into a hayloft or a sauna for the evening. Estonia’s nature doesn’t offer anything extreme, but it does provide the opportunity to be a part of a medieval landscape.

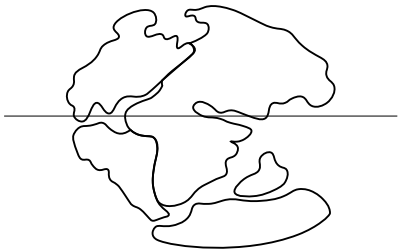
Baltic Klint at the edge of the Pakri peninsula.
Photo: Jaak Nilson

Estonia's beginnings

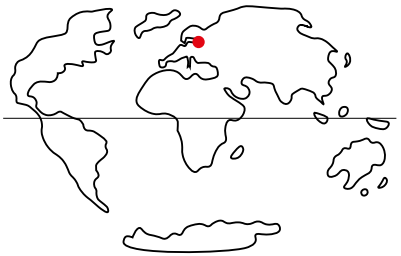
600 million years ago



300 million years ago

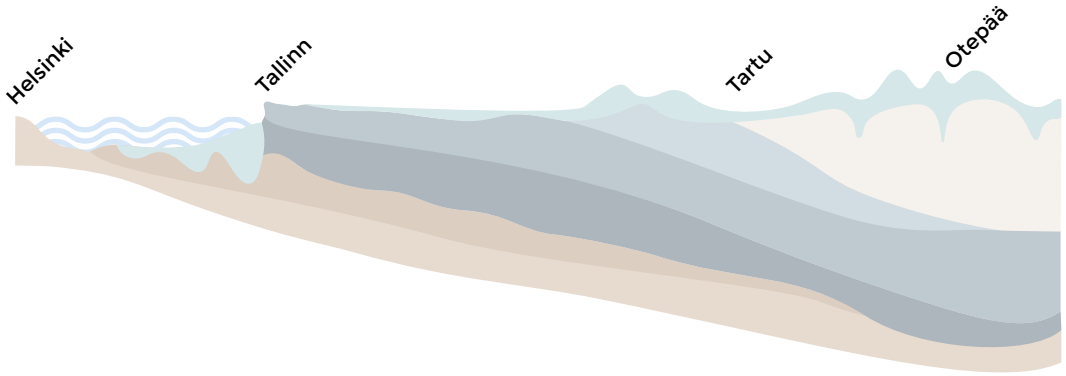


Present



Eridanos River,
20 million years ago

Last glacial maximum,
22,000 years ago



How did Estonia form?

Six hundred million years ago, present-day Estonia was covered by the Paleo-Baltic Sea, which was located near the South Pole. Together with the ancient Baltica continent – upon which the Baltic Sea, Scandinavia, and the Eastern European flatlands are now located – Estonia drifted northwards. At the moment when it crossed the equator 450 million years ago, the seabed was inhabited by the now-extinct brachiopod *Borealis borealis*, the closest living relative of which is the ocean-dwelling *Lingula*. When these creatures died, they left behind shells that formed stratal gray limestone – the Estonian national rock, which is seen as a symbol of Estonians' existence and endurance.

Limestone bedrock lies exposed in central and northern Estonia. It has been a primary building material thanks to its durability and weatherproof qualities, as well as its high pressure- and strike-tolerance, and has been used for structures ranging from ancient burial sites to modern-day developments. Estonia's most majestic natural monument – the Baltic Klint – began forming about 350 million years ago. Today, it forms a raised marine terrace that stretches about 1,600 kilometers from Öland Island (Sweden) to Lake Ladoga (Russia).

One stage of the Baltic Klint's formation was the tremendous Eridanos River – comparable to the modern-day Amazon – along the southern bank of which rose a 55-meter-high terrace.

About 2.5 million years ago, Estonia was blanketed by an ice cap that was up to four kilometers thick. It retreated to

Limestone exposures of the Üügu Cliff on Muhu Island. *Photo: Arne Ader*

Southern Estonian sandstone exposures of Taevaskoda by the Ahja River. *Photo: Katrin Laurson*

the northwest at the end of the last ice age, making Estonia's southwest corner the first area to shake off its icy mantle. The continental glacier ultimately melted entirely, but western and northern Estonia were left submerged in melt-water that was 25 meters above sea level. The southern banks of this massive lake stretched to the Baltic Klint in northern Estonia and to the Navesti Basin in western Estonia. Flourishing along the Baltic Ice Lake were fields of white dryads, which can still be seen in the Alps, the Scandinavian Mountains, and Scotland. The proto-Europeans of the Kunda culture foraged, fished, and hunted along its shores. It's also possible that these humans killed Europe's last mammoth, since the bones of one of these woolly pachyderms, found in Puurmani (near Tartu), are only 11,600 years old.

