

# Aaron J. Corcoran

## CURRICULUM VITAE

**Phone:** 336-251-2638

**Email:** corcoraj@wfu.edu

**Webpage:** www.sonarjamming.com

Department of Biology  
Wake Forest University  
1834 Wake Forest Road  
Winston Salem, NC, 27106

## CURRENT POSITIONS

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*NSF Post-Doctoral Fellow and Research Assistant Professor*  
Department of Biology, Wake Forest University

*Lecturer of Physiology*  
Department of Biology, Humboldt State University

## EDUCATION

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- 2013                    **Wake Forest University**  
PhD, Biology  
Dissertation: *Sonar jamming in the bat-moth arms race*  
Major Advisor: Dr. William Conner
- 2007                    **Humboldt State University**  
MA, Biology  
Thesis: *Automated acoustic identification of nine bat species of the Eastern United States*  
Major Advisor: Dr. Joseph Szewczak
- 2003                    **Purdue University**  
BS, Wildlife (Honors), minor in Computer Science  
Thesis: *Habitat fragmentation and mammal distributions in Indiana*  
Major Advisor: Dr. Robert Swihart

## RESEARCH EXPERIENCE

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- 2013-14                *NIH Post-Doctoral Fellow*, Center for Comparative and Evolutionary  
Biology of Hearing, University of Maryland, College Park
- 2008-13                *NSF Graduate Fellow*, Dept. of Biology, Wake Forest University
- 2008                    *Field Research Coordinator and Research Analyst*, Dept. of Biology,  
Humboldt State University
- 2004-07                *SERDP Graduate Fellow*, Dept. of Biology, Humboldt State University

## PUBLICATIONS IN REVIEW

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1. **Corcoran, A. J.**, and W. E. Conner (2016) Predator counter-adaptations: The bat *Corynorhinus townsendii* uses stealth echolocation to overcome insect evasive-maneuvering and sonar-jamming defenses. *Journal of Experimental Biology*. In review.

## PUBLICATIONS

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(\* Undergraduate collaborator)

1. **Corcoran, A. J.**, and W. E. Conner (2016) How moths escape bats: Predicting outcomes of predator-prey interactions. *Journal of Experimental Biology*. 219, 2704-2715.
2. **Corcoran, A. J.**, and H. A. Woods (2015) Negligible energetic cost of sonar jamming in a bat-moth interaction. *Canadian Journal of Zoology*. 93, 331-335.
3. **Corcoran, A. J.**, and W. E. Conner (2014) Bats jamming bats: Food competition through sonar interference. *Science* 346: 745-747
  - Highlighted by *New York Times*, *BBC World Service*, *National Geographic Magazine*
  - Selected for Faculty of 1000
4. **Corcoran, A. J.**, and N. I. Hristov (2014) Convergent evolution of anti-bat sounds. *Journal of Comparative Physiology A* 200: 811-821
5. **Corcoran, A. J.**, R. D. Wagner\*, and W. E. Conner (2013). Optimal predator risk assessment by the sonar-jamming arctiine moth *Bertholdia trigona*. *PLoS ONE* 8: e63609
  - Highlighted by *Smithsonian Magazine*
6. **Corcoran, A. J.**, and W. E. Conner (2012). Sonar-jamming in the field: effectiveness and behavior of a unique prey defense. *Journal of Experimental Biology* 215: 4278-4287
  - Highlighted by *Inside JEB*
7. Conner, W. E., and **A. J. Corcoran** (2012). Sound Strategies: the 65-million-year-old battle between bats and insects *Annual Review of Entomology* 57: 21-39
8. **Corcoran, A.J.**, J.R. Barber, N.I. Hristov, and W.E. Conner (2011). How do tiger moths jam bat sonar? *Journal of Experimental Biology* 214: 2416-2425
9. **Corcoran, A.J.**, Conner, W.E., and J.R. Barber (2010). Anti-bat tiger moth sounds: Form and function. *Current Zoology* 56: 343-357
10. **Corcoran, A.J.**, Barber, J.R., and W.E. Conner (2009). Tiger moth jams bat sonar. *Science* 325: 325-327
  - Highlighted by *New York Times*, *NPR*, *Scientific American*, *National Geographic*
  - Selected for Faculty of 1000

