

# CHRISTINA RIEHL

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Department of Ecology and Evolutionary Biology  
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## EDUCATION

2011	Ph.D.	PRINCETON UNIVERSITY, Princeton, NJ <i>Department of Ecology and Evolutionary Biology</i>
2005	B. A.	HARVARD UNIVERSITY, Cambridge, MA <i>Magna cum laude with Highest Honors in Biology</i>

## PROFESSIONAL APPOINTMENTS

Associate Professor (2022 – present)	Princeton University, Princeton, NJ
Assistant Professor (2015 – 2022)	Princeton University, Princeton, NJ
Junior Fellow (2012 – 2015)	Harvard Society of Fellows, Cambridge, MA
Postdoctoral Research Fellow (2011 – 2012)	Smithsonian Tropical Research Institute, Panama
Lecturer (2011 – 2012)	Princeton University, Princeton, NJ

## GRANTS AND FELLOWSHIPS

2019-2025	National Science Foundation (CAREER IOS-184543) “The evolution of female alternative tactics in a cooperatively breeding bird” (\$568,296)
2018-2024	National Science Foundation (IOS – 1755279) “Mechanisms and adaptive consequences of collective decision-making in a communally nesting bird” (\$590,098)
2016	Princeton Environmental Institute – <i>Grand Challenges Grant</i> (\$70,000)
2015	National Geographic Society – <i>Committee for Research and Exploration</i> (\$19,200)
2014	Putnam Expedition Grant – <i>Harvard University</i> (\$6,120)
2012	Milton Fund Research Grant – <i>Harvard University</i> (\$35,082) Putnam Expedition Grant – <i>Harvard University</i> (\$5,000) 3-Year Postdoctoral Fellowship – <i>Harvard Society of Fellows</i>

- 2011 1-Year Postdoctoral Fellowship – *Smithsonian Conservation Biology Institute*  
(declined)  
1-Year Postdoctoral Fellowship – *Smithsonian Tropical Research Institute*
- 2008 Graduate Research Fellowship – *Princeton Latin American Studies*  
Student Research Grant – *American Ornithologists’ Union*  
Frank M. Chapman Research Grant – *American Museum of Natural History*
- 2007 Short-term Fellowship – *Smithsonian Tropical Research Institute*  
Graduate Research Fellowship – *Princeton Latin American Studies*
- 2006 Graduate Research Fellowship – *National Science Foundation*
- 2004 Harvard College Research Fellowship – *Harvard University*

## HONORS AND AWARDS

- 2020 Fellow – *American Ornithological Society*
- 2019 NSF CAREER Award – *National Science Foundation*
- 2018 Elective Member – *American Ornithological Society*
- 2017 Kavli Frontiers of Science Fellow – *National Academy of Sciences*
- 2013 Young Professional Award – *Cooper Ornithological Society*
- 2011 Excellence in Teaching Award – *Princeton University* (university-wide)
- 2004 Barry M. Goldwater Scholar – *Goldwater Excellence in Education*
- 2002-2003 Dean’s List (Top 10% of Harvard University Class of 2005) – *Harvard University*

## PUBLICATIONS

asterisk\* denotes corresponding author for multi-author publications; underline denotes Riehl lab member; double underline denotes undergraduate lab member.

- 61.** Rodrigues, A. M. M., and **Riehl, C\***. 2024. The evolution of cooperative breeding in family groups: when should parents tolerate unhelpful helpers? *Philosophical Transactions of the Royal Society Series B*, in revision.
- 60.** LaPergola\*, J. B., Leighton, G. M., and **Riehl, C.** 2024. Weak genetic structure in Palmchats (*Dulus dominicus*) suggests mixed kinship in compound nests and long-distance dispersal. *Ibis*, in revision.
- 59.** Smart, Z. F., Downing, P. A., Austin, S. H., Greeney, H. F., Londoño, G. A., Nahid, M. I., Robinson, W. D., and **Riehl, C.\*** 2024. Ecology and life history predict avian nest success in the global tropics. *PNAS*, in revision.
- 58.** Smith\*, M.G., LaPergola, J.B., and **Riehl, C.** 2024. Workload inequality increases with group size in a cooperatively breeding bird. *Animal Behaviour*, 207, 87-99.