It is believed that an event called the Billingen Catastrophe occurred around the year 8213 BC, during which the Baltic Ice Lake broke through to join the Atlantic Ocean near the Billingen Mesa in Sweden. This caused the lake to drain over a couple of years, lowering the water level by a full 25 meters. Western and northern Estonia emerged from beneath the waves. Was the drop in water level and the rise of the land really a catastrophe? In northeast Estonia, where the ice lake was as deep as the ridge of the Baltic Klint, it may not have been that much of a catastrophe, since seal hunters and fishermen simply had to descend 25 meters to reach the water's edge. In western Estonia, on the other hand, the sea receded so far that it would have taken several days to walk from an old campsite to the shore. People naturally could have followed the receding waters and set up camp on the new shoreline, but this seemed impossible, since

Where can remnants of the ancient Baltic Ice Lake be seen today? One of its freshwater inlets has been preserved: Lake Peipsi. The shallow sandy lake bed at its northern tip is populated by the annelid Lamprodrilus isoporus, which survived both the Billingen Catastrophe and the lake's eutrophication. *Photo: Henn Timm*

Estonia is traversed by a chain of dunes that were once the shores of the Baltic Ice Lake. The Navesti Dunes are today blanketed by pines, lingonberry and blueberry bushes, and mosses. *Photo: Elmo Riig / Scanpix*

they couldn't be sure that the lake wouldn't suddenly return and swallow everything anew. Secondly, the dried lake bed was a lifeless desert where food and wood needed for making tools and shelter were nowhere to be found. It might have taken a thousand years for soil to form on the surfaced land and for a forest to sprout from it.

Nevertheless, the modern-day Estonian landmass didn't form immediately after the Billingen Catastrophe. The kilometers-thick glacier had rested there for hundreds of thousands of years, depressing the Earth's crust, and it took time for the land to rebound. Western Estonia – and especially the western islands – rose out of the sea thousands of years after the event. Post-glacial rebound continues to this day, adding more and more land to the country.

Lake Võrtsjärv had already separated from the Baltic Ice Lake by the time of the Billingen Catastrophe. One can see what western Estonia might have looked like after the Baltic Ice Lake's sudden draining by observing the shores of Lake Võrtsjärv in a low-water year, when up to a third of the lake bed is left dry. *Photo: Marko Saarm / Scanpix*

Karula upland. *Photo: Arne Ader*

Otepää upland. *Photo: Arne Ader*

Fishermen on the ice of Lake Peipsi. *Photo: Arne Ader*

The edge of Europe

Today, a border runs through the massive, 3,555 km^2 chain of water that constitutes Lake Peipsi: to the west lies Estonia, the European Union, NATO, and Western civilization; to the east are Russia and the Russian-Orthodox culture. The border – which has been nudged back and forth multiple times – was first established in 1242 by the Battle on the Ice during the Northern Crusades, then by the Baltic *Landesstaat* in 1710, and again by the Treaty of Tartu in 1920.

Sandy beach on the northern shore of Lake Peipsi. *Photo: Jaak Nilson*

Does Lake Peipsi form a cultural or political border? The Battle on the Ice culminated with the Crusaders' defeat, since they fell through the lake ice. Ever since then, however, Peipsi has not especially stood as an obstacle in the movement of war from west to east. Napoleon and Hitler were halted more as a result of the frigid winter conditions. There is a peculiar quality to Estonia and the area around Lake Peipsi: here, the gradient between warmer and colder winter air runs east-west, not north-south as it does elsewhere in the world. Maybe Peipsi is the "cold border" of Western civilization, and those who venture any farther eastward face an icy winter catastrophe. Yet in 1701, during the Great Northern War, Russian soldiers walked across iced-over Lake Peipsi and sent the Swedish Crown packing from Estonia. Perhaps the fluke was due to the fact that at that time, during the Little Ice Age's Maunder Minimum (a lull in solar activity that lasted from 1645–1715), Western civilization's natural winter cold-border shifted from Peipsi to the Baltic Sea.

While Peipsi can be seen as Europe's geographical beginning, in his book *Silver White,* the Estonian filmmaker who later became president, Lennart Meri, regards Lake

Kaali on Saaremaa Island as Europe's conceptual origin. Specifically, Kaali formed when a gigantic meteorite fell to Earth only about 2,500 years ago. To this day, it marks the last time a giant meteorite struck a settled area on the planet. It is similarly the only such occurrence that our species can remember. When the huge chunk of iron passed through Earth's atmosphere, it burned so brightly that witnesses thought it was the Sun. Estonians at the time consequently believed the Sun had fallen to Earth, while Swedes thought it had set in the east. Lennart Meri concluded that the European understanding of the world collapsed as a result, since the Sun was no longer a gift given by nature that could be taken for granted. Perhaps Europeans really have paid more attention to the Sun ever since.

Back when the giant meteorite seared its way across the sky, the Mediterranean was dominated by the colonial Greek Empire. Saaremaa's local economy was also flourishing. The island was a booming center of Baltic trade where barley was grown, beekeeping was practiced, and seals were hunted. Blubber and honey were regularly exchanged for bronze.

When the Kaali meteorite entered Earth's atmosphere, it could be seen and heard from 700 kilometers away, around the entire Baltic Sea region. Its hard landing caused an explosion more powerful than the atomic bomb dropped on Hiroshima, setting fire to everything nearby; possibly even the fortified town of Asva 15 kilometers away, which burned to the ground. A massive mushroom cloud likely sprouted over the site of the catastrophe.

