Photo: Bärbel Zierl

Helen Moor – New Group Leader in Siam

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As group leader in the Siam Department, Helen Moor has been building up the new «ecological modelling techniques» research group since June. Her interest in wetlands and in combining theoretical models with a wide variety of data has been a common thread running through her research career. It also brought her to Eawag just over a year ago.

After studying biology in Basel and oceanography in Kiel, Helen completed her doctorate at the Stockholm Resilience Centre in Sweden. This is where she began to work on aquatic ecosystems and to combine theoretical models with data. Two post-doctoral positions followed, first at the Swedish University of Agricultural Sciences from 2017 to 2020 and at the WSL from 2020 to 2022 as part of the Blue Green Biodiversity (BGB) research initiative. As part of the BGB research project, she investigated «what happens when we make the landscape a bit wetter again». In other words, how can conservation measures such as building ponds promote amphibian biodiversity? Helen then worked with research colleagues to produce a synthesis paper on the BGB results from Phase 1. «I believe it is very important, especially when you are doing research that is relevant to society, to make the results available to the public», says Helen.

Modelling techniques in the service of biodiversity

In May of 2022, Helen joined Eawag as a Scientific Collaborator in the Siam department. Since June 2023, she has been establishing the new «ecological modelling» research group in Siam as a group leader. The focus is on the development and application of process-based statistical models that describe the spatial and temporal dynamics of populations and species communities in relation to environmental changes. Helen is particularly interested in hierarchical models that combine different

data sources. This allows all relevant information to be used to answer a specific question. This is achieved by taking into account the measurement errors associated with the different data collection methods.

To do this, Helen combines statistical models with data from systematic monitoring programmes as well as with so-called opportunistic data, i.e. unsystematic data, for example from citizen science projects. The latter are very unevenly distributed because «people like to visit nice places, for example nature reserves, and that tends to be in summer and not in November when it's rainy and cold». Opportunistic data are therefore often subject to systematic errors. This makes them difficult to model. But that's exactly what Helen finds so compelling. She therefore also calls on all Eawag researchers to get in touch with her if they have interesting data, whether measurement data from experiments or monitoring data from the field. Long time series are particularly welcome. «With my group, I would like to contribute to making the most of such data».

Proactively managing nature conservation expectations

The focus is on biodiversity and water in the landscape. «I'm fascinated by what the loss of small standing bodies of water and wetlands means for biodiversity», says Helen. «We are now struggling with the legacy of the last century, when the landscape was deliberately drained at great expense. Many wetland habitats and species have disappeared as a result. We want to investigate how we can promote these species and their spread once again».

An initial two-year research project has already been funded by the Swiss National Science Foundation SNSF. The project investigates the question of how quickly nature conservation measures have an effect on biodiversity. «I want to develop models that can make general statements about the time period in which one can expect a positive development with concrete measures. And how strongly the preceding dynamics, i.e. the decline of species, influence the rebound». The aim is also to prevent nature conservation initiatives from causing disappointment, as it can often take years or even decades for measures to pay off and for stable populations to re-establish themselves.

«Language shapes our interaction with nature».

In her free time, Helen enjoys being outdoors in nature. She especially enjoys hiking and taking a closer look at the botany along the way. «I find it exciting to learn a thing or two about the plants. For example, which ones you can eat», explains Helen. «I also find hiking to be wonderfully democratic because it is accessible to everyone. After all, it hardly costs anything, you don't have to consume any goods, and all you need are good shoes. You have to be considerate of one another and share space».

Furthermore, Helen is passionate about language and literature, especially literature that tries to understand how humans, nature and the landscape interact. «Often it seems that we have lost our sense of being embedded in nature, of being part of it», says Helen. «Language plays an important role in this. It shapes how we perceive the world and how we interact with it. Words for landscapes like oxbow lakes or natural phenomena such as quaking bogs have seemingly been lost in the vocabulary of contemporary society. With the loss of words, humans also lose their connection to nature. By trying to revive or preserve this language, we preserve this connection and our relationship to the small things in nature».

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