57. Smith,\* M. G., Savagian, A. G., and **Riehl**, C. 2023. Caregivers in a communally nesting bird do not consistently synchronize nest visits. *Behavioral Ecology and Sociobiology*, 77(7), 84.
56. Hendrix,\* T. H., and **Riehl**, C. 2023. No evidence for adaptive sex ratio adjustment in a cooperatively breeding bird with helpful helpers. *Behavioral Ecology and Sociobiology*, 77(7), 80.
55. **Riehl**, C\*., and LaPergola, J. B. 2023. Inclusive fitness explains behavioral diversity in a social bird. *PNAS* 120(21): e2305610120.
54. LaPergola, J. B., Savagian, A. G., Smith, M. G., Bennett, B. L., Strong, M. J., and **Riehl**, C.\* 2023. Referential signaling in a communally breeding bird. *PNAS* 120(19): e2222008120.
53. Savagian, A. G.\*, and **Riehl**, C. 2023. Effects of brood and group size on nestling provisioning and resource allocation in a communally nesting bird. *Behavioral Ecology*, 34(4), 539-546.
52. Savagian, A. G.\*, and **Riehl**, C. 2022. Group chorusing as an intragroup signal in a communally breeding bird, the greater ani. *Ethology*, 129(2), 63-73. (**Cover article**)
51. Savagian, A. G.\*, and **Riehl**, C. 2022. Begging is an honest signal of need in a communally nesting bird with low genetic relatedness. *Behavioral Ecology and Sociobiology*, 76 (11), 1-11.
50. LaPergola, J. B.\*, **Riehl**, C., Martínez-Gómez, J. E., Roldán-Clarà, B., and Curry, R. L. 2022. Extra-pair paternity correlates with genetic diversity, but not breeding density, in a Neotropical passerine, the Black Catbird. *Journal of Avian Biology*, e03034. (**Cover article**)
49. **Riehl**, C.\* , and Smart, Z. F. 2022. Climate fluctuations influence variation in group size in a cooperative bird. *Current Biology* 32(19), 4264-4269.
48. Smith, M. G.\* , and **Riehl**, C. 2022. Workload distribution and division of labor in cooperative societies. *Quarterly Review of Biology* 97(3): 183-210.
47. LaPergola, J. B.\*, and **Riehl** C. 2022. Opportunity isn't everything: genetic monogamy and limited brood parasitism in a colonial woodpecker. *Behavioral Ecology* 76(5): 1-10.
46. Hauber, M. E.\*, **Riehl**, C., and Nagy, J. 2021. Parental investment and the rejection of avian brood parasitic eggs: a comparative analysis. *Evolutionary Ecology* 36(2): 263-272.
45. Barve, S.\* , **Riehl**, C., Walters, E., Haydock, J., Dugdale, H., and Koenig, W. D. 2021. Lifetime reproductive benefits of cooperative polygamy vary for males and females in the Acorn Woodpecker (*Melanerpes formicivorus*). *Proceedings of the Royal Society of London, Series B* 288 (1957): 20210579.
44. Smart, Z. F., Smith, M. G., and **Riehl**, C\*. 2021. The El Niño-Southern Oscillation dramatically influences the probability of reproduction and reproductive rate of a tropical forest bird. *Journal of Avian Biology* 52(8): <https://doi.org/10.1111/jav.02799>

