

Maximilian H.K. Hesselbarth

POSTDOCTORAL FELLOW

Coastal Ecology and Conservation Lab, University of Michigan

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Professional Appointments

University of Michigan

POSTDOCTORAL FELLOW: COASTAL ECOLOGY AND CONSERVATION LAB

Ann Arbor, USA

2020 - ongoing

Education

University of Applied Sciences and Arts

BACHELOR OF SCIENCES: FORESTRY

Göttingen, Germany

2011 - 2014

University of Göttingen

MASTER OF SCIENCES: ECOSYSTEM ANALYSIS AND MODELLING

Göttingen, Germany

2014 - 2016

University of Göttingen

DR. RER. NAT: DEPARTMENT OF ECOSYSTEM MODELLING

Göttingen, Germany

2016 - 2020

Internships, Research visits

State Forestry Department Heuberg

INTERNSHIP: FOREST MANAGEMENT

Messstetten, Germany

2009/08/31 - 2009/09/11

State Forestry Department Heuberg

INTERNSHIP: FOREST MANAGEMENT

Messstetten, Germany

2010/08/02 - 2010/08/27

Wise Batten Inc.

INTERNSHIP: TIMBER MANAGEMENT

Estill, USA

2011/06/02 - 2011/08/01

SilvaTerra Ltd.

INTERNSHIP: FORESTRY CONSULTING AND RESEARCH

Lilongwe, Malawi

2013/11/04 - 2014/03/30

Northwest German Forestry Research Institute

INTERNSHIP: DEPARTMENT OF GROWTH MODELING

Göttingen, Germany

2015/09/01 - 2015/10/01

North-West University

RESEARCH VISIT: LAND DEGRADATION AND RESTORATION ECOLOGY

Potchefstroom, South Africa

2016/03/07 - 2016/08/01

University of KwaZulu-Nata

RESEARCH VISIT: SCHOOL OF LIFE SCIENCES

Pietermaritzburg, South Africa

2016/03/07 - 2016/08/01

Iowa State University

RESEARCH VISIT: DEPARTMENT OF ECOLOGY, EVOLUTION, AND ORGANISMAL BIOLOGY

Ames, USA

2017/10/18 - 2017/12/21

Conferences & Workshops

Fire protection and management

CYPRUS FORESTRY COLLEGE

Podromos, Cyprus

2013/09/07 - 2013/09/22

Advances in spatial analysis of multivariate ecological data

PR STATISTICS LTD.

Port Talbot, UK

2017/04/02 - 2017/04/07

Young Modellers in Ecology

CONFERENCE

Freiburg, Germany

2017/04/29 - 2017/05/05

Deep learning with Keras and TensorFlow

CODECENTRIC AG

Solingen, Germany

2018/01/18 - 2018/01/19

Spatial modelling inlabru

UNIVERSITY OF ST. ANDREWS

St. Andrews, UK

2018/03/26 - 2018/03/30

Publications

ARTICLES

Esquivel, K.E.[^], **Hesselbarth, M.H.K.**[^], Allgeier, J.E., 2022. *Mechanistic support for increased primary production around artificial reefs*. Ecological Applications 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, 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, 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., Sciaini, M., With, K.A., Wiegand, K., Nowosad, J., 2019. *landscapemetrics: An open-source R tool to calculate landscape metrics*. Ecography 42, 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>

[^] Authors contributed equally

POSTER / TALKS

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.

VARIOUS

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.

Software

landscapemetrics: *Landscape metrics for categorical map patterns*. (click for more information)

shar: *Species-Habitat Associations*. (click for more information)

onpoint: *Helper functions related to point pattern analysis*. (click for more information)

Peer reviewer for scientific journals:

Ecological Indicators; Global Ecology and Biogeography; Journal of Animal Ecology; Journal of Tropical Ecology; Journal of Vegetation Science; Methods in Ecology and Evolution; PeerJ; Perspective in Plant Ecology, Evolution and Systematics; Plant and Soil; Plant Ecology; Scientific Reports; Synthesis Centre for Biodiversity Sciences; Web Ecology