

Unknown animals nearly invisible but yet there

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Photograph depicting colonies of five different bryozoans species, collected along the west coast of Sweden. Credit: Photograph: Judith Fuchs

Bryozoans (moss animals) are a group of aquatic invertebrates that are found in great variety throughout the world, with well over 100 species in Sweden alone. Yet little is known about them. Researchers at the University of Gothenburg have now studied Swedish bryozoan species using DNA techniques.

"There are currently over 6000 known species of Bryozoa. Earlier studies were based on visible characteristics of these [animals](#), which is not sufficient to decide how the species are related to each other. To understand the evolution of bryozoans and how they are related to other

animals, it is necessary to use molecular data, that's to say DNA," says Judith Fuchs of the Department of Zoology at the University of Gothenburg.

When Bryozoa were discovered in the 16th century, they were regarded as plants. Later on they were found to have a nervous system, muscles and an intestinal system and were classified as animals. On their own, bryozoans are barely visible to the naked eye, but like coral animals all bryozoans build colonies that reach several centimetres in size and some species build colonies of over 30cm.

In her thesis, Fuchs has studied the evolution and relationships of Bryozoa using molecular data (DNA) from more than 30 bryozoan species, most collected in Sweden. The results show that this animal group developed from a [common ancestor](#) that probably lived in the sea. Two groups of Bryozoa evolved from this common ancestor: a group that stayed in the [marine environment](#) and another that evolved in freshwater. The DNA studies of the larval stage of Bryozoa can also contribute to a better understanding of the evolution of life cycles and larval stages of other multicellular animals.

Together with her supervisor, Matthias Obst, over a period of four years she has also taken part in the marine inventory of the Swedish Species Project along the west coast of Sweden. The collection of all marine bottom-living animals is based on more than 500 samples from 400 locations.



Individuals of the bryozoan *Alcyonidium diaphanum* stretch out their tentacles to filter food particles out of the water. Credit: Photograph: Judith Fuchs

"We found as many as 120 marine bryozoan species in our waters, and many of them had not been previously known in Sweden. We also found a completely new [species](#) of Bryozoa. This is a very small bryozoan with characteristic spikes on its surface, which I have described in my thesis."

To date, 45 per cent of the bryozoans collected in the inventory have been determined.

"Sweden has a very rich bryozoan fauna. On your next trip to the beach you might perhaps take a closer look at seaweed or pebbles. If you see a white covering with small holes in it, you have found a bryozoan colony for yourself."

Provided by University of Gothenburg

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