

JOURNEY THROUGH THE DAUGAVA RIVER HISTORY AND ECOSYSTEMS (2)

River network in Latvia

Latvia has a dense network of rivers. The total length of rivers is 37 950 km, but most of them are small rivers, shorter than 10 km. Only 17 rivers are longer than 100 km, one of them – River Daugava. In Latvia it is 352 km long and it is the richest in waters. Sometimes it is called Latvia’s river of Destiny.

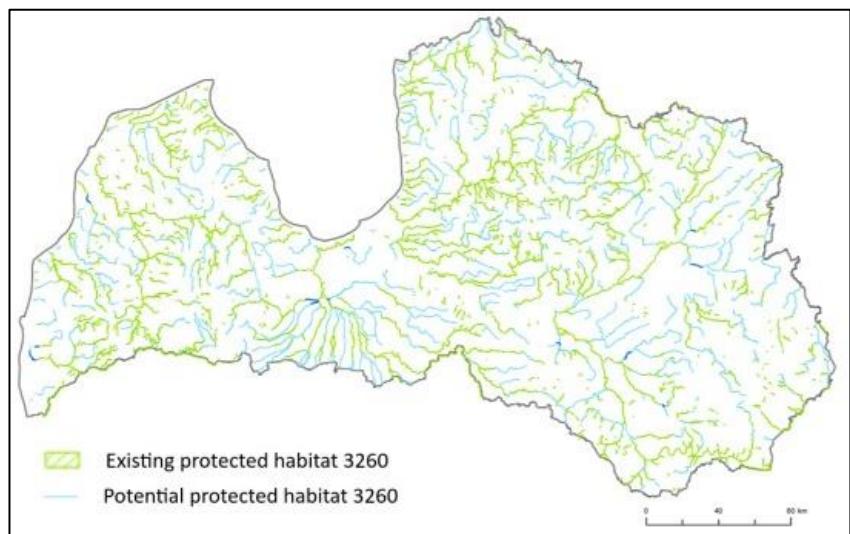
Connectivity and natural hydrological regime of rivers in Latvia are affected by alterations - there are more than 1200 obstacles on rivers and straightened is 1/3 of total river length. These modified river stretches are not classified as protected habitat 3260 *Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation*. Essentially, each modified river section is lost nature value - protected habitat 3260.

Setting favourable reference values of EU habitats

It is important and necessary to define which river sections need to be restored, by ensuring both longitudinal and lateral connectivity of rivers, as it is indicated in the concept of a free-flowing river. In the LatViaNature project site specific conservation objectives (CO) for Natura 2000 territories and Favourable reference values (FRV) have been set, including a wide spectrum of criteria.

Favourable reference area for rivers includes:

- River stretches with existing protected habitat 3260
- Restorable river stretches - potential habitat 3260



On the River Daugava there are three HPP, so this downstream part of river is not included as potential habitat in Favorable reference area, as it is defined as lake water body according to River Basin Management Plans and has a vital role in ensuring the country’s electricity supply. But upstream of the tributary Aiviekste, River Daugava has a natural flow and structure, forming one of most scenic river landscapes in Latvia – nature park “Daugavas loki”.

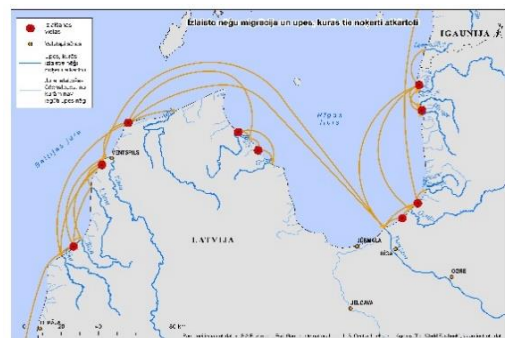


Lampreys

Dating back more than 300 million years, lampreys are one of the oldest living groups of vertebrates. However, the subject of our today’s discussion – the European river lamprey *Lampetra fluviatilis* – is much younger and can be attributed mostly to post-glacial period.

European river lamprey or just a river lamprey is a migratory species. Like salmon and sea trout, it spawns in freshwater but matures in the sea. Although the general features of the life cycle of river lamprey and salmonids are similar, there are also some differences. Lampreys do not have a homing instinct and do not search for their natal stream when they are ready to spawn. Instead, spawning migrations are guided by pheromones released by lamprey larvae, freshwater discharge and other factors. Like salmonid species, lampreys spawn in special spawning nests, but soon after hatching their larvae (often called ammocoetes – or ņurņiki, if you are Latvian) migrate to slower flowing sections and burrows in the riverbed, which will be their habitat until the metamorphosis, i.e., for the next ~4 years. Therefore, a healthy lamprey population depends not only on rapids but also on slow flowing sections. All lampreys die after spawning!

Another important fact about lampreys is the phenomena of paired species. Many parasitic or predatory lamprey species that migrate to larger water bodies to feed after metamorphosis have a paired non-



parasitic species that remains in the stream and does not feed after metamorphosis. Such migratory and non-migratory species often spawn in similar habitats (sometimes – in the same place at the same time) and their larvae are similar both morphologically and genetically. Paired species (or freshwater cousin) of river lamprey is European brook lamprey *Lampetra planeri*.

And – yes – Latvia is one of the few countries where river lampreys are considered a delicacy. We have a (strictly regulated!) commercial fisheries for this species, and it is one of the most important target species in inland waters fishery. Try them grilled or in soup!

Of course, as everywhere in the EU, the river lamprey is a protected species in Latvia. In the LatViaNature project, we estimated the current value (CV) and favourable reference value (FRV) of this species, or in other words, we evaluated how big the lamprey population is today and how big it could be if there were no human impacts. The results are not surprising: if we take away the human impacts (migration barriers, straightening of the riverbed, exploitation of HPP, etc.), the lamprey population would be many times larger than it is today.

So, this is our message to people - if you love to eat lampreys, you must also love free-flowing and undisturbed rivers!