43. **Riehl, C.** 2021. Evolutionary origins of cooperative and communal nesting: insights from the crotophagine cuckoos. *Ethology* 127(10): 827-836.
42. Almstead, D. K., Savagian, A.G., Smith, M. G., and **Riehl, C\***. 2021. Inter-group conflict in a cooperatively breeding bird: new insights into “home field advantage.” *Ethology* 127: 372-378.
41. Ursino, C. A., Strong, M. J., Reboreda, J.C., and **Riehl, C\***. 2020. Genetic patterns of repeat and multiple parasitism by screaming cowbirds, a specialist brood parasite. *Animal Behaviour* 167: 177-183.
40. **Elgar\***, M. E., and **Riehl, C.** 2020. Communication and recognition mechanisms in social animals. *Frontiers in Ecology and Evolution* 8: 510-513.
39. Smith, M. G., and **Riehl, C\***. 2020. Intermittent breeding is associated with breeding group turnover in a cooperatively breeding bird. *Oecologia* 192: 953-963.
38. **Riehl, C.** 2020. Do temperate and tropical birds have different mating systems? Pp. 115-123 in *Unsolved Problems in Ecology* (Tilman, G.D., Holt, R. D., Dobson, A., eds.). Princeton University Press, Princeton NJ.
37. Baldassarre\*, D. T., Campagna, L., Thomassen, H. A., Atwell, J. W., Chu, M., Crampton, L. H., Fleischer, R. C., and **Riehl, C.** 2019. GPS tracking and population genomics suggest itinerant breeding across drastically different habitats in the Phainopepla. *The Auk* 136: 1-12 (Editor’s Choice, Cover article.)
36. **Riehl, C.\***, and Strong, M. J. 2019. Social parasitism as an alternative reproductive tactic in a cooperatively breeding cuckoo. *Nature* 567: 96-99. (Cover article.)
35. **Riehl, C.** 2019. Cooperative and communal breeding. Pp. 41-59 in *Behavioral Ecology of Neotropical Birds* (Reboreda, J. C., Fiorini, V. D., and Tuero, D. T., eds.). Springer.
34. **Feeney**, W. E.\*, and **Riehl, C\***. 2019. Monogamy without parental care? Social and genetic mating systems of avian brood parasites. *Philosophical Transactions of the Royal Society of London, Series B* 374: 20180201.
33. **Dainson**, M., **Mark**, M., **Hossain**, M., **Yoo**, B., **Holford**, M., **McNeil**, S., **Riehl, C.**, and **Hauber**, M. E.\* 2018. How to make a mimic: Brood parasitic Striped Cuckoo eggs match host shell color, but not pigmentation. *Journal of Chemical Ecology*, 44: 940-946. (Cover article.)
32. **Pruitt**, J.N.\*, **Berdahl**, A., **Riehl, C.**, **Pinter-Wollman**, N., **Moeller**, H.V., **Pringle**, E.G., **Aplin**, L.M., **Robinson**, E.J., **Grilli**, J., **Yeh**, P. and **Savage**, V.M. 2018. Social tipping points in animal societies. *Proceedings of the Royal Society of London, Series B*, 285: 20181282.
31. Strong, M. J., Sherman, B. L., and **Riehl, C.\*** 2018. Home field advantage, not group size, predicts outcomes of inter-group competition in a social bird. *Animal Behaviour* 143: 205-213.
30. **Hauber**, M. E.\*, **Dainson**, M., Baldassarre, D., **Hossain**, M., **Holford**, M., and **Riehl, C.** 2018. The perceptual and chemical basis of egg discrimination in communally breeding Greater Anis (*Crotophaga major*). *Journal of Avian Biology* 49: e01776. (Cover article.)

