# Postdoctoral Researcher in Statistical Ecology

The University of Helsinki, founded in 1640, is one of the world's leading universities for multidisciplinary research. The University of Helsinki has an international academic community of 40,000 students and staff members, and it offers comprehensive services to its employees, including occupational health care and health insurance, sports facilities, and opportunities for professional development. The International Staff Services (https://www.helsinki.fi/en/university/working-at-the-university) office assists employees from abroad with their transition to work and life in Finland. The Organismal and Evolutionary Biology Research Programme is situated at the Viikki science park and belongs to the Faculty of Biological and Environmental Sciences of University of Helsinki.

The Organismal and Evolutionary Biology Research Programme (OEB) invites applications for a

POSTDOCTORAL RESEARCHER

in statistical ecology for a fixed term of two years. There will be a trial period of six months in the beginning.

The post doc position is part of the Research Centre for Ecological Change and is funded by the Jane and Aatos Erkko Foundation. PIs of the Centre are prof. Anna-Liisa Laine, prof. Otso Ovaskainen, prof. Tomas Roslin, assist. prof. Jarno Vanhatalo and Dr Marjo Saastamoinen. The starting date is 1 May 2019, but a later starting date can be negotiated.

The overreaching aim of the Centre is to generate a coordinated analysis of long-term ecological data to understand impacts of global change. To unravel how populations and interactions between species in nature are responding to ongoing environmental change, the project takes advantage of the unique long-term datasets collected in Finland. The centre also develops state-of-the-art methodology for analysing long-term spatially structured data sets within a joint species distribution modeling framework. For more information please visit our website Research Centre for Ecological Change (https://www.helsinki.fi/en/researchgroups/research-centre-for-ecological-change).

The post doc takes part in the development of statistical methods for analyzing long-term ecological data and in statistical analyzes within the Research Centre for Ecological Change. For recent methodological publications, see the reference list at the end.

The methodological work focuses on development of Hierarchical Modelling of Species Communities (HMSC) and hierarchical multivariate Gaussian processes. HMSC is a joint species distribution modelling framework that can be used for the statistical analysis of data on species occurrence, environmental covariates, functional traits and phylogenetic relationships. HMSC can be applied to

hierarchical, spatial and temporal study designs, and it applies to many kinds of response data (presence/absence, counts, etc.). Gaussian processes are a flexible and versatile modeling approach, and are rapidly spreading through statistical ecology as tools for species distribution and population dynamics modeling. Gaussian processes are used to model spatial and spatiotemporal heterogeneity in data and describe species responses to their environment in a nonparametric manner.

The successful applicant should have doctoral degree in ecology, statistic or other relevant field and will have experience in the development and application of Bayesian methods for computationally challenging problems. A successful candidate will also have experience in scientific computing. Prior experience in ecology is not necessary, but is counted as an advantage. The exact direction to which the post doc will develop HMSC and Gaussian process models can be agreed upon based on the experience and interests of the candidate.

For more information, contact prof. Otso Ovaskainen (otso.ovaskainen(at)Helsinki.fi) and/or assistant prof. Jarno Vanhatalo (jarno.vanhatalo(at)helsinki.fi).

The salary of the successful candidate will be based on level 5 - 6 of the demands level chart for teaching and research personnel in the salary system of Finnish universities. In addition, the appointee will be paid a salary component based on personal performance. The starting salary will be ca. 3300 - 3800 euros/month, depending on the appointee's qualifications and experience.

Applications should include the following documents as a single pdf file: motivational letter (max 1 page), CV (max 2 pages), and publication list. Please also include contact information of two persons willing to provide a reference letter by separate request.

Please submit your application using the University of Helsinki Recruitment System via the Apply for the position link. Applicants who are employees of the University of Helsinki are requested to leave their application via the SAP HR portal. The deadline for submitting the application is 1 April 2019.

References

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Vanhatalo, J., Hosack, G. R. and Sweatman, H. (2017). Spatio-temporal modelling of crown-of-thorns

starfish outbreaks on the Great Barrier Reef to inform control strategies. Journal of Applied Ecology, 54:188-197.

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