



THE MARSH SPRINGS TRAIL

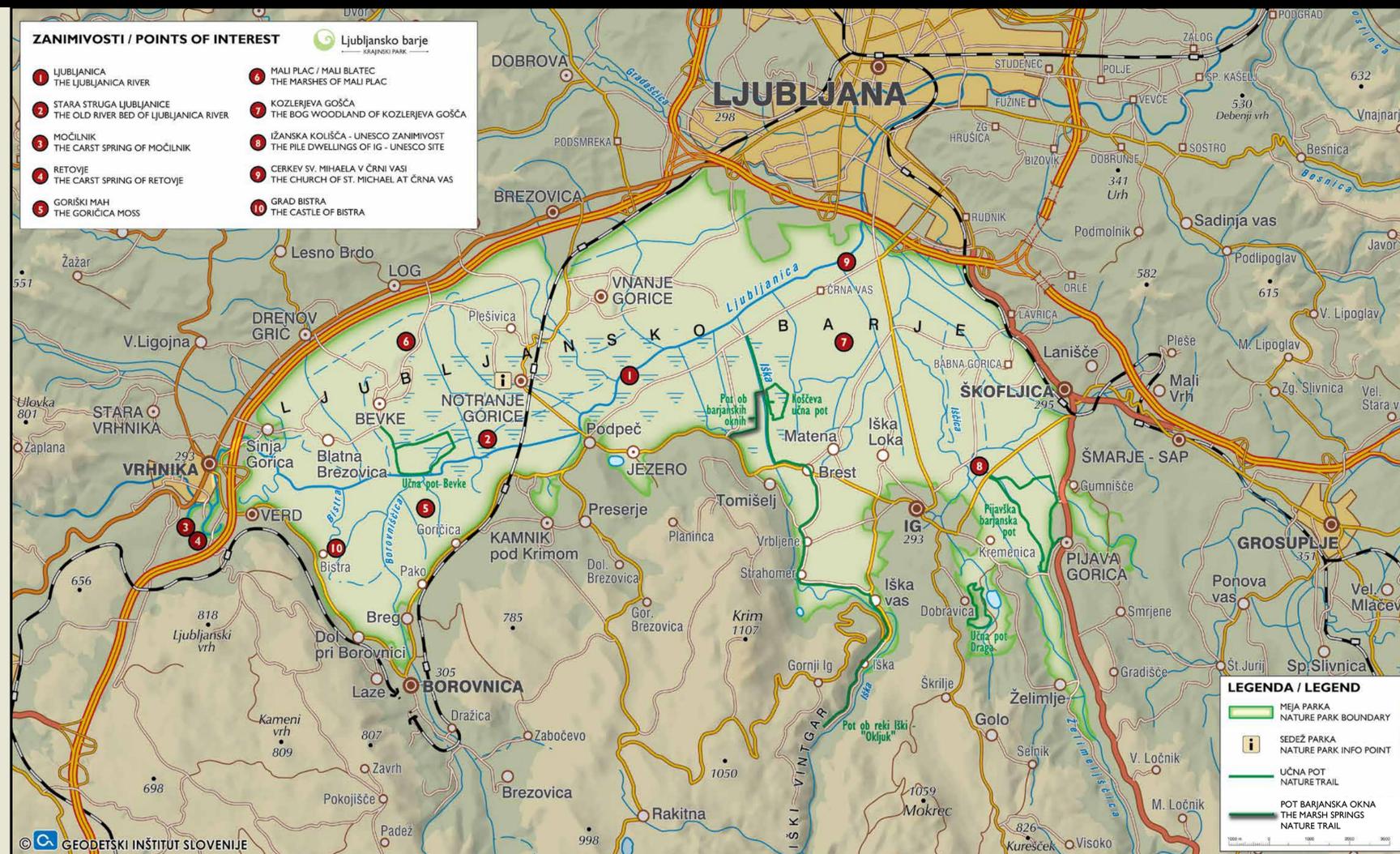
LJUBLJANSKO BARJE NATURE PARK

We're truly blessed. It would be hard to find another national capital adjacent to a landscape as wonderful and unique as the Ljubljana Marsh (Ljubljansko barje in Slovenian).

