A stream near the church of Vanse at Lista in southern Norway, the type locality of *Lebertia porosa* Thor, 1900 | IMAGE CREDIT: Torbjørn Ekrem

HUNTING FOR A WATER MITE NEOTYPE IN SOUTHERN NORWAY

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Scientists rediscover lost specimens of water mite in Norway 120 years after they were first described

Did you know that scientists can assess natural water quality by monitoring the diversity of aquatic invertebrates? Freshwater insect and arachnid populations are often important indicators of environmental change. This is evident in particular species-rich groups, such as water mites and biting or non-biting midges, which have great potential for monitoring water quality. The problem is only that they are too difficult and time consuming to identify in routine water quality assessments. This hurdle can be overcome with DNA metabarcoding, but only if a good reference barcode library is available.

Elisabeth Stur of the Norwegian University of Science and Technology (NTNU) University Museum, along with her team, have been doing summer field work for the Water Mites and Midges in southern Norway (Water M&M) project. One of the many goals for this year's field work was not only to contribute to the reference barcode library, but also to sample the type locality of the water mite *Lebertia porosa*, described 120 years ago by Sig Thor, a Norwegian priest and acarologist.

Barcode data indicate that there are at least six cryptic genetic lineages within this species, but it is unknown which of these applies to the nominal species. Since the original type material is lost, re-sampling *L. porosa* from its type locality is important in designating a neotype that most likely belongs to the species described by Thor in 1900. This way, researchers can stabilize the definition of the *L. porosa* species name, such that potential new species could be

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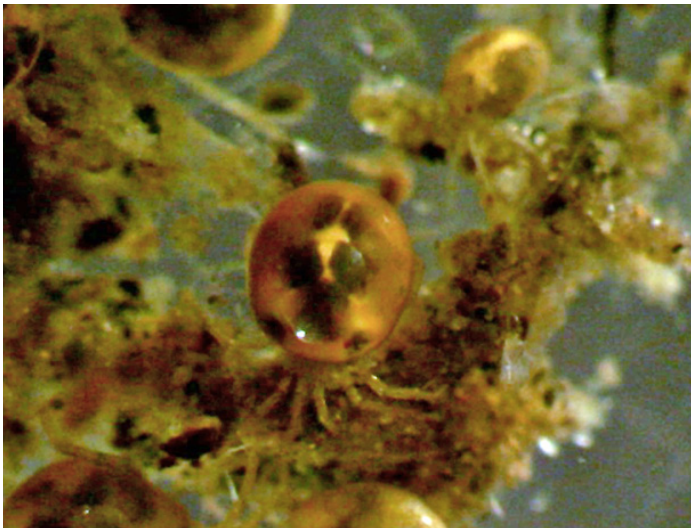
PHAENOPSECTRA FLAVIPES (DIPTERA: CHIRONOMIDAE) WITH WATER MITE LARVAE ATTACHED.
PHOTO CREDIT: AINA MÆRK ASPAAS, NTNU UNIVERSITY MUSEUM

described. This species delineation is part of a MSc. project by Valentina Tyukosova at NTNU: Integrative taxonomy and species delimitation in the Lebertia porosa species complex (Acari, Parasitengona: Hydrachnidia).

The type locality of *L. porosa* was vaguely described in Thor's original publication as a "stream near the church of Vanse". After studying maps of the surrounding area, researchers learned that this church still stands, and were able to locate two nearby streams.

Now they wondered, would these streams still be in good condition 120 years later? As the team of researchers approached what they thought might be the stream in June 2020, they were pleased to see running, clear water under the bridge. Next mystery: could the streams hold a population of L. porosa 120 years after first collection? They found out that yes, the waters could, and the water mite populations were bountiful!

Stur and her team are now looking forward to getting these critters under the compound microscope. Using DNA analysis, they hope to identify which barcode clusters they match with, potentially revealing the nominal species of L. porosa. We're sure that Sig Thor would be thrilled to learn that his identified species is still thriving, 120 years later.



WATER MITES FROM THE TYPE LOCALITY OF LEBERTIA POROSA THOR, 1900.
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