## TEACHING EXPERIENCE

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### *Lecturer*

2016	Animal Physiology, Lecture and Lab, Humboldt State University
2015	Human Physiology, Lecture and Lab, Humboldt State University
2015	Mammalogy, Lab, Humboldt State University
2008	General Zoology, Lab, Humboldt State University

### *Teaching Assistantships*

2012	Animal Behavior, Wake Forest University
2012	Comparative Physiology, Wake Forest University
2011	Lepidoptera Field Course, Southwestern Research Station
2005-2007	General Zoology, Humboldt State University
2003	Wildlife Summer Practicum, Purdue University

### *Guest Lecturer*

2015	Freshman Seminar, Humboldt State University
2015	Animal Behavior, Humboldt State University
2010-2012	Animal Behavior, Wake Forest University
2012	Lepidoptera Field Course, Southwestern Research Station
2011	Entomology, Wake Forest University
2011	Sensory Biology, Wake Forest University

## INVITED SCHOLARLY PRESENTATIONS

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**Corcoran, A.J.** (2016). Brown University, Aeromechanics and Evolutionary Morphology Group

**Corcoran, A.J.** (2015). Claremont Colleges, Joint Sciences Department

**Corcoran, A.J.** (2013). Bat Conservation and Management Workshop, Bat Conservation International

**Corcoran, A.J.** (2013). Humboldt State University, Department of Biology

**Corcoran, A.J.** (2012). Clemson University, Department of Biology

**Corcoran, A.J.** (2012). Utah State University, Department of Biology

**Corcoran, A.J.** (2012). University of Maryland, Departments of Biology and Psychology

## CONFERENCE PRESENTATIONS

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- Corcoran, A.J.** and W.E. Conner (2016). How moths escape bats: Predicting outcomes of predator-prey interactions. Society for Integrative and Comparative Biology Annual Meeting. Portland, OR
- Corcoran, A.J.** and W.E. Conner (2015). How moths escape bats: Predicting outcomes of predator-prey interactions. North American Symposium for Bat Research. Monterey, CA
- Corcoran, A.J.** and W.E. Conner (2014). Bats (*Tadarida brasiliensis*) jam conspecifics in food competition. 167<sup>th</sup> meeting of the Acoustical Society of America, Providence, Rhode Island
- Corcoran, A.J.**, R. D. Wagner, and W.E. Conner (2013). Sonar jamming in the field. 16<sup>th</sup> International Bat Research Conference, San Juan, Costa Rica
- Corcoran, A.J.**, R. D. Wagner, and W.E. Conner (2013). Optimal predator risk assessment by the sonar-jamming arctiine moth *Bertholdia trigona*. Janelia Farms Conference – Dynamics of Prey Capture and Escape, Washington, D. C.
- Corcoran, A.J.** and W.E. Conner (2012). Sonar jamming in the field: Efficacy and behavior of a unique prey defense. Tenth International Congress of Neuroethology, College Park, MD
- Corcoran, A.J.**, J.R. Barber, N.I. Hristov, and W.E. Conner (2010). How do tiger moths jam bat sonar? North American Symposium for Bat Research. Denver, CO
- Corcoran, A.J.**, and J.M. Szewczak (2010). Niche Breadth, Foraging Plasticity and Conservation of *Myotis septentrionalis*, *M. lucifugus*, and *M. leibii*. Southeastern Bat Diversity Network Annual Meeting, Asheville, NC
- Corcoran, A.J.**, Barber, J.R., W.E. Conner (2009). Tiger moth jams bat sonar. North American Symposium for Bat Research, Portland, OR
- Corcoran, A.J.**, Barber, J.R., W.E. Conner (2009). Limitations of biosonar: a tiger moth sonar jamming defense. Animal Sonar Symposium, Kyoto, Japan
- Corcoran, A.J.**, Barber, J.R., Cullen, M.A. and W.E. Conner (2009). Sound strategies: acoustic aposematism, mimicry, and sonar jamming in the bat-moth arms race. Society for Integrative and Comparative Biology Annual Meeting, Boston, MA
- Corcoran, A.J.** and J.M. Szewczak (2007). Automated acoustic identification of nine bat species of the Eastern United States. International Bat Research Conference, Merida, Mexico
- Corcoran, A.J.** and J.M. Szewczak (2006). Automated acoustic identification of three bat species. North American Symposium on Bat Research, Wilmington, NC

