

# Following the trail to the spawning grounds

**Researchers from IMARES are discovering the secret life of the river lamprey. In order to reproduce, this small creature wages just as heroic a battle as the salmon.**

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The river lamprey wins no beauty contests and in evolutionary terms it is a primitive creature. That doesn't stop researcher Erwin Winter of IMARES Wageningen UR from expressing his admiration for 'his' lampreys, who brave the sluiceways at Delfzijl in the northern Netherlands to swim from the sea into fresh inland waters to their final destination: the Gasterense Diepje. In this tributary of the Drenthsche Aa river, which is no more than a couple of kilometres long, the river lampreys spawn and die. And this is the only place they do so; in no other streams in the area. Seven years ago Erwin Winter and his colleague Ben Griffioen were asked by Peter Paul Schollema of the Hunze and Aa rivers water board to study the distribution and habits of the river lamprey. It is a protected species and yet precious little is known about it. 'At that time the Gasterense Diepje was the only known spawning ground in the Netherlands,' says Winter. 'By now more locations have been discovered, in the Roer and the Dommel for example.' The researcher thinks the lamprey is often overlooked. The larvae spend their first four years embedded in the mud; only when they have reached the size of a long, fat earthworm do they swim out to sea undetected, being

too small to get stuck in nets or traps. On their return from the sea during the winter months they are about 40 centimetres long but the season for eel fishing with traps is over then. 'For these reasons they tend to stay under the radar' says Winter.

## TRANSMITTER

Little by little, though, the researchers are getting a more complete picture of the river lamprey. Every year Winter and Griffioen go back to Drenthe to monitor the population of roughly 10,000 larvae. They would like to know more about the population dynamics, the annual growth and the lamprey's habitat use. The results of this research can be used in making a good management plan for the conservation of this protected species. It has also been established how the lampreys make their way to this precise spot. The migration of salmon up rushing mountain streams may seem adventurous, but the river lamprey is quite a toughie too. In order to find out how this 'migrating fish' makes its journey, 50 river lampreys were equipped with a small transmitter in their stomachs. Detectors which registered these lampreys as they passed were then hung in the water at 20 different locations between the sluiceways at Delfzijl and the spawning grounds, as well as in other



streams such as the Hunze. ‘The river lamprey instinctively swims upstream to the higher reaches of streams to spawn there,’ says Winter. ‘In canals they get put on the wrong track: often there is no current, or it is suddenly very strong because locks are opened. Once in a while it is even going in the wrong direction. Many lampreys get confused by this and start swimming up and down or turn around.’

**SCENT TRAIL**

But the current is not their only guide. In contrast to the salmon, the river lamprey does

not return to its birthplace but the adult follows a scent trail: a pheromone given off by the larvae which is carried towards the sea by the current. By following that trail, the lamprey knows it is on its way to a suitable habitat for spawning – a river bed with pebbles or stones, and which is attractive for the larvae – with enough fine sludge to dig themselves into. The best navigators all end up in the Gasterense Diepje, ignoring the Hunze, where they detect no pheromone traces.

River lampreys enter the Netherlands through other sluiceways and along the big

streams too, but where they are heading for remains a bit of a mystery. ‘Very few of them get as far as Belgium or Germany,’ says Winter. In December the IMARES researchers hope to get a glimpse of what is going on, once again in the north of the country. In collaboration with the Wadden Fund and four water boards, they are going to attach transmitters to river lampreys near Lauwersoog. ‘They come in there but we have no idea where they spawn. Or perhaps they go back with their business unfinished.’ ■

Info: [www.wageningenur.nl/riverlamprey](http://www.wageningenur.nl/riverlamprey)



**BLOODSUCKER**

The river lamprey (*Lampetra fluviatilis*) may have gills but it is not a fish, nor even a related species. It belongs to the class of cyclostomes, jawless eel-like creatures with a smooth, scale-free skin. River lampreys live for four years as blind larvae in the beds of streams and rivers. Once they reach adulthood they trek to the sea, to return to fresh water after a couple of years. As larvae, the river lampreys live off algae and bacteria, while the adult animals clamp themselves onto fish with their sharp sucker mouths and rasping tongues and suck up blood and bits of flesh.

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