The famous Battle on the Ice took place at the narrowest point of Lake Peipsi in 1242. Many historians believe its importance has been overemphasized but, according to Russian legend, the clash stopped the West's hostile spread eastward. Today, thousands of fishermen can be seen on the Estonian side of the lake every winter. Many of them drive homemade sink-proof winter vehicles crafted for ice travel, which are known locally as "kummijukud" (rubber Johnnies) or "karakatid" (cuttlefish). Unfortunately, populations of what was once the lake's most plentiful fish – the Peipsi smelt – have dwindled due to overfishing and eutrophication. *Photo: Herling Jürimäe*

Frozen Lake Kaali. *Photo: Margus Vilisoo*

Today, the hundred-meter-wide crater is visited by about 40,000 people a year. One of the most historically famous of these was the Greek geographer and explorer Pytheas, for whom the Sun falling to earth was an important-enough reason to sail all the way there in 325 BC – just to see the scorched site with his own eyes.

Despite the terrible destruction the Kaali meteorite wreaked, it also did a lot of good for the land. Fields sprouted and flourished in the soil fertilized by incinerated forests, and the one thousand tons of iron that fell from the sky exceeded the global output at the time. Tools, jewelry, and weapons crafted from the space-iron spread throughout all of Europe, and the Bronze Age progressed to the Iron Age.

Altogether four giant-meteor craters have been found in Estonia. The largest of these is Neugrund, which has a diameter of nine kilometers. It is located on the floor of the Baltic Sea, and was formed about 540 million years ago, when an asteroid of nearly the same width struck Earth. The crater's mound lies only 1–20 meters under-water. As a result of the explosion, part of the shallow sea evaporated and a huge cloud of dust, ash, and gases entered the atmosphere, spreading around the entire globe. Such an immense release of energy could have also caused powerful earthquakes and volcanic erup-tions, making the sea uninhabitable. No scientists have yet studied whether the catastrophe could have actually caused the mass extinction of soft-bodied, leaf-like creatures that were dominant in the Ediacaran Period: an extinction that made room for Earth's present-day animal kingdom.

Lake Kaali. *Photo: Arne Ader*

A diver at the Neugrund crater.
Clip from a film by Vello Mäss

Autumn in a bog in the Alam-Pedja nature reserve.
Photo: Sven Začek

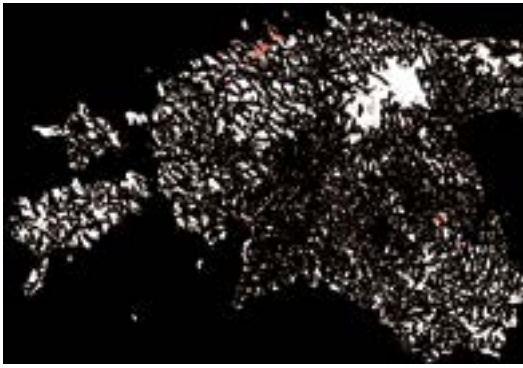
A swamp-archipelago

Kuresoo bog before sunrise. *Photo: Arne Ader*

Although only 1.3 million people live in Estonia today, the population is far from ethnically homogenous. A Harju County native is left scratching her head if she tries to understand the Võru language, the lexicon of which is remarkably different. While foragers in eastern Estonia were familiar with a variety of edible mushrooms, they were not traditionally gathered in western Estonia despite the fact that it is home to even more tasty fungi. Estonians are known for being a sauna nation, but saunas were uncommon in central and western Estonia up until the mid-1900s, no matter that people got just as dirty. Historically, communities in Estonia have been widely scattered. Common language, fashions, customs, and knowledge did not manage to spread very far.

Nature was a cause of this cultural splintering. Travel progressed along village roads before the completion of mighty infrastructure projects. A road would lead from nearly every village to a neighboring one, from which another might have led to a third. Longer journeys were taken by waterways. The capital Tallinn formed where there was a natural coastal harbor; Tartu, the country's second-largest city, sprouted in the only dry area along the River Emajõgi. Estonia's swamps could not be traversed by wagon or boat. An expedition from Tallinn across mid-Estonia to Tartu required transfers from road to waterway and back again, depending on the state of thoroughfares and bridges. Even so, it was apparently still possible to ride directly from Tallinn to Tartu during dry summers and early autumns. The land was also easier to cross during cold but less snowy winters. Today, cities are connected by both railway and highway, but the geographical diversity has been preserved.

Night swim in a bog pool. *Photo: Kristjan Lust / Visit Estonia*



Many former swamps have been drained. Even so, we can still picture an Estonia that was made up of hundreds of tiny islands and peninsulas that formed an archipelago, where villages were quite cut off from one another. The black colour represents rivers, lakes, wetlands, swamps and former swamps. *Scheme: Kristjan Piirimäe*

Estonia's swamps are not merely obstacles to movement. By moving along secret paths, Estonians were able to access islands nestled amid marshy ground, where they hid both treasure and themselves from invaders and infectious diseases. On the Valkse bog island in Lääne County, outlaws once erected a village of probably ten homesteads, which today lies in ruins. Most of the Estonian Forest Brothers' bunkers were tucked away on these islands. There, tough resisters sequestered themselves from the occupying Soviet forces and fought against them. Even now, one can find solace in Estonia's bogs: it's possible for a hiker to walk days at a time without encountering another human being.