29. **Riehl, C.\***, and **Strong, M. J.** 2018. Stable social relationships between unrelated females increase individual fitness in a cooperative bird. *Proceedings of the Royal Society of London, Series B.*, 285: 20180130. (**Cover article.**)
28. **Riehl, C.** 2017. Reproductive Synchrony. *In Encyclopedia of Animal Cognition and Behavior*, Springer-Verlag. J. Vonk and T. Shackelford, eds.
27. Portugal, S. J., Bowen, J., and **Riehl, C.\*** 2017. A rare mineral, vaterite, acts as a shock absorber in the eggshell of a communally nesting birds. *The Ibis* 160:173-178.
26. **Riehl, C.** 2017. Kinship and incest avoidance drive patterns of reproductive skew in cooperatively breeding birds. *The American Naturalist* 190:774-785.
25. **Ursino, C. A.\***, De Mársico, M. C., Reboreda, J. C., and **Riehl, C.\*** 2017. Kinship and genetic mating system of the Baywing (*Agelaioides badius*), a cooperatively breeding Neotropical blackbird. *The Auk: Ornithological Advances* 134: 410-420.
24. **Porter, S. A.**, and **Riehl, C.\*** 2017. Diet of the Crested Guan (*Penelope purpurascens*) in Panama: leaf-eating by a tropical frugivore. *Wilson Journal of Ornithology* 121: 191-195.
23. **Riehl, C.** 2016. Infanticide and within-clutch competition select for reproductive synchrony in a cooperative bird. *Evolution* 70-8: 1760-1769.
22. Taborsky, M.\*, Frommen, J., and **Riehl, C.** 2016. The evolution of cooperation based on direct fitness benefits. *Philosophical Transactions of the Royal Society of London, Series B*, 371: 20140474.
21. Taborsky, M.\*, Frommen, J., and **Riehl, C.** 2016. Correlated payoffs are key to cooperation. *Philosophical Transactions of the Royal Society of London, Series B*, 371: 20150084.
20. **Riehl, C.\***, and Frederickson, M. E. 2016. Cheating and punishment in cooperative animal societies. *Philosophical Transactions of the Royal Society of London, Series B* 371: 20150090.
19. **Riehl, C.\***, and Stern, C. A.\* 2015. How cooperatively breeding birds find relatives and avoid incest: New insights into dispersal and kin recognition. *BioEssays* 37:1303-1308.
- Highlighted **Editor's Choice** in *BioEssays*
18. **Riehl, C\*.**, and **Strong, M. J.** 2015. Social living without kin discrimination: experimental evidence from a cooperatively breeding bird. *Behavioral Ecology and Sociobiology* 69: 1293-1299.
17. **Riehl, C.\***, **Strong, M. J.**, and Edwards, S. V. 2015. Inferential reasoning and egg rejection in a cooperatively breeding cuckoo. *Animal Cognition* 18: 75-82.
16. **Riehl, C.** 2014. Cuckoos of the world. *Wilson Journal of Ornithology* 126: 411-412.
15. **Riehl, C.** 2013. Evolutionary routes to non-kin cooperative breeding in birds. *Proceedings of the Royal Society of London, Series B* 280: 20132245.
- A *Proceedings B* “**Most Viewed**” article during 2013
  - Highlighted **Editor's Choice** in *Proceedings B*
  - **Covered in textbook *Animal Behavior* 12<sup>th</sup> Ed.** (Dustin Rubenstein, 2023)
14. **Riehl, C.** 2013. The Harris's Hawk. *Journal of Raptor Research* 47: 333-334.

13. **Riehl, C.** 2012. Parental care and reproductive skew in a communally breeding cuckoo: hard-working males do not sire more young. *Animal Behaviour* 84: 707-714.
12. **Riehl, C.** 2011. Living with strangers: direct benefits favor non-kin cooperation in a communally breeding bird. *Proceedings of the Royal Society of London, Series B* 278:1728-1735
  - A *Proceedings B* “**Most Viewed**” article during 2013
  - **Science Editor’s Choice** (*Science* 330:1289)
  - Rated “Must Read” by **Faculty of 1000** (<http://f1000.com/13357090>)
  - **Covered in textbook *Animal Behavior* 10<sup>th</sup> Ed.** (John Alcock, 2013)
11. **Riehl, C.** 2011. Paternal investment and the “sexually selected” hypothesis for the evolution of eggshell coloration: revisiting the assumptions. *The Auk* 128: 175-179.
10. **Riehl, C.** 2010. A simple rule reduces conspecific brood parasitism in a communally breeding bird. *Current Biology* 20 (20): 1830-1833.
  - Rated “Must Read” by **Faculty of 1000** (<http://f1000.com/6381960>)
  - **Covered in textbook *Evolutionary Analysis* 5th Ed.** (Freeman & Herron, 2013)
9. **Riehl, C.** 2010. Egg ejection risk and hatching asynchrony predict egg mass in a communally breeding cuckoo, the Greater Ani. *Behavioral Ecology* 21: 676-683.
8. **Riehl, C.\***, and S. M. Bogdanowicz. 2009. Isolation and characterization of microsatellite markers from the greater ani *Crotophaga major* (Aves: Cuculidae). *Molecular Ecology Resources* [Internet] Available from: <http://tomato.biol.trinity.edu/manuscripts/9-6/mer-09-0270.pdf>.
7. **Riehl, C.\***, and L. Jara. 2009. Natural history and reproductive biology of the communally breeding Greater Ani (*Crotophaga major*) in Gatún Lake, Panama. *The Wilson Journal of Ornithology* 121: 679-687.
6. **Riehl, C.\***, and G. S. Adelson. 2008. Seasonal insectivory by Black-headed Trogons, a tropical dry forest frugivore. *Journal of Field Ornithology* 79: 371-380.
5. **Riehl, C.** 2008. Communal calling and prospecting by Black-headed Trogons (*Trogon melanocephalus*). *The Wilson Journal of Ornithology* 120:248–255.
4. **Riehl, C.** 2007. Evidence for cooperative breeding by White-bellied Go-Away Birds (*Corythaixoides leucogaster*). *African Journal of Ecology* 46:421-423.
3. **Riehl, C.** 2006. Widespread cannibalism by fledglings in a colony of Black-crowned Night-Herons. *The Wilson Bulletin* 118: 101-104.
2. **Riehl, C.** 2002. Red-shouldered Hawk preys on Pied-billed Grebe. *Journal of Field Ornithology* 73: 410-411.
1. **Riehl, C.** 2001. Black-crowned Night-Heron fishes with bait. *Waterbirds* 24: 285-286.

