



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

PhD position: Ecological assembly processes: a predictive framework for fungal metacommunities

University of Jyväskylä, Finland

Main supervisor: Nerea Abrego

Application deadline: January 14, 2022

With our planet facing the so-called sixth mass extinction, there is an urgent need to mechanistically understand the processes organizing biodiversity. A robust fundamental understanding the forces shaping biodiversity is the basis for any rational management of natural resources. Reaching such understanding, is the core aim of community ecology. Thus, much of the focus of the empirical research in community ecology is on measuring the roles of different assembly processes in shaping ecological communities (i.e., measuring what mechanisms determine what species occur where and when). From earlier research, one thing is well known: the habitat or abiotic environment has a huge influence on what species are found at a given location and time. In other words, the role of environmental filtering as a process shaping species communities is well known. However, there are other less studied processes which should also influence species community composition, as are the role of biotic interactions, dispersal and stochastic processes. One of the reasons why the latter mentioned processes remain less studied is simply that they are more challenging to study, requiring experimental settings and study systems that conform to the assumptions of theoretical frameworks. In this project, we will use wood-inhabiting fungal metacommunities in island landscapes as the study system. One major advantage of wood-inhabiting fungi as study systems is that they are organized as spatially well-defined metacommunities, thus conforming to the assumptions of many theoretical frameworks. Another major advantage they allow for experimental manipulations targeted to all community assembly processes in a way that would not be possible for almost any other species-rich community.

The work involved in this project includes fieldwork for collecting data and setting up experiments, preparation of samples for DNA analyses, and application of statistical methods, importantly joint species distribution modelling. Dr. Nerea Abrego will act as the main supervisor and Prof. Otso Ovaskainen as the co-supervisor. Abrego is an expert in theoretical and empirical community ecology and Ovaskainen in mathematical and statistical modelling. The PhD candidate will be integrated to a multidisciplinary research group focusing broadly on community ecology, providing the opportunity to gain a variety of skills (conceptual, theoretical, empirical, bioinformatical and statistical research) that will enable a wide range of possible career paths after dissertation.

For further details, please contact: Academy Researcher Fellow Nerea Abrego (nerea.n.abrego-antia@jyu.fi)

For more details, see the job announcement (this is project #6):
<https://www.jyu.fi/science/en/bioenv/research/doctoral-programme/phd-posts/2022/open-doctoral-student-positions>