Common crane. *Photo: Arne Ader*

In addition to people, Estonia's bogs are a sanctuary for animals, plants, and entire ecosystems. Rare lush mixed forests have survived on bog islands, where old lindens and oaks grow side-by-side with chestnut trees. An array of extensive nature reserves has been established to protect particular species of flora and fauna. At least six endangered species of hawks, not to mention migratory birds, nest in the Peipsiveere Nature Reserve located in the Emajõgi River Delta. Extensive flood meadows, which are important fish spawning sites as well as nesting and stopover sites for birds (both local and migratory), are protected in the Matsalu and Soomaa National Parks. Matsalu is the largest coastal wetland in the Baltic Sea area and similarly the most populous and diverse avian habitat in Europe.

Pines grow like natural bonsais in the bogs. This one may be several hundred years old. *Photo: Kalli Piht*

Most of Estonia's former fens have been drained and replaced either fully or partially by fields and forests. Altogether 300 km^2 of bogs have been turned into

peat-harvesting sites. Only 6% of the country is comprised of natural swamps, and the former swamp-archipelago has been linked with the help of drainage networks, bridges, and dikes.

Bog cranberries. *Photo: Katrin Tombak*

Wild rosemary contains sedative etheric oils. Legend has it that on still nights when the plants' blossoms glow in the light of the Moon, water sprites climb out of bog pools. Unfortunately, Estonian water sprites are not beautiful young women, but rather dwarfish old men. Estonian children were warned not to fall asleep in the bogs. *Photo: Arne Ader*

Flowering of marsh marigolds in an Ihamaa flooded meadow, Alam-Pedja nature reserve. *Photo: Arne Ader*

Five seasons

Bogs cover such a large extent of Estonia due to the fact that precipitation here falls year-round. Rainy periods are not followed by dryness, but by snow. Because of the cool temperatures, only a part of the precipitation that falls evaporates; the rest is left standing. Estonia's level landscape prevents runoff into the sea. Rivers are able to redirect most of the rain- and snowfall in spring, summer, fall and winter, but Estonia has an additional fifth season nestled between winter and spring, when the thick snow-cover begins to melt. Several significant Estonian water-ways converge in a region called Soomaa (literally "bog land"), where there is virtually no angle of descent for rivers and streams. The rivers overflow their banks due to the meltwater and consequently spill out into floodplains. Thus, Estonia's fifth season is one of widespread flooding. The extent of the Riisa flood area has occasionally swelled to 175 km^2, and in some areas is seven to eight kilometers wide. There are steep-sloped bogs in the center of this zone, and they serve as refuges for wild animals.

Flooded meadow and forest in Soomaa. *Photo: Kalli Piht*

In addition to meadows, this massive flood zone includes forests, roads, and even villages. Locals and visitors are able to explore the woods by boat during the fifth season. Since many roads become inundated, villagers are left marooned on hilltops turned into islands. Even so, such mounds are not high or wide enough to completely protect people from the rising waters. Woodpiles are tied to trees so that they don't float downstream to Pärnu. Upper floors are built onto structures and furnished with stoves and heating ovens. Residents stock up on food before the flooding, while children are excused from school. Barns are equipped with higher floors for livestock and, if necessary, even roofs are removed.

Nevertheless, Soomaa's populace is not entirely confined by the flood waters, since one can climb out of a window and row a boat to the village of Tori, for instance. Paddlers face a maze of waterways no less complex than the country's highway network. If you take the correct turns at certain convergence points, then you can row all the way to Viljandi, Pärnu, Vändra, or Türi. All of these are ancient settlements, since waterways were the primary trade routes used by Vikings and merchants in the Hanseatic League. More likely than not, one could take rivers all the way to Tartu via Viljandi, and from there onward to Pskov and Novgorod during the Middle Ages. Post-glacial rebound and expanding swampland have since choked off the historical Hanseatic route, but one can still slip through the narrow spots in a canoe.

Today, river travel against the current is mainly by oar or engine. Historically, though, Estonians sailed or were pulled upstream from the shore. This meant the river banks had to be accessible to anyone. Even by modern-day Estonian law, one can walk uninhibited up a river bank without needing permission, and is not barred from pulling along sailboats or floating logs. In many places, people can also fish and camp.

Despite its many riverside towns and villages, most of Estonia's river banks still have untouched wilderness in the form of floodplains, forests, and bogs. Civilization announces its presence with the barking of a dog echoing from the distance or the rumbling of an internal-combustion engine. *Photo: Kalli Piht*

Tipu flooded meadow in Soomaa. *Photo: Arne Ader*

Coastal meadow in Matsalu. *Photo: Arne Ader*

Rich diversity thanks to cows and sheep

Europe's richest species diversity in a single square meter can be found in Estonia – in the Laelatu Wooded Meadow, where a whopping 76 species of vascular plants have been identified. Interestingly, the area is not at all untamed nature, but rather an agricultural environment with heavy human impact. This shows that man is not always a destroyer of diversity.