## PEER REVIEW

### Editor-in-Chief:

*Ornithology* (2023-2028)

### Assistant Chief Editor:

*Frontiers in Ecology and Evolution, Social Evolution* (2016-2024)

### Associate Editor:

*Proceedings of the Royal Society of London, Series B* (2017-2023)

*The American Naturalist* (2016-2024)

*Ornithology* (formerly *The Auk*) (2014-2024)

**Reviewer:** American Naturalist; Animal Behaviour; Animal Cognition; Auk; Ornithological Advances; Behaviour; Behavioral Ecology; Behavioral Ecology and Sociobiology; Biology Letters; BMC Evolutionary Biology; Condor: Ornithological Applications; Current Biology; Ethology; Frontiers in Ecology and Evolution; Ibis; Journal of Avian Biology; Journal of Experimental Biology; Journal of Field Ornithology; Journal of Louisiana Ornithology; Journal of Zoology; Molecular Ecology; Nature; Nature Communications; Nature Ecology and Evolution; Nature Scientific Reports; Naturwissenschaften; Oecologia; Ornithology; Philosophical Transactions of the Royal Society of London, Series B; Proceedings of the National Academy of Sciences; Proceedings of the Royal Society of London, Series B; Science; Science Advances; Waterbirds; Wilson Journal of Ornithology

## TEACHING EXPERIENCE

- 2015-present Lecturer, *Behavioral Ecology*, Dept. of EEB, Princeton University
- 2018, 2021 Lecturer, *Animal Cognition* (Junior Tutorial), Dept. of EEB, Princeton University
- 2015-2017 Lecturer, *Recent Research in Population Biology* (graduate seminar), Dept. of EEB, Princeton University
- 2014-2017 Lecturer, *Evolutionary Ecology of Tropical Birds*, NSF Integrative Graduate Education and Research Traineeship (IGERT) Program, Panama.
- 2011 Lecturer, *Introduction to Population and Community Ecology*, Dept. of EEB, Princeton University
- Lecturer, *Junior Tutorial*, Dept. of EEB, Princeton University
- Laboratory Instructor, *Comparative Anatomy and Physiology*, Dept. of EEB, Princeton University
- 2010 Teaching Assistant, *Evolutionary Biology*, Dept. of EEB, Princeton University
- 2007-08 Writing Instructor, *The Writing Program*, Princeton University
- 2006 Teaching Assistant, *Behavioral Ecology*, Dept. of Ecology and Evolutionary Biology, Princeton University
- 2005 Laboratory Instructor, *The Biology of Organisms*, Dept. of Ecology and Evolutionary Biology, Princeton University

