Philipp **Cédric Scherer**

Birkenstraße 18, 10559 Berlin ☎ +49 176 708 789 84 @ cedricphilippscherer@gmail.com cedricscherer.netlify.com

I am a computational biologist in movement and disease ecology with more than 6 years of hypothesis-driven research experience and strong skills in data wrangling, statistical analysis and data visualization in R.

For my research I use both theoretical and empirical approaches such as process-based models and statistical analyses to investigate the consequence of movement and global change on pathogens, populations and communities.

Born on September 27th 1986 in Berlin, Germany | Married with 1 dependent daughter (5 months parental leave in 2017/18)

Experience & Education

Scientific Researcher
Investigating coexistence and evolution of dispersal strategies using spatially explicit mechanistic models
Project: DFG Research Training Group "BioMove"
since 04/2019
Leibniz Institute for Zoo & Wildlife Research, Berlin, Germany

Ph.D. in Ecology
Investigating pathogen-host dynamics using mechanistic movement models and spatiotemporal analyses of long-term outbreak data
Thesis: "Infection on the move: individual host movement shapes disease dynamics in structured landscapes."
Project: DFG Research Training Group "BioMove"
10/2015 – 03/2019
Leibniz Institute for Zoo & Wildlife Research, Berlin, Germany

Visiting Research Scholar
Genetic algorithm approaches in eco-epidemiological models
09/2017 – 11/2017
Getz Lab, University of California, Berkeley, USA

Research Assistant
Investigating effects of root herbivory on plant communities using simulation models
Project: DFG Priority Program "Infrastructure-Biodiversity-Exploratories"
09/2014 – 10/2015
University of Potsdam, Potsdam, Germany

M.Sc. in Ecology, Evolution & Nature Conservation
Main subjects: Theoretical Ecology, Animal Behaviour
Grade: 1.1 (excellent, corresponds to A)
Thesis: "Responses of bird functional types to climatic and land use changes in African savannas – an individual-based modelling approach."
10/2011 – 09/2014
University of Potsdam, Potsdam, Germany

Internship
Catching, sampling and collaring mammals and performing large-scale vegetation surveys
Project: "AgroScapeLabs"
03/2011 – 08/2011
Leibniz Centre for Agricultural Landscape Research, Muencheberg, Germany

B.Sc. in Life Sciences
Main subjects: Organismal Biology, Ecology, Evolution
Grade: 1.7 (good, corresponds to A-)
Thesis: "Analysis of three-dimensional acceleration data for behavioural studies on wild boars (*Sus scrofa* L.) and woolly pigs (*Sus scrofa domestica* L.)."
10/2008 – 09/2011
University of Potsdam, Potsdam, Germany

Further Education

Movement ecology:	Several international workshops, summer schools and conferences
Disease ecology:	Some international workshops and conferences
Model building:	Workshops and trainings on different modelling approaches (e.g. patch occupancy, matrix, agent-based and metapopulation models, ODEs)
Scientific skills:	Workshops on scientific communication, scientific writing and data visualization

Skills

Languages:	German (*native*), English (*fluent*), Latin (*Latinum*), Ancient Greek (*Graecum*)
Programing:	R, NetLogo, Python, C++, SQL/SQLite
Statistics:	R, SPSS, MS Excel
Visualisation:	R, ggplot2, Shiny, plotly, CartoDB, Leaflet, RAWGraphs
GIS:	QGIS, GRASS
Writing:	Markdown, MS Office, LaTeX

Teaching

R, `tidyverse` and `ggplot2` | Agent-based Modelling | Data Visualization | Scientific Research and Presentation | Embryology and Histology | Systematic Zoology

Achievements

- Speaker of the international Special Interest Group "Young Modellers in Ecology (YoMos)" (2015–2019)
- Best Poster Award at the Gordon Research Conference on Animal Movement (2017)
- Recipient of a 9 month Postdoc research stipend funded by the University of Potsdam, Germany

Conference Organisation

→ 1st international BioMove symposium with ~120 participants (September 2018)
→ Four workshops of the GfOe Special Interest Group "Young Modellers in Ecology" with international keynote speakers and 25–30 participants (2015–2019)
→ Thematic topic session on "Ecological Simulation Models" at the Joint Annual Meeting of BES, NecoV and GfOe in Ghent, Belgium (December 2017)

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List of Publications

Peer-Reviewed Manuscripts

- **C. Scherer**, V. Radchuk, C. Staubach, S. Müller, N. Blaum, H.-H. Thulke & S. Kramer-Schadt 2019: Seasonal host life-history processes fuel disease dynamics at different spatial scales. *Journal of Animal Ecology*. DOI: 10.1111/1365-2656.13070

- V. Radchuk, F. De Laender, J. Sarmento Cabral, I. Boulangeat, M. Crawford, F. Bohn, J. De Raedt, **C. Scherer**, J.-C. Svenning, K. Thonicke, F. Schurr, V. Grimm & S. KramerSchadt 2019: The dimensionality of stability depends on disturbance type. *Ecology Letters* **22**(4):647–684. DOI: 10.1111/ele.13226

- M. Sciaini, M. Fritsch, **C. Scherer** & C.E. Simpkins 2018: NLMR and `landscapetools`: An integrated environ-ment for simulating and modifying neutral landscape models in R. *Methods in Ecology and Evolution* **9**(11):2240–2248. DOI: 10.1111/2041-210X.13076

- **C. Scherer**, F. Jeltsch, V. Grimm & N. Blaum 2016: Merging trait based and individual-based modelling: An animal functional type approach to explore the responses of birds to climatic and land use changes in semi-arid African savannas. *Ecological Modelling* **326**:75-89. DOI: 10.1016/j.ecolmodel.2015.07.005

Manuscripts under Review

- **C. Scherer**, V. Radchuk, M. Franz, H.-H. Thulke, M. Lange, V. Grimm & S. Kramer-Schadt: Moving infections: Individual movement decisions drive disease persistence in spatially structured landscapes. Submitted to *Oikos*.