How much did Estonia's environment develop without human presence? The glacier began to recede and land rise from the sea about 15,000 years ago; the oldest traces of human settlement in the region date back to 11,000 years ago. The possibility that man was one of the very first species to arrive – even before soil and plants, surviving by fishing or hunting seals – cannot be ruled out. This did not disturb the spread of sparse birch and pine forests across the landscape. Domestic animals were introduced between ca 3,000–5,000 years ago: swine, goats, cattle, and sheep. They were probably herded right in the woods at first, and since inhabitants of the time were unfamiliar with scythes, winter feed came in the form of bunches of tree branches. This, however, meant that trees had to be stripped, and the forests were reduced to Estonia's familiar wooded pastures. Labyrinths winding through the thickets and meadows gave rise to immense ecological niches, which are in fact the reason for the country's great species diversity. Trees offer livestock shelter from the wind, rain, and sleet, while for humans they offer fuel and building material. At the same time, the trees protect pastures from drought, and their leaves fertilize the soil. In autumn, a wealth of edible mushrooms, such as champignons and ink caps, can be found in damp wooded pastures.

Thanks to scything, Estonia is home to an extremely plentiful bird population. Especially crucial are coastal meadows that are submerged by rising briny tides – hunting grounds, where waders can peck worms and bugs out of the shallow water.
At least one third of the Baltic dunlins in existence nest in Estonia's coastal meadows. These birds require low grass for survival: a dense saline meadow dotted by puddles and mud patches. Since coastal meadows tend to become overgrown and drain, the dunlin is an endangered species. *Photo: Kaarel Kaisel*

Today, Estonian livestock farming is dominated by dairy cows and pigs, kept primarily in barns. Sheep and beef cattle are raised in the few wooded pastures that have been preserved, an area of about 40 km^2. The preservation and restoration of this unique type of pastureland is seen as very important for protecting both Estonia's heritage and its rich diversity of species. Taking strolls through wooded pastures as a pleasant pastime is mentioned less often.

The eye relaxes when taking in such spectacular landscape: cows browsing between trees and bushes dotting the expanse of wooded grazing land. It's no wonder we respond this way if you consider the fact that man's massive brain evolved out on the African savannah: a landscape relatively similar to the wooded meadow. It creates a feeling of home. Herds of large herbivores calm the senses, since the sight signals to the unconscious mind that there is an endless supply of food.

When the Huns were sacking Rome, Estonians started to utilize the scythe, thus beginning an era of scything that lasts to this day. Scything keeps the landscape clear of brush, which allows birds to land safely and not have to worry about a fox or raccoon dog stalking them from a shrub.

Laelatu wooded meadow. *Photo: Arne Ader*

The hermit beetle – an insect that lives in the meads and oak meadows along the Koiva River and can grow to up to three centimeters long – is one of Europe's largest beetles. Males secrete a smell of Russia leather that is discernable several meters away; it is also slightly reminiscent of the scent of apricots or plums. The beetles live in hollow oak trunks that are decomposing but still alive. Since such trees are precarious and pose a threat to humans, the hermit beetle's habitat has been nearly wiped out and the specie's future is in danger. *Photo: Ilmar Süda*

Find a lynx in the picture. *Photo: Remo Savisaar*

National shrubland

A large part of Estonia's meadows and pasturelands became overgrown with brush after World War II. Since traditional farmsteads were replaced by massive collective farms and urban living during the Soviet occupation, very few people were left in the countryside to head out to the meadows or the coast to scythe. Now, the coastal meadows and thin layers of soil atop the limestone bedrock are covered mostly with juniper in some places, and with deciduous shrub in others. It is certainly not a jungle that requires a machete, but the densest areas can only be navigated by walking sideways and with eyes closed. In A. H. Tammsaare's classic pentalogy *Truth and Justice*, the farmer Andres dedicates his entire life to the struggle against this kind of shrubland. However, this "rage against the brush" has now subsided, and it has become, instead, a new post-colonial Estonian national landscape praised by Valdur Mikita in his popular work *The Linguistic Forest*. It's easy to conceal oneself in brush. Since making a profit off the vegetation is a difficult task, it isn't a source of much conflict and anyone may enter it freely. However, brush requires the reforestation of agricultural landscape, and so Mikita puts forth a spiritual challenge: should one be saddened, or rather cheered by this agricultural decline? Shrubland is like a child-forest that is merely a nuisance at first, but that grows up to become mighty woods, forgetting that man once saw himself as its master.