People have tried to subjugate it many times, but they've never succeeded. Thank goodness! It protects us from floods, and it offers us fresh air, healthy drinking water, and many recreational opportunities. **Ljubljansko barje Nature Park** was established in 2008 to make sure it stays the way it is.

At first glance, the Ljubljana Marsh might seem dull and monotonous. But soon you'll see that it conceals amazing treasures. You just have to get to know it up close!

www.ljubljanskobarje.si



! The Ljubljana Marsh is a natural protected area. During your visit, be considerate and respectful to our hosts: the people, the plants and animals, and their natural habitats. If you're not too loud, you'll be able to hear hundreds of voices of nature. If you take nothing but pictures and leave nothing but footprints, many others will also be able to enjoy this natural treasure.

The Ljubljana Marsh is a mosaic of meadows, fields, untilld land between fields, watercourses, and drainage ditches, with a network of field paths among them.



The tree frog (*Hyla arborea*) is clever at hiding from predators, but like most amphibians it's very vulnerable to the pollution caused by human activity.



Snake's head fritillary (*Fritillaria meleagris*) In early spring, the damp and unfertilised meadows are coloured purple by snake's head fritillaries. Since the blossoms appear around Easter and resemble coloured Easter eggs, the locals call them *pirški* (*pirhi* is the Slovene word for coloured Easter eggs).



The great egret (*Ardea alba*) has been overwintering in the Ljubljana Marsh with increasing frequency, enlivening the gray winters in the marsh.



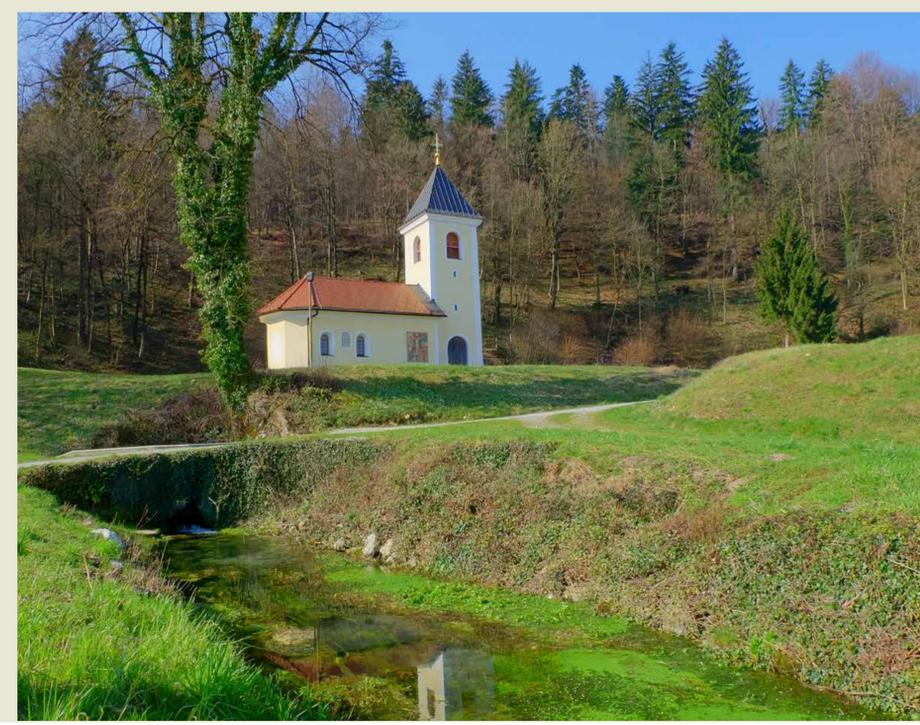
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Text: Maša Bratina, Bojan Erhartič, dr. Aleš Smrekar, Mateja Šnid Hribar, Jernej Tiran, Barbara Vidmar, Barbara Zupanc
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Technical revision: dr. Aleš Smrekar, dr. Mihael Brenčič
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Illustration: Marijan Pečar
Photographs: Anton Žvanut
Cartography: Geodetic Institute of Slovenia
Graphic Design: Iztok Ambrož

You are asked to keep to the trodden paths and show respect for private property.

