

BIOGRAPHICAL SKETCH

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NAME: Hauber, Mark E.

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POSITION TITLE: Harley Van Cleave Professor of Host-Parasite Interactions, Department of Animal Biology, School of Integrative Biology, University of Illinois, Urbana-Champaign.

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Yale University, New Haven, United States	B.S.	05/1996	Biology and Organismal Biology
Cornell University, Ithaca, United States	Ph.D.	05/2002	Neurobiology and Behavior
University of California, Berkeley, United States	Postdoctoral	12/2004	Integrative Biology and Psychology
University of Auckland, New Zealand	D.Sc.	09/2010	Biological Sciences
Victoria University of Wellington, New Zealand	M.Sc.	05/2011	Psychology

A. Personal Statement

Research in the Hauber lab focuses on the evolution of recognition systems. Shifting gears between behavioral, developmental, physiological, and molecular tools, we are studying the social and genetic consequences of species recognition in avian brood parasites, such as cuckoos, cowbirds, and whydahs, and their hosts. Obligate brood parasitism in birds provides an exciting model system for the evolution of social behaviors because, unlike 99% of bird species, they lay their eggs into nests of other species and are reared by foster parents. We aim to understand how species recognition develops in parasitic young without reliable exposure to conspecific referents. Several other projects in the lab tap into national and international collaborations throughout the world of birds, including the unique and often endangered sea- and shorebird fauna of New Zealand, as well as mammals, spiders, and other organisms from around the globe. The outputs of these combined research efforts have been documented in over 250 peer reviewed articles, 1 book, and many commentaries, and the funding for this work has come from international and national competitive granting agencies, including the Marsden Fund (New Zealand), National Science Foundation (USA), and the Human Frontier Science Program.

B. Positions and Honors**Academic Positions**

2002 – 2005	Miller Research Fellow, University of California, Berkeley, USA
2003 – 2009	Lecturer, Senior Lecturer, and Associate Professor, School of Biological Sciences, University of Auckland, New Zealand
2009 – 2017	Associate Professor and Professor (with tenure), Department of Psychology, Hunter College and the Graduate Center, City University of New York, USA
2017 – Present	Harley Van Cleave Professor of Host-Parasite Interactions (with tenure), Department of Animal Biology, University of Illinois, Urbana-Champaign, USA

Honors

1995	Phi Beta Kappa, Alpha Chapter of Connecticut
1997 – 2002	Howard Hughes Medical Institute Predoctoral Fellowship in Neuroscience
2002 – 2005	Research Fellowship, Adolph C. and Mary Sprague Miller Institute for Basic Research in Science, University of California, Berkeley
2003	Elective Member, American Ornithologists' Union
2010	Invited Participant, German-American Frontiers of Science Meeting, National Academy of Sciences USA and Humboldt Foundation, Potsdam, Germany
2010 – 2011	Faculty Fellow, Brookdale Center for Healthy Aging and Longevity, Hunter College
2010 – 2013	President, Sigma Xi, The Scientific Honor Society, Hunter Chapter
2011 – Present	Council Member and Publications Committee Member, Wilson Ornithological Society
2011 – Present	Chair, ISBE 2014: XV Conference of the International Society for Behavioral Ecology
2013	Organizer, Ethology Investigates: Invasive Species; online conference
2013	Fellow, American Ornithologists' Union
2017	Storer Lecturer: Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor
2017, 2018	Named to "List of Teachers Ranked as Excellent By Their Students", University of Illinois at Urbana-Champaign
2018	Ruth I. Walker Distinguished Speaker, Department of Biological Sciences, University of Wisconsin, Milwaukee
2018	Theodosia Hadley Lecturer: Department of Biology, Western Michigan University

Other Relevant Experience

2005 – 2010	Editor, <i>Behavioral Ecology</i> , Oxford University Press
2009 – 2011	Associate Editor, <i>Marine Biology</i> , Springer Press
2009 – 2011	Associate Editor, <i>Behavioral Ecology and Sociobiology</i> , Springer Press
2010 – Present	Editor and Perspectives & Current Debates Editor, <i>Ethology</i> , Wiley Press
2013 – 2018	Editor-in-chief, <i>The Auk: Ornithological Advances</i> ; American Ornithologists' Society

