

WELCOME!

Hierarchical Modelling of Species Communities with the R-package Hmsc

Teachers:

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- Dr. **Gleb Tikhonov** (University of Helsinki)
- Prof. Emeritus **Jari Oksanen** (University of Helsinki)
- Dr. **Jenni Niku** (Jyväskylä University)
- Dr. **Ryan Burner** (United States Geological Survey)
- Dr. **Mirkka Jones** (Aalto Helsinki)

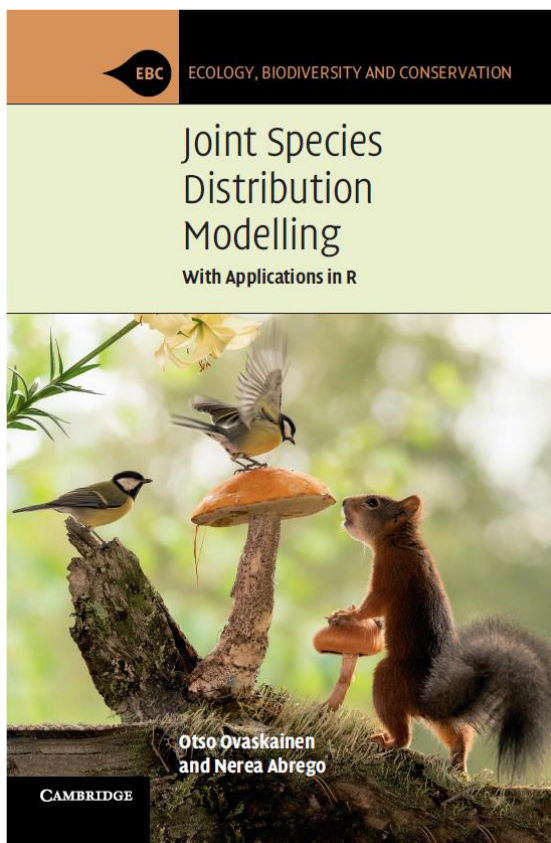
REMOTE PARTICIPANTS: ANY QUESTIONS? PLACE THEM IN CHAT!

Course programme and material

<https://www.helsinki.fi/en/researchgroups/statistical-ecology/hmsc>

Course material

1. Book



Cambridge University Press (2020)

2. R-package Hmsc (in CRAN)

APPLICATION Methods in Ecology and Evolution

Joint species distribution modelling with the R-package Hmsc

Gleb Tikhonov^{1,2} | Øystein H. Opedal^{2,3} | Nerea Abrego⁴ | Aleksi Lehikoinen⁵ | Melinda M. J. de Jonge⁶ | Jari Oksanen⁷ | Otso Ovaskainen^{2,3}

Methods in Ecology & Evolution (2020)

3. Lectures and R-scripts (at the www-page)

Additional recommended reading

ECOLOGY LETTERS
Ecology Letters, (2017) doi: 10.1111/ele.12757

IDEA AND PERSPECTIVE How to make more out of community data? A conceptual framework and its implementation as models and software

Computationally efficient joint species distribution modeling of big spatial data

GLEB TIKHONOV^{1,2,8} LI DUAN,³ NEREA ABREGO,⁴ GRAEME NEWELL,⁵ MATT WHITE,⁵ DAVID DUNSON,⁶ AND OTSO OVASKAINEN^{1,7}

Modeling species co-occurrence by multivariate logistic regression generates new hypotheses on fungal interactions

OTSO OVASKAINEN,^{1,3} JENNI HOTTOLA,^{1,2} AND JUHA SITONEN²

Testing the heterospecific attraction hypothesis with time-series data on species co-occurrence

Esther Sebastián-González^{1,2,*}, José Antonio Sánchez-Zapata², Francisco Botella² and Otso Ovaskainen³

Making more out of sparse data: hierarchical modeling of species communities

OTSO OVASKAINEN^{1,3} AND JANNE SOININEN²

Bryophyte Species Richness on Retention Aspens Recovers in Time but Community Structure Does Not

Anna Oldén¹, Otso Ovaskainen², Janne S. Kotiaho¹, Sanna Laaka-Lindberg³, Panu Halme¹

Using joint species distribution models for evaluating how species-to-species associations depend on the environmental context

Gleb Tikhonov¹, Nerea Abrego², David Dunson³ and Otso Ovaskainen^{1,2}

Wood-inhabiting fungi with tight associations with other species have declined as a response to forest management

Nerea Abrego, David Dunson, Panu Halme, Isabel Salcedo and Otso Ovaskainen

So Many Variables: Joint Modeling in Community Ecology

David I. Warton,^{1,*} F. Guillaume Blanchet,² Robert B. O'Hara,³ Otso Ovaskainen,^{4,5} Sara Taskinen,⁶ Steven C. Walker,² and Francis K.C. Hui⁷

How are species interactions structured in species-rich communities? A new method for analysing time-series data

Otso Ovaskainen^{1,2}, Gleb Tikhonov¹, David Dunson³, Vidar Grøtan⁴, Steinar Engen⁴, Bernt-Erik Sæther² and Nerea Abrego^{2,5}

Uncovering hidden spatial structure in species communities with spatially explicit joint species distribution models

Otso Ovaskainen^{1,2*}, David B. Roy³, Richard Fox⁴ and Barbara J. Anderson⁵

Measuring and predicting the influence of traits on the assembly processes of wood-inhabiting fungi

Nerea Abrego^{1,2}, Anna Norberg³ and Otso Ovaskainen^{1,2}

Using latent variable models to identify large networks of species-to-species associations at different spatial scales

Otso Ovaskainen^{1,2*}, Nerea Abrego^{2,3,4}, Panu Halme^{2,3} and David Dunson⁵

Welcome to the HMSC course!

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