

Jacob M. Graving

Max Planck Institute for Ornithology
University of Konstanz
Department of Collective Behaviour
Universitätsstr. 10
Konstanz, Germany 78464

✉ jgraving@gmail.com
☎ +49 176 20710858
🌐 collectivebehaviour.com/graving
🐦 twitter.com/jgraving
🔗 github.com/jgraving

Education

- Present **Department of Collective Behaviour, Max Planck Institute for Ornithology**
 Department of Biology, University of Konstanz
 International Max Planck Research School for Organismal Biology
 Ph.D., Biology
 Focus: Collective Behavior
- 2015 **Bowling Green State University**
 M.S., Biology
 Focus: Ethology, Neuroscience
- 2013 **Bowling Green State University**
 B.S., Biology
 Focus: Ethology, Neuroscience

Publications

- In Review Alarcón-Nieto, G.*, **Graving, J.M.***, Klarevas-Irby, J.A.*, Maldonado-Chaparro, A.A., Mueller, I., and Farine, D.R. An automated barcode tracking system for behavioural studies in birds. *Methods in Ecology and Evolution*. bioRxiv preprint: <https://doi.org/10.1101/201590> *contributed equally
- 2017 **Graving, J.M.**, Bingman, V.P., Hebets, E.A., and Wiegmann, D.D. (2017). Development of site fidelity in the nocturnal amblypygid *Phrynos marginemaculatus*. *Journal of Comparative Physiology A*, 203(5), 313-328.
- Bingman, V.P., **Graving, J.M.**, Hebets, E.A., and Wiegmann, D.D. (2017). Importance of the antenniform legs, but not vision, for homing by the neotropical whip spider *Paraphrynos laevifrons*. *Journal of Experimental Biology*, 220(5), 885-890.
- Press: Discover Magazine, National Geographic
- 2016 Wiegmann, D.D., Hebets, E.A., Gronenberg, W., **Graving, J.M.**, and Bingman, V.P. (2016). Amblypygids: model organisms for the study of arthropod navigation mechanisms in complex environments. *Frontiers in Behavioral Neuroscience*, 10, 47.

Research

- 2015– **Department of Collective Behaviour, Max Planck Institute for Ornithology**
 Department of Biology, University of Konstanz
 Iain D. Couzin
 “Perception and Motion in Animal Groups”
 Currently using locust swarms to study how sensory information networks and internal state drive the collective dynamics of migrating animal groups.
- 2011–2015 **Department of Biological Sciences, Bowling Green State University**
 Daniel D. Wiegmann, Verner P. Bingman
 “Navigation and Sensory Discrimination in Amblypygids”
 Studied how amblypygids, a taxonomic order of nocturnal arachnids, navigate home in the dark.

- 2013 **Department of Biological Sciences, Bowling Green State University**
Sheryl L. Coombs
“The Sensory Basis of Rheotaxis in Fish”
Studied how fish use multimodal sensory information to orient to flow.
- 2009 **SETGO Summer Research Scholar, Bowling Green State University**
Matthew L. Partin
“Phenotypic Plasticity in Photosynthetic Stony Corals”
Studied how genetically identical coral propagules adapt their morphology and physiology to changing environments.

Teaching

- 2016– **Department of Collective Behaviour, University of Konstanz**
Lecturer and Project Advisor, Intensive Research Course for Master’s Students
– Collective Behavior of Locust Swarms
– Measuring Animal Behavior with Computer Vision
– Sensing, Perception, and Movement
- 2013–2015 **Department of Biological Sciences, Bowling Green State University**
Graduate Assistant
– Advanced Biostatistics (for Graduate Students)
– Introduction to Biostatistics
– Population and Community Ecology
– Introductory Biology for Non-Science Majors
– Guest Lecture on “Arthropod Navigation”, Animal Behavior
- 2009–2012 **Department of Biological Sciences, Bowling Green State University**
Student Coordinator and Teaching Assistant, Marine Biology Laboratory
– Introduction to Inland Marine Research
– Aquarium Husbandry
– Reef Aquarium Husbandry I and II
- 2009 **Department of Environmental Science, Bowling Green State University**
Student Teaching Assistant, Introduction to Environmental Science

Funding

- 2013–2015 **Graduate Research Fellowship**
100% Tuition Waiver and \$45,000 Stipend
Bowling Green State University
- 2013 **Undergraduate Research Fellowship**
\$5000 Stipend, \$800 Research Funds
Center for Undergraduate Research and Scholarship, Bowling Green State University
- 2009–2011 **T. Richard Fisher Biology Scholarship**
\$8000/year Tuition Scholarship
Department of Biological Sciences, Bowling Green State University
- 2009 **Summer Research Fellowship**
\$5000 Stipend, \$1000 Research Funds
Science, Engineering, Technology Gateway Ohio (SETGO), National Science Foundation
- 2009–2013 **Award of Scholars**

Merit-based 75% Tuition Scholarship
College of Arts and Sciences, Bowling Green State University

Outreach

2017	Konstanzer Lange Nacht Der Wissenschaft “Long Night of Science” Public Outreach Event Volunteer Konstanz, Germany
2016	Das Schwarmverhalten der Fische Public Seminar by Prof. Jens Krause Volunteer and Co-organizer Konstanz, Germany
2013–2014	Kid’s Tech University, Bowling Green State University Public Outreach Event for Schoolchildren Grades K–8 Volunteer and Organizer Bowling Green, Ohio, USA
2008–2010	The Toledo Zoo Aquarium Volunteer and Intern Toledo, Ohio, USA

Advisees

Graduate	Ingabritta Hormann, M.S. Biology, University of Konstanz
Undergraduate	Connie Santangelo, B.S. Biology, Bowling Green State University Lindsey Cunningham, B.S. Biology, Bowling Green State University Tracy Togba, B.S. Biology, Bowling Green State University

Skills

Computational

<i>Languages:</i>	Python, R, L ^A T _E X, MATLAB, Java, C++
<i>Applications:</i>	machine learning, computer vision and image processing, statistical analysis and data visualization
<i>Libraries:</i>	tensorflow, pytorch, keras, scikit-learn, OpenCV

Biological

<i>Physiology:</i>	electrophysiology, histology, ophthalmoscopy, fish lateral line disruption and visualization
<i>Microscopy:</i>	scanning and transmission electron microscopy, confocal, fluorescence, and general light microscopy
<i>Field:</i>	radio telemetry, photographic polarimetry

References

Iain D. Couzin
Director, Max Planck Institute for Ornithology
Professor, University of Konstanz
Department of Collective Behaviour
icouzin@orn.mpg.de
+49 7531 88-4928

Daniel D. Wiegmann
Associate Professor
Bowling Green State University
Department of Biological Sciences
ddwiegm@bgsu.edu
+1 (419) 372 2691

Verner P. Bingman
Distinguished Research Professor
Bowling Green State University
Department of Psychology
vbingma@bgsu.edu
+1 (419) 372 6984

Sheryl L. Coombs
Professor Emeritus
Bowling Green State University
Department of Biological Sciences
scoombs@bgsu.edu
+1 (419) 372 1206