When brush is left alone, it transforms into a thicket of alders or other deciduous trees, in the shade of which firs and pines gradually spring up. Geographically, Estonia is positioned in a band of coniferous and mixed forests. Similar wooded areas might have covered Poland,

Tawny owlets. *Photo: Remo Savisaar*

Fallen tree trunks create a good environment in a forest. Animals can make their homes in a windthrow. Mouldering wood house insects, who in their turn are food for birds. *Photo: Kalli Piht*

Germany, and northern Italy when Europe was still cool and moist 8,000 years ago. Human impact, climate change, humidity, and soil type have all combined here to produce dozens of very different types of forests with a myriad of designations in the Estonian language: *puistu* (stand), *kõrb* (a large uninhabited forest), *laas* (a primeval forest), *hiis* (a clump of trees on otherwise open landscape, often a holy site), *salu* (similar to a *hiis*, often deciduous), *harvik* (sparse woods), *padrik* (a moist thicket), *tihnik* (thick brush similar to a *padrik*), and *rägastik* (typical of Estonian landscape, a dense thicket similar to the previous two). Forests can also be named in copses according to the dominant trees: *kuusik* (a fir copse), *kaasik* (a birch copse), etc. Forest and shrubland now cover about half of Estonian territory. At the same time, the energy industry and a surge in farming endanger the country's new national shrubland pride. If brush is not quickly put under environmental protection, it may be destroyed and replaced by more rational land usage.

Estonians have maintained the practice of honoring age-old trees and bringing them offerings. A linden locally called the "iiepuu" (dialect of *hiiepuu*, or "sacred tree"), which grows in the village of Sipa in Märjamaa Parish, is Estonia's thickest. Legend has it that a couple who meets beneath it will have seven boys and will stay together for life. The tree was especially popular during the Great Northern War, when plague spread and it was brought bountiful offerings of bread and salt. Estonian cemeteries, farmsteads, and parks are also often home to ancient trees. *Photo: Hendrik Relve*

The wolf was man's first domesticated creature: helping humans to hunt, keeping strangers and predators away and providing warmth. When humans migrated to modern-day Estonia after the last ice age, their sleds may have been pulled by wolves' descendants. Today, hundreds of sheep (in addition to a few calves, dogs, and goats) fall victim to wolves in Estonia each year. Local folk tradition respected a wolf's right to its prey, and wolves were not to be disturbed or driven away from a kill. *Photo: Arne Ader*

When the wolves have been fed, the sheep go to bed

In his book *The Man Who Spoke Snakish,* Andrus Kivirähk describes how the Estonians of ancient times lived mainly in the forests, which were then crisscrossed by footpaths. When people moved to the villages, most of these trails disappeared into the undergrowth. Even so, the forest paths were still there, leading from one village to the next. Trips to neighboring villages are nowadays taken by car, so footpaths are mainly used for hiking, fishing, hunting, or mushroom and berry foraging. Wild animals use them, too. Tracks left by hares, roe deer, moose, and wild boars can usually be seen in the snow, and you can also come across those of wolves, bears, lynx, and even jackals if you're lucky. Just as animals may creep down human paths, so may people use animal trails, although they don't ordinarily lead anywhere humans want to go, and the hiker ends up getting lost somewhere in the woods instead. Though by concealing yourself somewhere near an animal trail, you can sometimes catch a glimpse of them.

Fox hunting. *Photo: Arne Ader*

Small paths act as transit-ways for forest animals. Wildlife needs to be on the move, since their various functions for survival may lie geographically far apart. For instance, an animal may find shelter in the brush, drinking water from a stream, and food in an open area. Yet, food tends to run from you, to run out entirely, or be destroyed by other means, as a result of which animals must be in motion. The changing of seasons may also bring a need for relocation. Journeys are necessary when fellow species members have driven off prey, or when an animal is searching for a partner or a herd to join.

Nowadays, Estonia is spanned by large highways and railways that come with wide safety zones, ditches and

fences, all of which impede animal migration. Slower wildlife, such as frogs and snakes, can be killed easily by traffic. Larger species are hit by vehicles more rarely, but their slow reproduction means that populations cannot rejuvenate quickly. The highway network isolates more cautious animals into small, stationary groups, where they are unable to enrich their genetic material or form large herds characteristic of their species. If a male and female live on opposite sides of heavy traffic, they may never meet to procreate, and the species can die out. The limitation of migratory paths and the fragmentation of habitats is a new threat to Estonian wildlife.

Adders live in grassy mixed forests, on the edges of copses, in logged clearings, swamps, and also fruit and vegetable gardens. They are stationary creatures that do not slither more than a hundred meters from their homes. Adders do not hatch from eggs: they give live birth. Up to three hundred adders may winter together in a single nest. When Estonians were still forest-dwellers, both adders and people said to speak their tongue were revered. When people moved out of the forests and fell under the influence of Christianity, the adder was turned into an outcast. Today, around a hundred people are bitten by adders in Estonia each year, but there have been no fatalities. *Photo: Uudo Timm*

Roe deer. *Photo: Sven Začek*

Elks in willow brush. *Photo: Sven Začek*

Baltic Sea. *Photo: Kalli Piht*

The stressed-out herring

Fishermen of Kihnu Island catching Baltic herring.
Photo: Olev Mihkelmaa

Estonia is basically a peninsula in the Baltic Sea with an added 2,222 coastal islands. In order to understand Estonia, you must first understand the Baltic Sea.

The salinity of the Baltic Sea along Estonia's shores is only 2–6 per mill, which is just a fraction of oceanic salinity. The water is too fresh for saltwater fish, but too salty for freshwater fish. This half-fresh brackish water started developing in the Baltic Sea only 4,000 years ago, which is too short of a time for the evolution of species fit for it. As a result, it is only inhabited by sea- or freshwater fish who suffer from stress as a result of the Baltic's low salinity.

