

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 - ongoing
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

† Authors contributed equally. All publications and presentations are available on my homepage.

Articles

- Hesselbarth, M.H.K. †, Allgeier, J.E. † (In press). *High fish biomass and low nutrient enrichment synergistically enhance stability in a seagrass meta-ecosystem*. Conservation Letters.
- Munsterman, K.S., Hesselbarth, M.H.K., Allgeier, J.E. (In press). *Smaller and bolder fish enhance ecosystem-scale primary production around artificial reefs in seagrass beds*. Ecological Applications.
- 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 Complementarity 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

arrR Simulating Artificial Reefs in R.

landscapemetrics Landscape Metrics for Categorical Map Patterns.

shar Species-Habitat Associations in R.

onpoint Helper Functions related to Point Pattern Analysis.

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: ●●○○○