Maximilian H.K. Hesselbarth *(he/him)*

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Professional Appointments

International Institute for Applied Systems Analysis (IIASA)	*Laxenburg, Austria*
Research Scholar; Biodiversity, Ecology, and Conservation Group	*2023/02/15 - 2024/02/14*
University of Michigan	*Ann Arbor, USA*
Postdoctoral Fellow; Coastal Ecology and Conservation Lab	*2020/08/01 - 2022/12/31*

Education

University of Goettingen	*Goettingen, Germany*
Dr. rer. nat; Department of Ecosystem Modelling	*2016/10/01 - 2020/04/06*
University of Goettingen	*Goettingen, Germany*
Master of Science; Ecosystem Analysis and Modelling	*2014/10/01 - 2016/11/15*
University of Applied Sciences and Arts	*Goettingen, Germany*
Bachelor of Science; Forestry	*2011/10/01 - 2014/07/07*

Internships / **Research visits**

Iowa State University	*Ames, USA*
Department of Ecology, Evolution and Organismal Biology	*2017/10/18 - 2017/12/21*
University of KwaZulu-Natal	*Pietermaritzburg, South Africa*
School of Life Sciences	*2016/03/07 - 2016/08/01*
North-West University	*Potchefstroom, South Africa*
Land Degradation and Restoration Ecology	*2016/03/07 - 2016/08/01*
Northwest German Forestry Research Institute	*Goettingen, Germany*
Department of Growth Modelling	*2015/09/01 - 2015/10/01*
SilvaTerra Ltd.	*Lilongwe, Malawi*
Forest Consulting and Research	*2013/11/04 - 2014/03/30*
Wise Batten Inc.	*Estill, USA*
Forestry Services and Wildlife Management	*2011/06/02 - 2011/08/01*
State Forestry	*Meßstetten, Germany*
Department Heuberg	*2010/08/02 - 2010/08/27*
State Forestry	*Meßstetten, Germany*
Department Heuberg	*2009/08/31 - 2009/09/11*

Publications

Articles

Hesselbarth, M.H.K., Nowosad, J., de Flamingh, A., Simpkins, C.E., Jung, M., Gerber, G., Bosch, M. (2025). *Computational methods in landscape ecology.* Current Landscape Ecology Reports 10, 2. `https://doi.org/10.1007/s408 23-024-00104-6`

Hesselbarth, M.H.K. †, Allgeier, J.E. † (2024). *High fish biomass and low nutrient enrichment synergistically enhance stability in a seagrass meta-ecosystem.* Conservation Letters. e13071. `https://doi.org/10.1111/conl.13071`

Munsterman, K.S., Hesselbarth, M.H.K., Allgeier, J.E. (2024). *Smaller and bolder fish enhance ecosystem-scale primary production around artificial reefs in seagrass beds.* Ecological Applications. e3055. `https://doi.org/10.1 002/eap.3055`

Nowosad, J., Hesselbarth, M.H.K. (2024). *The landscapemetrics and motif packages for measuring landscape patterns and processes.* arxiv, stat.ME. `https://doi.org/10.48550/arxiv.2405.06559`

Hesselbarth, M.H.K., Wiegand, K. (2024). *A simulation study comparing common methods for analyzing species-habitat associations of plants.* Journal of Vegetation Science 35, e13243. `https://doi.org/10.1111/jvs.13243`

Shayka, B.F., Hesselbarth, M.H.K., Schill, S.R., Currie, W.S., Allgeier, J.E. (2023). *The natural capital of seagrass beds in the Caribbean: evaluating their ecosystem services and blue carbon trade potential.* Biology Letters 19:20230075. `https://doi.org/10.1098/rsbl.2023.0075`

Rubio-Camacho, E.A., Hesselbarth, M.H.K., Flores-Garnica, J.-G., Acosta-Mireles, M. (2023). *Tree mortality in mature temperate forests of central Mexico: A spatial approach.* European Journal of Forest Research 142, 565–577. `https://doi.org/10.1007/s10342-023-01542-3`

Simpkins, C.E., Hanss, S., Spangenberg, M.C., Salecker, J., Hesselbarth, M.H.K., Wiegand, K. (2022). *spectre: An R package to estimate spatially-explicit community composition using sparse data.* Ecography 2022 (12), e06272 `https://doi.org/10.1111/ecog.06272`

Esquivel, K.E. †, Hesselbarth, M.H.K. †, Allgeier, J.E. (2022). *Mechanistic support for increased primary production around artificial reefs.* Ecological Applications 32 (6), e2617. `https://doi.org/10.1002/eap.2617`

Hesselbarth, M.H.K. (2021). *shar: An R package to analyze species-habitat associations using point pattern analysis.* Journal of Open Source Software 6 (68), 3811. `https://doi.org/10.21105/joss.03811`