Despite the close proximity of the Baltic, it would be wrong to think that Estonians have always been weathered sea fisherman. Medieval Estonians were more often farmers, and the coast was largely uninhabited. It was only in the 13th century that the Coastal Swedes arrived, building their homes right along the shore and making a living off of sea fishing.

The Estonian shore of Lake Peipsi was also populated rather sparsely during the Middle Ages. Russians who practiced fishing settled along the lake's Estonian shore in the 16th century.

After World War II the Soviet Union blocked access to the sea, turning fishing culture into a romantic memory, in which the sea was a symbol of freedom. Since the shore was a restricted border zone, unchecked nature took over. Even today, a law prohibiting the construction of buildings close to a body of water inhibits the spread of coastal settlement. This has resulted in the preservation of

The Atlantic herring has best adapted to the Baltic's brackish water, having shrunk into the tiny Baltic herring. Today, it is the main yield of commercial Baltic fishing, making up half of the local catch. Estonians have made the Baltic herring their national fish and can it in large quantities. The fish is also consumed both fried and pickled. Even the word "fish" in Estonian indicates Baltic herring by default. *Photo: Tiit Hunt*

Grey seals. *Photo: Remo Savisaar / Visit Estonia*

Estonia's shores primarily in their natural state and with free access for all. Since the coast stretches for 3,800 kilometers, it's possible for those seeking privacy to find deserted stretches of sand even at the peak of beach season. One doesn't even have to leave the capital to do so: it's enough to take a tram to Kopli or Paljassaare in the North Tallinn district. Paljassaare Beach, which is just four kilometers from Tallinn's Old Town, has bird-watching towers from which one might spot a white-tailed eagle if lucky.

Thanks to Estonia's many islands and promontories, a shore is always visible somewhere when out at sea. Since high-tech navigational devices were unnecessary, the Vikings were also able to comfortably conduct trade and raids here from the 8th to the 11th centuries. Today, people are drawn to Estonia by its innumerable uninhabited islets, its amazing abundance of birds, and its primeval landscapes. Since there are now fewer fish in the sea and large companies dominate the fishing sector, yachts and motorboats have replaced old fishing boats in Estonia's coastal waters.

There is only 22,000 km^3 of water in the Baltic Sea, which is less than in Lake Baikal. Consequently, the Baltic cannot dilute any pollution that runs into it very well. As there is almost no exchange with the Atlantic Ocean, the sea cannot purify itself over the long term, either. Heavy metals are taking a toll on predatory fish, eagles, and marine mammals, while the sea's coastlines are being choked by flora and its water by cyanobacteria.

Baby grey seal enjoying the sunshine. Grey and ringed seals prefer to give birth right on the sea ice. *Photo: Remo Savisaar*

Koguva on Muhu Island is a typical Estonian coastal village set a couple of hundred meters from the sea, where fishing was only done during particular times of the year. As a result, fish was only eaten as a side dish. *Photo: Liis Treimann / Scanpix*

Photo: Arne Ader

The end

Springtail Desoria sp. crossing a snowflake. The springtail has adapted to life in as cold as -6˚C. There is food on top of and in the snow. When the temperature is colder, it hides under the snow. The purity of its body fluids gets close to that of distilled water – which is why it doesn't freeze. *Photo: Urmas Tartes*

Interglacial periods have lasted 12,000 years on average. In light of this statistic, a new barrage of ice can be expected before long. According to the Milankovich theory, which predicts the tilt of the Earth's axis, the current interglacial period should last for at least 50,000 years more. No doubt it will be followed by the descent of an immense glacier from Scandinavia, which will bulldoze everything in its path. To get an idea of what will transpire, one can look at what happened the last time.

In a cold winter, ice roads are opened between islands and the mainland. Boat traffic continues, too. *Photo: Urmas Lauri / Visit Estonia*

It all started about 125,000 years ago; during the last interglacial period. At the time, Estonia's climate was significantly warmer than it is today.

The Neanderthals were most likely the first to settle the beech forests and mammoth-trodden steppes, though it could also have been our own ancestors – modern mankind. Speech may not have been a tool for communication yet, but even so, that culture may, in some ways, have been superior to what it is nowadays.

Then, a cooling began: the climate turned near-arctic, the forests were wiped out, and wildlife disappeared with them. Estonia was covered by tundra, similar to present-day Iceland. Reindeer and polar bears roamed the land. It's possible that humans stayed put, since we are an open-landscape species that takes advantage of being able to see great distances. Furthermore, river valleys, southern-facing slopes on hill chains, and the vicinities of large bodies of water all thrive in milder micro-climates. At some point, a glacial tongue about half a kilometer high reached Estonia. Its approach was almost unnoticeable, advancing probably an acorn-sized step a day.