## STUDENTS AND INTERNS

2024	Paige Landry (Undergraduate student, Princeton University) Jessica Wang (Undergraduate student, Princeton University) Jo Goldman (Undergraduate student, Princeton University) Lillian Fitzgerald (Undergraduate student, Princeton University)
2023	Kojo Baidoo (Undergraduate student, Princeton University) Sarah Duntley (Undergraduate student, Princeton University) Catherine Garrett (Undergraduate student, Princeton University) Lillith Price-Wharff (Undergraduate student, Princeton University)
2022	Samuel Vasen (Undergraduate student, Princeton University) Abigail Williams (Undergraduate student, Princeton University)
2021	Prabhanjana Acharya (Undergraduate student, Ashoka University, New Delhi) Charlotte Adamo (Undergraduate student, Princeton University) Emily Sharp (Undergraduate student, Princeton University) Willow Dalehite (Undergraduate student, Princeton University)
2020	Zemima Hossain (Undergraduate student, Princeton University)
2019	Danielle Almstead (Undergraduate student, Princeton University) Dennis Duffin (Undergraduate student, Princeton University) Devon Block-Funkhauser (Undergraduate student, Princeton University)
2018	Elias Berbari (Undergraduate student, Princeton University) Camden Olson (Undergraduate student, Princeton University)
2017	Christa Morris (Master's student, UC Berkeley) Ellie McNulty (Undergraduate student, Princeton University) Emma Latham (Undergraduate student, Princeton University) Mitchel Charles (Undergraduate student, Princeton University)
2016	Vivien Bazarko (Undergraduate student, Princeton University) Allison Conwell (Undergraduate student, Princeton University)
2016-19	Zach Smart (Undergraduate student, Princeton University)
2016-19	Luke Carabbia (Undergraduate student, Princeton University)
2015	Haley Gordon (Undergraduate student, Princeton University) Sarah Porter (Undergraduate student, Princeton University) Amanda Savagian (Intern) Chiti Arvind (Undergraduate student, Mount Carmel College, Bangalore, India)
2014-15	Cynthia Ursino (Ph.D. student, University of Buenos Aires, Argentina)
2013-14	Meghan Strong (Master's student, University of California Northridge)
2008-2010	Laura Jara Reyes (Undergraduate student, Universidad de los Andes, Colombia)



## CONFERENCE PRESENTATIONS

- 2024 – Beyond the family: cooperation and communication in a social bird. European Conference on Behavioural Biology. Zurich, Switzerland (**Plenary address**)
- 2023 – Division of labor in cooperatively breeding vertebrates. Symposium on Division of Labor as Key Driver of Social Evolution, Wissenschaftskolleg zu Berlin, Germany (**Keynote address**)
- 2023 – Referential signaling in a communally breeding bird. Wilson Ornithological Society; Allentown, PA
- 2021 – How flexible are behavioral alternatives? Evolution of Social Behavior Symposium, University of Bern, Switzerland (**Keynote address**)
- 2021 – Climate unpredictability maintains variation in group size in a cooperative bird. Animal Behavior Society (remote)
- 2021 – Climate affects reproductive rate in a tropical forest bird. Wilson Ornithological Society/Association of Field Ornithology (remote)
- 2019 – New model systems for the evolution of social behavior in birds. Wilson Ornithological Society/Association of Field Ornithology, Cape May, NJ (**Plenary address**)
- 2018 – Fitness consequences of social bonds in cooperatively breeding greater anis. American Ornithological Society, Tucson, AZ.
- 2018 – Mechanisms of communication and kin recognition in social evolution. Society for the Study of Evolution, Montpellier, France. (**Symposium co-organizer with Mark Elgar**)
- 2016 – Cheating in intraspecific cooperative interactions. Symposium funded by École Normale Supérieure, Paris, France (**Keynote address**)
- 2016 – Fitness consequences of multilevel sociality. Presidential Symposium, Animal Behavior Society, Columbia, MO. (**Invited address**)
- 2016 – Evolutionary stability of cooperation and parasitism. International Society for Behavioral Ecology, Exeter, UK.
- 2016 – Why be a social parasite in a cooperative world? Winter Animal Behavior Conference, Steamboat Springs, CO
- 2014 – Infanticide promotes reproductive synchrony in a communally breeding bird. Animal Behavior Society, Princeton, NJ.
- 2014 – Why cooperate with unrelated individuals? International workshop funded by Conférence Universitaire de Suisse Occidentale, Arolla, Switzerland. (**Keynote address**)
- 2014 – Cooperation among non-kin: what prevents cheating? European Conference on Behavioural Biology, Prague, Czech Republic (**Symposium co-organizer with Michael Taborsky**)
- 2013 – Sneaky reproductive strategies in a “cooperative” bird. American Ornithologists’ Union and Cooper Ornithological Society, Chicago, IL. (**Young Professional Award**)
- 2013 – Cheaters and collaborators: the evolution of conspecific brood parasitism in a cooperatively breeding bird. Wilson Ornithological Society, Williamsburg, VA.
- 2012 – Paternal care and reproductive skew in a communally breeding cuckoo. Animal Behaviour Society, Albuquerque, NM.
- 2010 – Greater Anis can discriminate between predatory Yellow-headed Caracaras and similar, non-predatory Snail Kites. Association for the Study of Animal Behaviour, London, UK.
- 2010 – Cooperation and parasitism in a communally breeding bird, the Greater Ani. Animal Behaviour Society, Williamsburg, VA.
- 2010 – Alternative reproductive strategies: joint nesting and social monogamy. American Ornithologists’ Union and Cooper Ornithological Society. San Diego, CA.