- U. Schlägel, V. Grimm, N. Blaum, P. Colangeli, M. Dammhahn, J. Eccard, S. Hausmann, A. Herde, H. Hofer, J. Joshi, S. Kramer-Schadt, M. Litwin, S. Lozada-Gobilard, M. Müller, T. Müller, R. Nathan, J. Petermann, K. Pirhofer-Walzl, V. Radchuk, M. Rillig, M. Roeleke, M. Schäfer, **C. Scherer**, G. Schiro, C. Scholz, L. Teckentrup, R. Tiedemann, W. Ullmann, C. Voigt, G. Weithoff & F. Jeltsch: Movement-mediated community assembly and coexistence. Submitted to *Biological Reviews*.

Software Releases

- M. Sciaini, C.E. Simpkins, M. Fritsch & **C. Scherer**: NLMR: Simulating neutral landscape models with R.
  R package version 0.4.2 – https://cran.r-project.org/web/packages/NLMR

Oral Presentations

- **C. Scherer**, V. Radchuk, M. Franz, C. Staubach, S. Müller, H.-H. thulke, N. Blaum, V. Grimm & S. Kramer-Schadt: Effects of movement behaviour on disease persistence: The case of classical swine fever in wild boar.
  09/2018 – *1st International BioMove Symposium – Potsdam, Germany*

- **C. Scherer**, V. Radchuk, H.-H. Thulke, V. Grimm & S. Kramer-Schadt: Infections on the move.
  05/2017 – *12th Workshop "Young Modellers in Ecology" – Buchenbach, Germany*

- **C. Scherer**, V. Radchuk, H.-H. Thulke, V. Grimm, F. Jeltsch & S. Kramer-Schadt: Individual movement decisions shape disease dynamics: Combining movement ecology and epidemiological models.
  09/2016 – *Annual Meeting of the Ecological Society of Germany, Austria & Switzerland – Marburg, Germany*

- **C. Scherer**, I. Sonnemann, S. Wurst & F. Jeltsch: How does vertical and horizontal migration of wireworms impact plant diversity? Modelling root herbivore pressure on grassland communities.
  05/2015 – *10th Workshop "Young Modellers in Ecology" – Lachen, Switzerland*

- **C. Scherer**, F. Jeltsch, V. Grimm & N. Blaum 2014: Can we use functional types to predict responses of birds to changes in African savannas? An individual-based modelling approach.
  09/2014 – *Annual Meeting of the Ecological Society of Germany, Austria & Switzerland – Hildesheim, Germany*

Poster Presentations

- **C. Scherer**, V. Radchuk, M. Franz, C. Staubach, S. Müller, H.-H. Thulke, N. Blaum, V. Grimm & S. Kramer-Schadt: Effects of movement behaviour on disease persistence.
  03/2019 – *Gordon Research Conference on Movement Ecology of Animals – Lucca, Italy*

- S. Kramer-Schadt, J. Signer, C. Scholz, **C. Scherer**, V. Radchuk, & U. Schlägel: The 4th dimension in animal move-ment: The effect of temporal resolution on the predictive power of movement models.
  03/2019 – *Gordon Research Conference on Movement Ecology of Animals – Lucca, Italy*

- C. Scholz, K. Börner, S. Kramer-Schadt, S. Ortmann, **C. Scherer** & W. Ullmann: Energy-management of red foxes in human-dominated landscapes – a movement network approach.
  03/2019 – *Gordon Research Seminar on Movement Ecology of Animals – Lucca, Italy*

- **C. Scherer**, V. Radchuk, H.-H. Thulke, V. Grimm, & S. Kramer-Schadt: Infection on the move: Combining movement ecology and epidemiological models.
  03/2017 – *Gordon Research Conference on Movement Ecology of Animals – Ventura, CA, USA*

- **C. Scherer**, V. Radchuk, H.-H. Thulke, V. Grimm & S. Kramer-Schadt: Individual movement decisions shape disease dynamics: Combining movement ecology and epidemiological models.
  05/2016 – *11th Workshop "Young Modellers in Ecology" – Neunzehnhain, Germany*

- **C. Scherer**, V. Radchuk, H.-H. Thulke, V. Grimm, & S. Kramer-Schadt: Combined effects of land-use and individual movement decisions shape disease dynamics.
  02/2016 – *CAnMove Animal Movement International Symposium – Lund, Sweden*

- **C. Scherer**, I. Sonnemann, S. Wurst & F. Jeltsch: Modelling the vertical and horizontal migration of wire-worms: how does timing and intensity of root herbivore pressure impact grassland communities?
  09/2015 – *Annual Meeting of the Ecological Society of Germany, Austria & Switzerland – Goettingen, Germany*

- J.-P. Wevers, **C. Scherer**, A. Berger, N. Blaum, C. Fischer, F. Jeltsch & B. Schröder: Identifying movement behaviour from 3–dimensional acceleration data for European brown hares (*Lepus europaeus*) and wild boars (*Sus scrofa*).
  09/2011 – *8th International Conference on Behaviour, Physiology and Genetics of Wildlife– Berlin, Germany*