**GRANTS AND AWARDS (Total as PI/Awardee: \$110,641)**


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2013	National Science Foundation Grant, Named Post-doc, PI W.E. Conner (\$400,000) - Title: " <i>Bats Jamming Bats: a Novel Form of Intraspecific Prey Competition</i> "
2013	Post-doctoral Fellowship, C-CEBH, University of Maryland (\$39,200)
2011-13	Theodore Roosevelt Memorial Grant, American Museum Natural History (\$4141)
2012	Outstanding Graduate Student of 2012, Wake Forest University (\$500)
2010	Elton C. Cocke Scholarship, Wake Forest University (\$500)
2010	Graduate School Alumni Student Travel Award, Wake Forest University (\$300)
2010	National Science Foundation Grant, Named grad. student, PI W.E. Conner (\$320,000) - Title: " <i>Acoustic Aposematism, Mimicry and Jamming: Efficacy in the Field</i> "
2009	Nor. Am. Sym. for Bat Research Outstanding Student Presentation (\$500)
2009-12	Vecellio Award for graduate research, Wake Forest University (\$3,500)
2008	Dean's Fellowship, Wake Forest University (\$20,000)
2008	Andrew's Fellowship, Purdue University (\$40,000; declined)
2002	Agriculture Research Scholarship, Purdue University (\$2,000)

**UNDERGRADUATE MENTORING***Humboldt State University*

2016	<b>Shin Tamura</b> , <i>Sing or Jam? Competitive strategies of bats</i> - applying to present at 2017 CSU Annual Biotechnology symposium
2016	<b>Elizabeth Angel</b> , <i>3D analysis of bat stealth echolocation attacks</i> - gave presentation on bats and moths to Arcata High School
2015-16	<b>Christine Johnson</b> , <i>Predictive hunting strategies of Mexican free-tailed bats</i>

*Wake Forest University*

2015	<b>Orion Goodman</b> , <i>Flight morphologies of eared and earless Lepidoptera</i> - presented at regional Society for Integrative and Comparative Biology
2013	* <b>Deanna Margius</b> , <i>Effectiveness of acoustic aposematism in the field</i>
2012	* <b>Kaitlyn Roman</b> , <i>Bats jamming bats? A playback experiment</i>
2011	* <b>Zachary Walker</b> , <i>Defending food patches by jamming sonar</i> - presented at North Carolina research and creativity symposium
2010-11	* <b>Ryan Wagner</b> , <i>Acoustic cue recognition by sonar-jamming moths</i> - presented at North Carolina Academy of Science annual meeting - co-authored publication in <i>PLoS ONE</i>
2009	* <b>Wesley Johnson</b> , <i>Acoustic Mullerian mimicry in the field</i>
2008	* <b>Megan Cullen</b> , <i>Sensory perception of prey by bats</i>

\* Received Wake Forest Research Fellowship (\$4000) and presented at WFU Undergrad Research Day

**PROFESSIONAL SERVICE**

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- Reviewer for *Ethology*, *Journal of Comparative Physiology A*, *Journal of Experimental Biology*, *Journal of Insect Physiology*, *Journal of the Lepidopterist's Society*, *Journal of Mammalogy*, *National Geographic Society*, *Neotropical Biodiversity*, *PLoS ONE*, *Scientific Reports*, and *Proceedings of the Royal Society B*
- Student representative for the North American Society for Bat Research (2011)
- Representative for the Wake Forest University Honor Council (2012)
- Participant in 2015 HSU Sustainable Learning Initiative for adopting open education resources.

**PROFESSIONAL AFFILIATIONS**

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Acoustical Society of America, International Society for Neuroethology, North American Society for Bat Research, Society for Integrative and Comparative Biology

**OUTREACH AND MEDIA RELATIONS (Selected)**

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- 20 public presentations at high schools, science cafes, libraries and research stations since 2009
- Scientific Consultant for *National Geographic Television*, and *Atlantic Productions*
- Provided multimedia and interviews for dozens of journalists worldwide, including *New York Times*, *BBC World Report*, *Science Podcast*, *NPR Science Friday*, *Discovery Channel*, *Scientific American*, *Smithsonian Magazine* and *National Geographic Magazine*
- Designed and maintain science education website on bats and moths, [www.sonarjamming.com](http://www.sonarjamming.com)
- Co-developed interactive exhibits on bat echolocation at *SCIWORKS Children's Science Museum*, Winston Salem, NC