

# Maximilian H.K. Hesselbarth

POSTDOCTORAL FELLOW

Coastal Ecology and Conservation Lab, University of Michigan

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## 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

### University of Michigan

POSTDOCTORAL FELLOW: COASTAL ECOLOGY AND CONSERVATION LAB

*Ann Arbor, USA*

2020 - ongoing

## 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

### Annual Meeting of the Ecological Society of Germany, Austria and Switzerland

CONFERENCE

*Vienna, Austria*

2018/09/10 - 2018/09/14

## Publications

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### ARTICLES

Esquivel, K.E.<sup>^</sup>, **Hesselbarth, M.H.K.**<sup>^</sup>, 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>

<sup>^</sup> Authors contributed equally

### POSTER / TALKS

**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

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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:

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