Hesselbarth, M.H.K., Nowosad, J., Signer, J., Graham, L.J. (2021). *Open-source tools in R for landscape ecology.* Current Landscape Ecology Reports 6 (3), 97-111. `https://doi.org/10.1007/s40823-021-00067-y`

Borthwick, R. †, de Flamingh, A. †, Hesselbarth, M.H.K. †, Parandhaman, A. †, Wagner, H.H., Abdel Moniem, H.E.M. (2020). *Alternative Quantifications of Landscape Complementation to Model Gene Flow in Banded Longhorn Beetles [Typocerus v. velutinus (Olivier)].* Frontiers in Genetics 11, 307. `https://doi.org/10.3389/fgene.2020.00307`

Hesselbarth, M.H.K. (2020). *Analysing and modelling spatial patterns to infer the influence of environmental heterogeneity using point pattern analysis, individual-based simulation modelling and landscape metrics* (Dissertation). University of Goettingen, Goettingen, Germany. `http://dx.doi.org/10.53846/goediss-7959`

Hesselbarth, M.H.K., Sciaini, M., With, K.A., Wiegand, K., Nowosad, J. (2019). *landscapemetrics: An open-source R tool to calculate landscape metrics.* Ecography 42 (10), 1648-1657. `https://doi.org/10.1111/ecog.04617`

Hesselbarth, M.H.K., Wiegand, K., Dreber, N., Kellner, K., Esser, D., Tsvuura, Z. (2018). *Density-dependent spatial patterning of woody plants differs between a semi-arid and a mesic savanna in South Africa.* Journal of Arid

Environments 157, 103-112. `https://doi.org/10.1016/j.jaridenv.2018.06.002`

Presentations

Hesselbarth, M.H.K., Jung, M., Visconti, P. (2024). *Forest biodiversity under changing climate and forest structure.* 2nd ForestNavigator Stakeholder Workshop. Brussels (Belgium).

Hesselbarth, M.H.K., Jung, M., Visconti, P. (2023). *Evaluating the impact of European forest management on forest-related species using iSDMs.* 52nd Annual Meeting of the Ecological Society of Germany, Austria and Switzerland. Leipzig (Germany).

Hesselbarth, M.H.K., Jung, M., Visconti, P. (2023). *Biodiversity indicators and species distribution modeling.* 1st ForestNavigator Stakeholder Workshop. Laxenburg (Austria).

Hesselbarth, M.H.K., Munsterman, K.S. (2022). *Advanced R Workshop.* Ecology and Evolutionary Biology Department, University of Michigan. Ann Arbor (USA). Workshop.

Hesselbarth, M.H.K. (2022). *Artificial reefs to promote primary production in tropical seagrass ecosystems: A simulation study using individual-based modelling.* Ecology and Evolutionary Biology Department Seminar, University of Michigan. Ann Arbor (USA). Talk.

Hesselbarth, M.H.K. (2022). *Introduction to R Workshop.* Ecology and Evolutionary Biology Department, University of Michigan. Ann Arbor (USA). Workshop.

Hesselbarth, M.H.K. (2021). *Spatial patterns in ecology and what we (hopefully) can learn from them.* Ecology and Evolutionary Biology Department Seminar, University of Michigan. Ann Arbor (USA). Talk.

Nowosad, J., Hesselbarth, M.H.K. (2020). *Introduction to landscape ecology with R.* Annual Meeting International Association of Landscape Ecology North America. Toronto (Canada). Workshop.

Hesselbarth, M.H.K., Sciaini, M., Nowosad, J., Hanss, S. (2019). *landscapemetrics: Introducing a new R tool to characterize landscapes.* 10th World Congress International Association of Landscape Ecology. Milano (Italy). Conference poster.

Hesselbarth, M.H.K., Wiegand K. (2018). *A simulation study comparing methods to analyze species-habitat associations of forest trees.* 48th Annual Meeting of the Ecological Society of Germany, Austria and Switzerland. Vienna (Austria). Conference poster.

Software

`landscapemetrics` Landscape Metrics for Categorical Map Patterns.

`shar` Species-Habitat Associations in R.

`onpoint` Helper Functions related to Point Pattern Analysis.

`arrR` Simulating Artificial Reefs in R.

Peer reviewer scientific journals

Ecological Indicators; Global Ecology and Biogeography; Journal of Animal Ecology; Journal of Open Source Software; Journal of Tropical Ecology; Journal of Vegetation Science; Landscape Ecology; Methods in Ecology and Evolution; PeerJ; Perspective in Plant Ecology, Evolution and Systematics; Plant and Soil; Plant Ecology; PLOS One; Restoration Ecology; Scientific Reports; Web Ecology

Skills

Languages: German (native), English (fluent)

R: ●●●●●	C++: ●●●○○	NetLogo: ●●○○○	HTML, CSS: ●○○○○
SQL/SQLite: ●○○○○	LaTeX: ●●●○○	git: ●●●○○	QGIS: ●●○○○