July **Pilowsky**

DISEASE ECOLOGIST · ECOLOGICAL MODELER · OPEN SCIENCE SOFTWARE DEVELOPER

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Employment

Cary Institute of Ecosystem Studies *Millbrook, NY, USA*

POSTDOCTORAL SCIENTIST *2023 - Present*

- Research on the ecology of infectious disease at the human-wildlife interface.
- Development of epizootic R package for process-explicit spatial models of disease.

Education

University of Copenhagen & University of Adelaide *Copenhagen, DK; Adelaide, AU*

DOCTOR OF PHILOSOPHY (BIOLOGY) *2019 – 2024*

- Thesis title: Revealing ecological processes of range dynamics through space and time
- Supervisors: Dr. Damien FORDHAM and Dr. Carsten RAHBEK

Tufts University *Medford, MA, USA*

MASTER OF SCIENCE (BIOLOGY) *2013 – 2017*

- Thesis title: The behavioral ecology of a wasp invasion
- Supervisor: Dr. Philip STARKS

Columbia University *New York, NY, USA*

BACHELOR OF ARTS (ECOLOGY, EVOLUTION & ENVIRONMENTAL BIOLOGY) *2008 – 2012*

Open Science R Packages

epizootic *Github*

MAIN DEVELOPER & MAINTAINER *2024*

paleopop *Github*

DEVELOPER & MAINTAINER *2021*

poems *Github*

MAINTAINER *2021*

colorednoise *Github*

MAIN DEVELOPER & MAINTAINER *2017*

Publications

First-author publications:

8 COINFECTION INTERACTIONS SYSTEMATICALLY INFLUENCE PARASITE DIVERSITY ESTIMATES IN SIMULATED HOST POPULATIONS *in prep.*

J.A. Pilowsky, G.F. Albery, A.R. Sweeney, B. Han *ecoevoRxiv*

7 MILLENNIAL PROCESSES OF POPULATION DECLINE, RANGE CONTRACTION AND NEAR EXTINCTION OF THE EUROPEAN BISON *2023*

J. A. Pilowsky, S. C. Brown, B. Llamas, A. L. van Loenen, R. Kowalczyk, E. Hofman-Kamińska, N. H. Manaseryan, V. Rusu, M. Križnar, C. Rahbek, and D.A. Fordham *Proceedings of the Royal Society B*

6 SIMULATIONS OF HUMAN MIGRATION INTO NORTH AMERICA ARE MORE SENSITIVE TO DEMOGRAPHY THAN CHOICE OF PALAEOCLIMATE MODEL *2022*

J. A. Pilowsky, A. Manica, S. Brown, C. Rahbek, and D. A. Fordham *Ecological Modelling*

5 RANGE AND EXTINCTION DYNAMICS OF THE STEPPE BISON IN SIBERIA: A PATTERN-ORIENTED MODELLING APPROACH *2022*

J. A. Pilowsky, S. Haythorne, S. C. Brown, M. Krapp, E. Armstrong, B. W. Brook, C. Rahbek, and D. A. Fordham *Global Ecology & Biogeography*

4	PROCESS-EXPLICIT MODELS REVEAL THE STRUCTURE AND DYNAMICS OF BIODIVERSITY PATTERNS	*2022*
	J. A. Pilowsky, R. K. Colwell, C. Rahbek, and D. A. Fordham	*Science Advances*
3	INCORPORATING THE TEMPORAL AUTOCORRELATION OF DEMOGRAPHIC RATES INTO STRUCTURED POPULATION MODELS	*2019*
	J. A. Pilowsky and J. P. Dahlgren	*Oikos*
2	DISPLACEMENT AND REPLACEMENT IN REAL TIME: POLISTES DOMINULA'S IMPACT ON P. FUSCATUS IN THE NORTHEASTERN U.S.	*2018*
	J. A. Pilowsky and P. T. Starks	*Biological Invasions*
1	SOCIAL CONTEXT AND THE LACK OF SEXUAL DIMORPHISM IN SONG IN AN AVIAN COOPERATIVE BREEDER	*2013*
	J. A. Pilowsky and D.R. Rubenstein	*Animal Behaviour*

N-author publications:

4	PROCESS-EXPLICIT MODELS REVEAL PATHWAY TO EXTINCTION FOR WOOLLY MAMMOTH USING PATTERN-ORIENTED VALIDATION	*2022*
	D. A. Fordham, S. C. Brown, H. R. Akçakaya, B. W. Brook, S. Haythorne, A.Manica, K. T. Shoemaker, J. J. Austin, B. Blonder, J. A. Pilowsky, C. Rahbek, and D. Nogues-Bravo..	*Ecology Letters*
3	USING PALEO-ARCHIVES TO SAFEGUARD BIODIVERSITY UNDER CLIMATE CHANGE	*2020*
	D. A. Fordham, S. T. Jackson, S. C. Brown, B. Huntley, B. W. Brook, D. Dahl-Jensen, M. T. P. Gilbert, B. L. Otto-Bliesner, A. Svensson, S. Theodoridis, J. M. Wilmshurst, J. C. Buettel, E. Canteri, M. McDowell, L. Orlando, J. A. Pilowsky, C. Rahbek, and D. Nogues-Bravo	*Science*
2	SONG IN A SOCIAL AND SEXUAL CONTEXT: VOCALIZATIONS SIGNAL IDENTITY AND RANK IN BOTH SEXES OF A COOPERATIVE BREEDER	*2016*
	S. Keen, C. D. Meliza, J. Pilowsky, and D. R. Rubenstein	*Frontiers in Ecology & Evolution*
1	A TEST OF THE HAPLOID SUSCEPTIBILITY HYPOTHESIS USING A SPECIES WITH NATURALLY OCCURRING VARIATION IN PLOIDY	*2021*
	N. Wilson-Rich, J. A. Pilowsky, B. Foo, T. Tien, F. Hester, and P. T. Starks	*Insectes sociaux*

Leadership & Community Service

rOpenSci	*rOpenSci*
PACKAGE REVIEWER	*2025-*
Society for Open, Reliable, and Transparent Ecology & Evolutionary Biology (SORTEE)	*SORTEE*
WEBSITE LEAD & MEMBER	*2025-*

Presentations

2024	**Ecological Society of America**, "Biases in parasite richness estimates arising from coinfection dynamics"	*Long Beach, CA, USA*
	Ecology and Evolution of Infectious Disease, "epizootic: an R package for process-explicit spatial population models of wildlife disease"	*Palo Alto, CA, USA*
2021	**Ecological Society of Australia**, "Simulating species range dynamics over long time scales"	*Virtual Conference*
2017	**Ecological Society of America**, "The ecology of cooperation in Polistes wasps"	*Portland, OR, USA*

Lectures & Teaching

2024	**Process-Explicit Models in Disease Ecology**, Guest lecture at Skidmore College	*Saratoga Springs, NY, USA*
	Process-Explicit Models in Ecology, Guest Lecture at Fundamentals of Ecology and Evolution course	*Millbrook, NY, USA*
2021	**Revenge of the Bison!**, Presentation at Ingenuity Convention	*Adelaide, AU*
2016	**Evolution of Sex**, Study Group Leader at Osher Institute	*Medford, MA, USA*
2015	**Evolution of Altruism**, Study Group Leader at Osher Institute	*Medford, MA, USA*
2015	**Ecological Modeling**, Graduate Instructor at Tufts University	*Medford, MA, USA*

Honors & Awards

2023	**Dean's Commendation for Dissertation Excellence**, University of Adelaide	*Adelaide, AU*
2021	**Ingenuity Communications Award, Runner-Up**, University of Adelaide	*Adelaide, AU*
2014	**Graduate Research Competition Winner**, Tufts University	*Medford, MA, USA*
2013	**Graduate Research Fellowship**, National Science Foundation	*Medford, MA, USA*

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WEBSITE LEAD & MEMBER   *2025-*

Research Internships

European Doctoral School of Demography Fellow   *Odense, DK*
SUPERVISOR: DR. JOHAN DAHLGREN   *2017 – 2018*

- Developed colorednoise R package
- Coursework in demographic modeling

Data collection and visualization of coffee crop yields   *Tufts University, Medford, MA, USA*
SUPERVISOR: DR. AVERY COHN   *2016*

- Gathered and harmonized decades of coffee crop yield data from all coffee-producing countries
- Designed visualizations of coffee yield in space and time

Florida Scrub Jay LTER at Archbold Biological Station   *Venus, FL, USA*
SUPERVISOR: DR. REED BOWMAN   *2012*

- Fieldwork monitoring scrub jay survival and reproduction
- Spatial modeling of kin structure in intact and disturbed habitat

Skills

Programming	R, C++, Python, Julia, Bash, LaTeX
Web	HTML5, CSS3, JS (Node/D3), Hugo
Management	Git, Docker
Graphics	Illustrator, Photoshop, InDesign
Languages	English (fluent), Spanish (fluent), French (proficient), Danish (conversational)