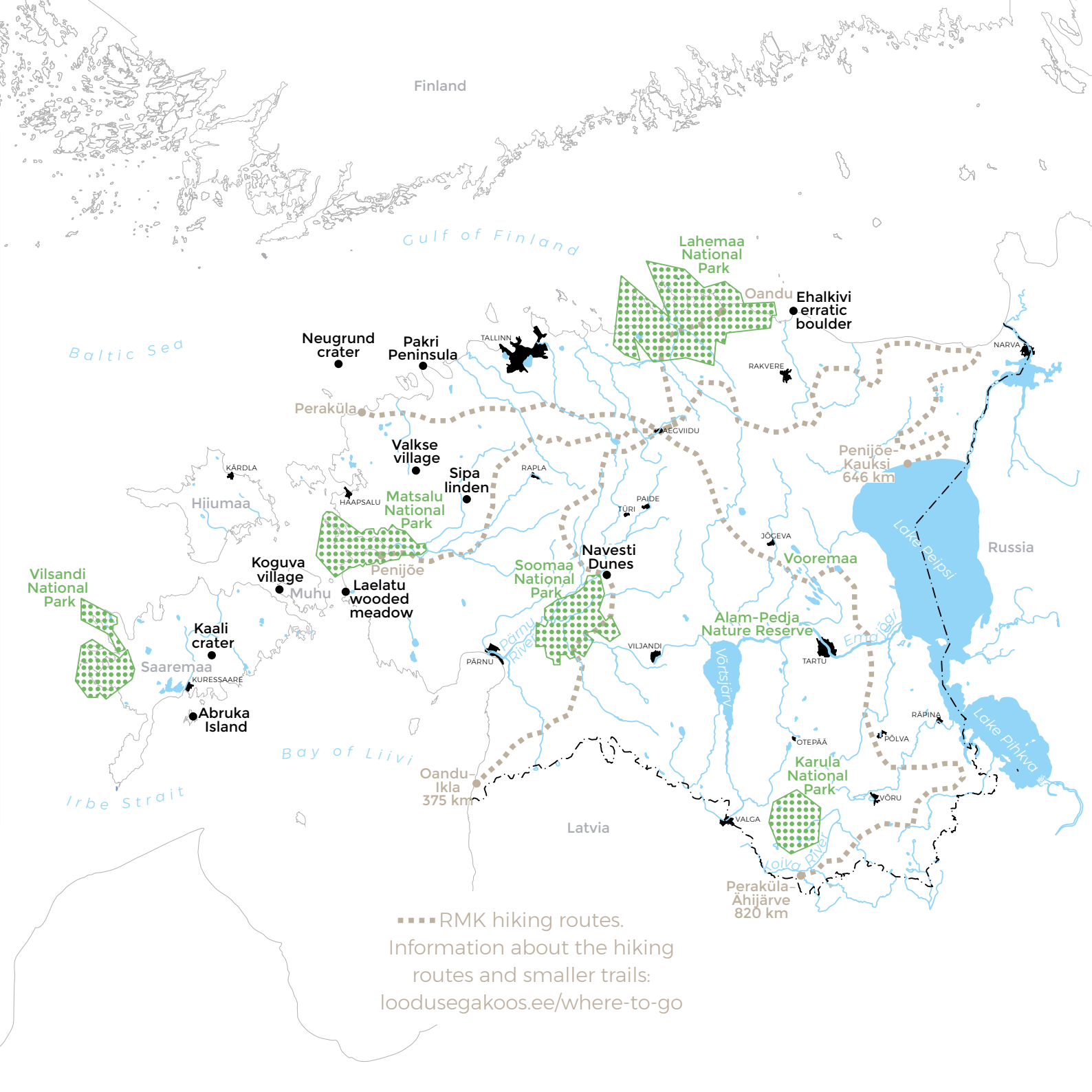
The hilly landscape of southern Estonia, created by the continental ice. *Photo: Toomas Tuul / Focus*

Since it approached from the north, the glacial tongue did not block out the sun, but it did serve as a wind-block and offered shelter to both man and beast. In summer, humans and reindeer would have been able to scale the glacier in order to escape mosquitoes.

The glacier – an icy desert – ultimately covered all of Estonia and half of the rest of Europe. Living creatures either perished or retreated to refuges in southern Europe. The glacial ice obliterated both animate and inanimate nature, transforming it beyond the point of recognition. It plowed the land to a depth of about 20 meters, leaving behind a moraine up to 50 meters thick upon its retreat. When the glacier makes its way down from the north again, no stone will be left stacked.

By raking deep furrows into the land, the glacier created a number of long lakes and drumlins in Estonia, most of which can be seen in the Vooremaa (literally "Drumlin Land") landscape region. Other lakes were formed by the melting of the glacier. When an ice bank buried beneath glacial debris melted hundreds of years after the glacier itself receded, the hard material collapsed and precipitation collected in the depression. *Photo: Arne Ader*

The glacier broke off bedrock and swept glacial erratics along with it. Estonia is now home to 90% of northern Europe's giant erratics, with diameters of over ten meters. Europe's largest glacial erratic – Letipea's Ehalkivi (pictured), 930 m^3 of which lies above ground – slid with the glacier from the coast of southern Finland to Estonia. The Kaali meteorite might have been about the same size when it was still flying through space. *Photo: Sven Začek*



RMK hiking routes.
Information about the hiking routes and smaller trails: loodusegakoos.ee/where-to-go

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