2009 – Unusual variation in egg size in the Greater Ani, a communally breeding cuckoo with extreme reproductive competition. Wilson Ornithological Society and the Association of Field Ornithologists. Pittsburgh, PA.

### **INVITED DEPARTMENTAL SEMINARS**

- 2024 Western Michigan University, MI: Theodosia Hadley Seminar  
Archbold Biological Station, FL: Visiting Speaker Series
- 2021 Georgetown University, Washington DC: Biology Department Seminar  
University of Wyoming: Biology Department Seminar (remote)  
University of Illinois at Urbana-Champaign: PEEC Seminar (remote)  
University of California at Santa Cruz: EEB Department Seminar (remote)
- 2020 Duke University: Long-term Research in Animal Behavior Seminar Series (remote)  
Yale University, NH: Frontiers in Social Evolution Seminar Series (“FINE”; remote)  
University of Indiana: Biology Department Seminar
- 2018 Stony Brook University, NY: Biology Department Seminar  
Drexel University, PA: Biology Department Seminar  
Villanova University, PA: Biology Department Seminar  
Utah State University, UT: Biology Department Seminar
- 2017 University of Arizona, AZ: Biology Department Seminar  
Rutgers University, NJ: Biology Department Seminar  
Cornell University, NY: Neurobiology and Behavior Department Seminar  
McGill University, Canada: Biology Department Seminar  
University of Connecticut: EEB Department Seminar
- 2016 Santa Fe Institute, NM: Seminar Series  
University of Pennsylvania, PA: Behavioral Ecology Seminar  
Duke University, NC: Biology Department Seminar (graduate student-invited)
- 2015 McMaster University, Canada: Biology Department Seminar  
Ferris State University, MI: Biology Department Seminar  
Arizona State University, AZ: Evolution of Social Complexity Seminar Series
- 2014 University of New Hampshire, NH: Biology Department Seminar  
Stonehill College, MA: Biology Department Seminar  
Dartmouth College, NH: Neukom Institute for Computational Science  
Princeton University, NJ: EEB Department Faculty Candidate Search  
University of Texas at Austin, TX: Department of Integrative Biology Seminar  
University of Pennsylvania, PA: Evolution Cluster Faculty Candidate Search
- 2013 University of Pennsylvania, PA: Behavioral Ecology Seminar  
Boston University, MA: Animal Behavior Seminar  
University of New Hampshire, NH: Behavioral Ecology Group Seminar
- 2012 Smithsonian Tropical Research Institute, Panama: Tupper Seminar  
Tulane University, LA: Department of Ecology and Evolutionary Biology Seminar
- 2010 Harvard University, MA: Program in Evolutionary Dynamics Seminar  
Lake Forest College, IL: Biology Department Seminar  
City University of New York, NY: Animal Behavior and Conservation Seminar