THE MARSH SPRINGS TRAIL

The marsh springs are found on the Ljubljana Marsh and its periphery. Most lie on the border between the gravel deposits of the River Iška and the marsh. Would you like to know why the water comes to the surface precisely there? Did you know that the marsh springs were once much bigger than they are today? What do you think is the importance of these water phenomena?

You are invited to follow the path where you will discover marsh springs. **On the observation platform next to the Strahomer springs** there is a visual presentation on two information boards and three puzzles. Beside the River Iška, you will discover that the **Jevšnik canal** is not an ordinary drainage canal. The path from Podkraj to the River Iška is **two kilometres long** and will take you **half an hour on foot**.



! On the periphery of the Ljubljana Marsh, between Vrhnika and Ig, there are numerous karst sources. Some of them resemble the marsh springs. One such is Šentjanž near Podkraj, which appears below the little church of St. John the Baptist. The source feeds a stream you can observe behind the sign.





THE MARSH SPRINGS TRAIL

- Marsh Springs Trail
- location of sign
- Strahomer Marsh Springs
- Corncrake Nature Trail
- Iška River Meander Nature Trail
- paved road
- unpaved road
- snack bar
- bus stop, city bus 19b

Scale: 0 m 500 m

Illustration: Marijan Pečar
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A VIEW INTO THE MARSH SPRINGS

Did you know that on the border between the gravel deposits of the River Iška, the Iška alluvial fan and the Ljubljana Marsh there are water sources known as marsh springs? These are filled by the same underground water as the wells of the Brest water plant. Because of water abstraction by the plant, the underground water level of the Iška alluvial fan has begun to fall. A view into the marsh springs allows us to determine the quantity and quality of the underground water, so it is particularly important to preserve them.

You are invited to follow the path where you will discover marsh springs. On the observation platform next to the **Strahomer springs** there is a visual presentation on two information boards and three puzzles. In Podkraj, you will see the stream **Šentjanž**. The path between the River Iška and Podkraj is **just under 2 kilometres long** and will take you half an hour on foot.



! The canal behind the information board is not an ordinary drainage canal. It is fed by a group of marsh springs. The largest emerge beneath some alder trees (*jelša* in Slovene), which is why the canal and the group of springs are called Jevšnik. Before the water from the marsh springs was diverted into the drainage canals, they were considerably larger, resembling small lakes.