C. Contributions to Science. Total number of peer-reviewed articles published: 250+; PubMed list available at: <https://www.ncbi.nlm.nih.gov/sites/myncbi/1-Qni2Dxcizc2X/bibliography/56562074/public/?sort=date&direction=ascending>

- 1. A password based species-recognition system:** my research focuses on brood parasitic birds, that lay their eggs in other birds nests and whose young develop without any conspecific referents. How do these individuals then learn about species-recognition cues for accurate social and mate bonds? We have identified the behavioral and neurobiological basis of one such recognition mechanism as the password (lock-and-key) process whereby an initial recognition cues sets off the sensitive period in young individuals to begin to learn about salient features of conspecific partners. Key references:

Lynch K, Gaglio A, Tyler E, Coculo J, Louder MM, **Hauber ME** (2017) A neural basis for password-based species recognition in an avian brood parasite. *Journal of Experimental Biology* 220: 2345-2353.

Colombelli-Negrel D, **Hauber ME**, Kleindorfer SM (2014) Prenatal learning in an Australian songbird: habituation and individual discrimination in superb fairy-wren embryos. *Proceedings of the Royal Society of London B* 281: 20141154.

Colombelli-Negrel D, **Hauber ME**, Robertson J, Sulloway FJ, Hoi H, Griggio M, Evans C, Kleindorfer S (2012) Embryonic learning of vocal passwords in superb fairy-wrens reveals intruder cuckoo nestlings. *Current Biology* 22: 2155-2160

Hauber ME, Sherman PW (2001) Self-referent phenotype matching: theoretical possibilities and empirical tests. *Trends in Neurosciences* 24: 609-616.

Hauber ME, Russo SA, Sherman PW (2001) A password for species recognition in a brood parasitic bird. *Proceedings of the Royal Society of London B* 268: 1041-1048.

2. **The role of early experience in shaping seemingly innate recognition mechanisms:** we have demonstrated that seemingly innate (experience independent) recognition cues can be acquired during the embryonic stage of avian development *in ovo*. We have demonstrated, for instance, that parent birds can teach embryos to mimic specific sounds and that there is a neurocognitive impact in the subsequent sensory motor development of the resulting young. Key references:

Louder MIM, **Hauber ME**, Balakrishnan C (2018) Early social experience alters transcriptomic responses to species-specific song stimuli in female songbirds. *Behavioural Brain Research* 347: 69-76.

Lynch KS, Louder MIM, **Hauber ME** (2018) Species-specific auditory forebrain responses to non-learned vocalizations in juvenile blackbirds. *Brain, Behavior, and Evolution* 91: 193-200.

Kleindorfer SM, Hoi H, Evans C, Mahr K, Robertson J, **Hauber ME**, Colombelli-Negrel D (2014) The cost of teaching embryos in superb fairy-wrens. *Behavioral Ecology* 25: 1131-1135.

Hauber ME, Woolley SMN, Cassey P, Theunissen FE (2013) Experience dependence of neural responses to different classes of male songs in the primary auditory forebrain of female songbirds. *Behavioural Brain Research* 243: 184-190.

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

Hauber ME (PI): Behavioral and genomic aspects of the Common Myna as a successful invasive species. United States - Israel Binational Science Foundation (BSF). 2018-2022. Hauber collaborates, designs, directs, conducts, and analyzes the cognitive and neurogenomic architecture of invasion success in birds, comparing introduced and native ranges of exotic species.

Hauber ME (PI): Mechanisms of Behavioral Innovation in Brood Parasitic Birds. National Science Foundation USA (NSF). 2017-2019. Hauber collaborates, designs, directs, conducts, and analyzes the neurobiological basis of species recognition by brood parasitic birds, using fMRI, neurogenomic, and behavioral assays.

Completed Research Support

Hauber ME (PI) Human Frontier Science Program, Young Investigators' Award: 2012-2016. The chemical basis of perceptual mimicry: Hauber collaborates, designs, conducts, and analyzes chemical and evolutionary analysis of eggshell pigmentation in brood parasitic birds and their hosts.