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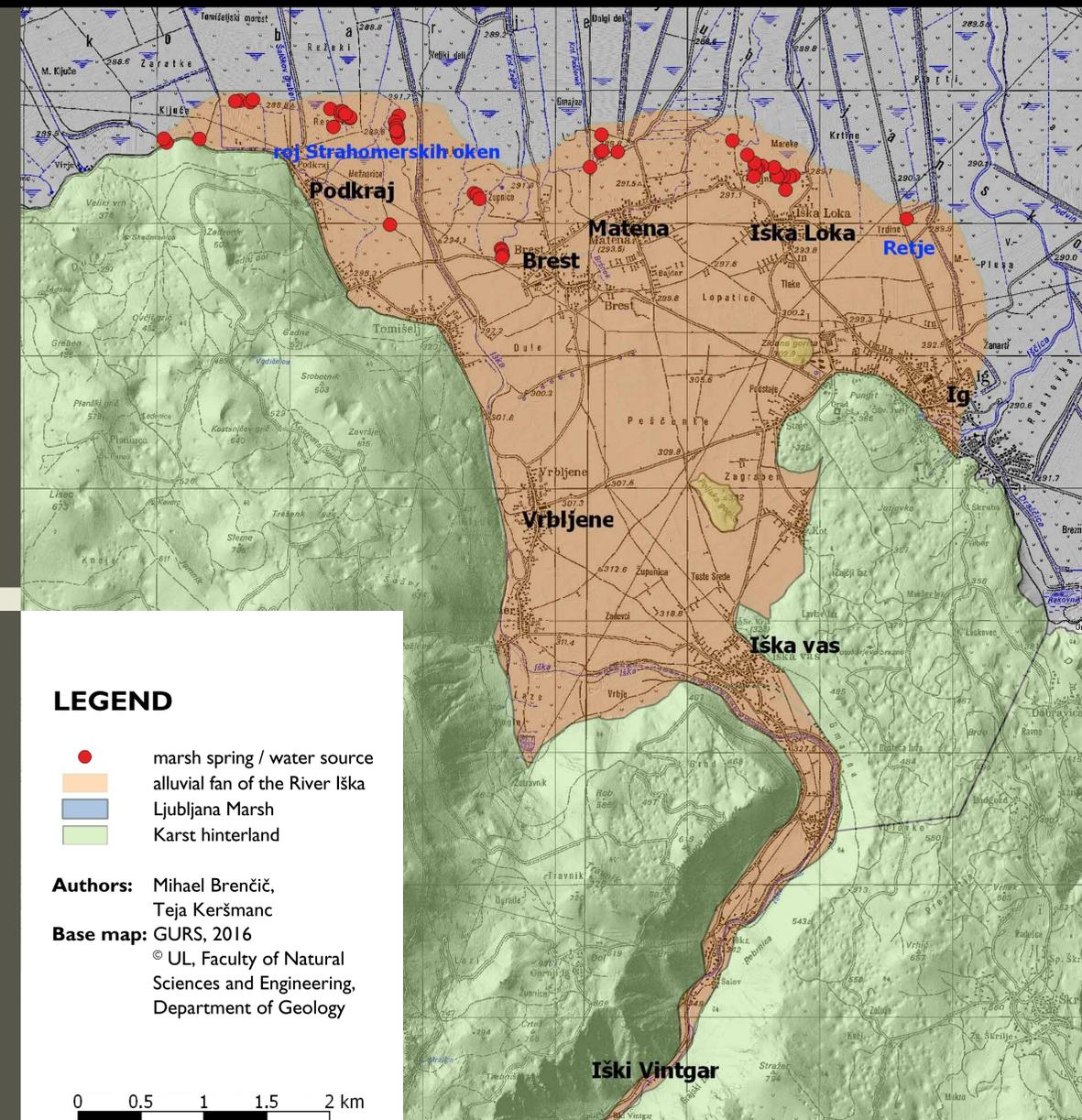
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ON THE BORDER BETWEEN THE RIVER IŠKA ALLUVIAL FAN AND THE LJUBLJANA MARSH

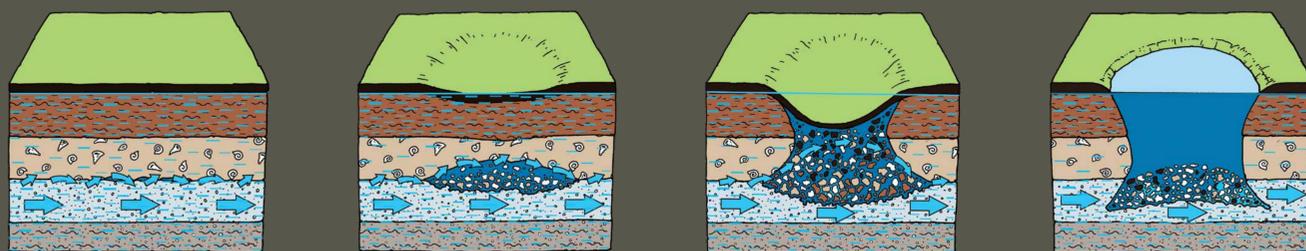
In the direction towards Ig lies the alluvial fan of the River Iška. At the exit from the Iški Vintgar Gorge the river has built up a fan-shaped gravel deposit up to 100 metres deep. The Iška alluvial fan draws water from the Karst hinterland and from precipitation. Through the alluvial fan the water runs underground towards the Ljubljana Marsh. In the marsh, the gravel deposits of the alluvial fan are replaced by the layers of marshy ground: peat, clay and sand. Where the alluvial fan and marsh layers meet, the underground water comes into contact with poorly permeable layers. These are of light grey clay, full of snail shells. The underground water creates pressure beneath the clay. With time, the pressure builds up and the water washes away the clay layers and later also the soil layers, and that is how a marsh spring appears.



In 2015, on the border between the River Iška alluvial fan and the Ljubljana Marsh, hydrogeologists recorded **53 marsh springs**, which usually appear in groups. The most numerous groups of springs were recorded near Iška Loka and Podkraj. The diameter of most of the recorded marsh springs does not exceed **two metres**. **One exception is Retje, which measures 20 square metres and belongs among the largest recorded marsh springs in the Ljubljana Marsh.**



SIMPLIFIED ILLUSTRATION OF THE FORMATION OF A MARSH SPRING



LEGEND



Expert advice: Mihael Brenčič, illustration: Marjan Pečar





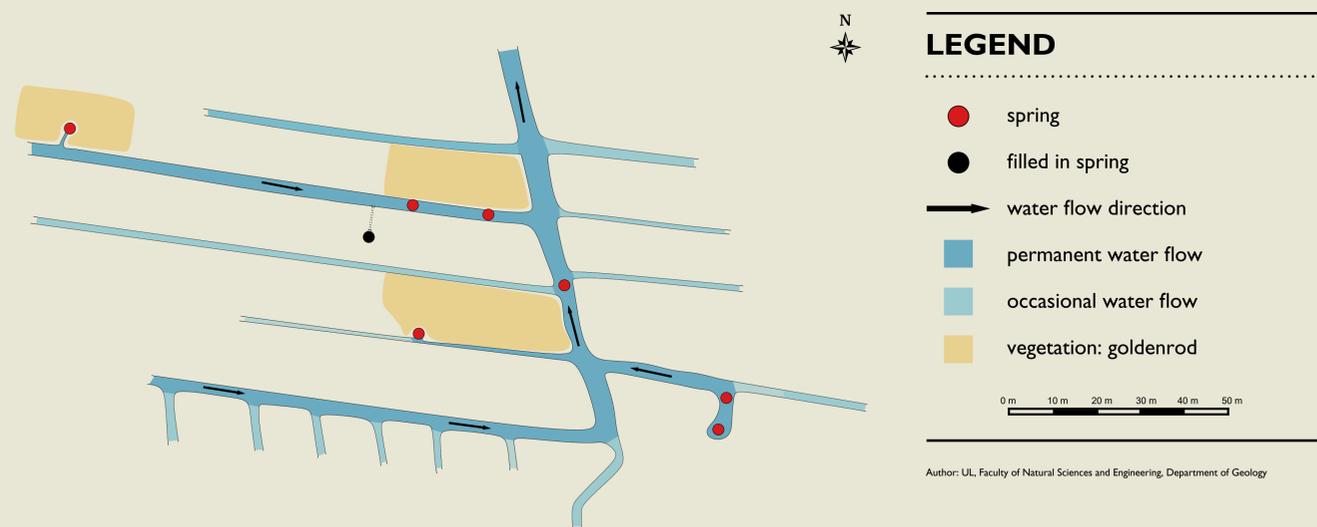
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THE STRAHOMER MARSH SPRINGS

In front of you are two Strahomer marsh springs; you will recognise them by the tiny bubbles on the surface. The water from the springs feeds the Strahomer drainage canal which, in contrast to the other nearby canals, is filled with water throughout the year. Fire-fighters know this and are grateful as they can **use the water to extinguish peat in the Ljubljana Marsh when it catches fire in the summer heat.** The water in the Ljubljana Marsh is also a **habitat for many animal species, such as fish, frogs and dragonflies.** The water temperature in these springs is around 11 degrees Celsius all year round, which is why only the common minnow (*Phoxinus phoxinus*), a fish that is used to cold waters, can be found in them. Other species find a home in the surrounding ditches and the nearby flooded forest, where the water temperatures are higher.

Have you noticed the sinking ground next to the springs? The surroundings of the marsh springs are very unstable, so you are asked not to stray from the observation platform! You can view the two springs closer up from the observation platforms. The white bits you notice on the water surface are fragments of snail shells from the grey clay, while the brown bits are from peat.

SCHEME OF THE STRAHOMER SPRINGS



! Did you know that there are even more springs nearby? The Strahomer group includes seven marsh springs, the position of which is not permanent. The spring that was once in the middle of the meadow was diverted by the landowner to the nearby canal, where there appeared two new springs, while the one in the middle of the meadow dried up. The water from the springs used to leak into the nearby meadows, which is why landowners often used to fill them in.

