KAREN M. WARKENTIN

CURRICULUM VITAE (03/2024)

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lab website: https://sites.bu.edu/warkentinlab/
orcid.org/0000-0002-7804-800X

PERSONAL

Birth date: September 26, 1962
Citizenship: Canadian
Languages: English, Spanish
Status in USA: Permanent Resident Alien

EDUCATION

PhD, May 1998. Zoology, University of Texas. Advisor: Michael J. Ryan.
MSc, October 1990. Biology, Dalhousie University. Advisor: Richard J. Wassersug.
BSc, February 1985. Biology, University of Guelph.

PROFESSIONAL APPOINTMENTS

Professor of Biology *and* Women's, Gender & Sexuality Studies, Boston University. 2016–present
Research Associate, Smithsonian Tropical Research Institute. 2004–2025
Director of Graduate Studies, Dept. of Biology, Boston University. 2016–2017
Associate Chair, Ecology, Behavior & Evolution, Dept. of Biology, Boston University. 2012–2014
Associate Professor, Women's, Gender & Sexuality Studies, Boston University. 2011–2016
Associate Professor, Biology, Boston University. 2008–2016
Assistant Professor, Biology, Boston University. 2001–2008
Postdoctoral Scholar, Biology, University of Kentucky. 1998–2001. Advisor: Andrew Sih.
Postdoctoral Fellow, Smithsonian Tropical Research Institute. 2000–2001.
Advisors: A. Stanley Rand and Mary Jane West-Eberhard.

HONORS

Invited Plenary Speaker for Scientific Meetings

Ontario Ecology, Ethology, and Evolution Colloquium, May 2023
Colombian Herpetology Congress, August 2022
Animal Behavior Society, 2021
Ecological Society of America, 2019
Brazilian Congress of Herpetology, 2019
International Society for Behavioral Ecology, 2018
Colombian Herpetology Congress, 2016
Studying Vibrational Communication: 1st International Symposium on Biotremology, 2016
Brazilian Congress of Herpetology, 2015
World Congress of Herpetology, 2012

Justin Schmidt Spring Symposium Plenary Lecturer, University of British Colombia, April 2023
Keiser Distinguished Lecturer in Life Science, Ohio Northern University, October 2022
Schuellein Lecture in the Biological Sciences, University of Dayton, Ohio, October 2022
Elected *Fellow of the Animal Behavior Society*, 2022

2018 University Lecture, Boston University. November 2018
Finalist for the *Metcalf Award* for Teaching Excellence, Boston University, 2017
Mentor of the Year Award, Boston University Graduate Women in Science and Engineering, 2015
Nominated for President, American Society of Ichthyologists and Herpetologists (ASIH), 2010
Elected to the Board of Governors, ASIH, 2003
Stoye Award for Best Student Paper in Ecology and Ethology, ASIH meeting, 1993

SCIENTIFIC PUBLICATIONS

Publications with trainees: [U]Undergraduate or intern, [G]Graduate student, [P]Postdoctoral scholar

83. Güell BA[G], McDaniel JG, Warkentin KM. 2024. Egg-clutch biomechanics affect escape-hatching behavior and performance. **Integr Org Biol.** *In Press – Accepted 7 March 2024*.

82. Güell BA[G], Warkentin KM. 2023. To hatch and hatch not: does heterochrony in onset of vestibular mechanosensing explain species differences in escape-hatching success of *Agalychnis* embryos in snake attacks? **Behav Ecol Sociobiol** 77: 141. https://doi.org/10.1007/s00265-023-03417-4

81. Güell BA[G], Warkentin KM. 2023. Phenology and environmental determinants of explosive breeding in gliding treefrogs: Diel timing of rainfall matters. **Behav Ecol** https://doi.org/10.1093/beheco/arad072 – *Highlighted in the journal cover photo.*

80. Méndez-Narváez J[G], Warkentin KM. 2023. Early onset of urea synthesis and ammonia detoxification pathways in three terrestrially developing frogs. **J Comp Physiol B** 193: 523–543. https://doi.org/10.1007/s00360-023-01506-4

79. Gomez EK[U], Chaiyasarikul A[U], Güell BA[G], Warkentin KM. 2023. Developmental changes in red-eyed treefrog embryo behavior increase escape-hatching success in wasp attacks. **Behav Ecol Sociobiol** 77: 52 https://doi.org/10.1007/s00265-023-03324-8

78. Güell BA[G], Jung J[G], Almanzar A[U], Cuccaro-Díaz J[U], Warkentin KM. 2022. Ontogeny of risk assessment and escape-hatching performance by red-eyed treefrog embryos in two threat contexts. **J Exp Biol** 225: jeb244533. https://doi.org/10.1242/jeb.244533

77. Guevara-Molina EC[G], Ribeiro Gomes F, Warkentin KM. 2022. Heat-induced hatching of red-eyed treefrog embryos: Hydration and clutch structure increase behavioral thermal tolerance. **Integr Org Biol** 4: obac041, DOI: 10.1093/iob/obac041– *Media coverage including Smithsonian Magazine*

76. Majoris J[G], Francisco F[U], Burns C[U], Brandl S, Warkentin K, Buston P. 2022. Paternal care regulates the timing, synchrony, and success of hatching in a coral reef fish. **Proc R Soc B** 289: 20221466. DOI: 10.1098/rspb.2022.1466 – *Highlighted in OutsideJEB*

75. Jung J[G], Guo M[G], Crovella ME, McDaniel JG, Warkentin KM. 2022. Frog embryos use multiple levels of temporal pattern in risk assessment for vibration-cued hatching. **Animal Cognition** 25: 1527–1544. DOI: 10.1007/s10071-022-01634-4

74. Warkentin KM, Jung J[G], McDaniel JG. 2022. Research approaches in mechanosensory-cued hatching. *In* Hill PSM, Mazzoni V, Stritih Peljhan N, Virant-Doberlet M, Wessel A (eds) ***Biotremology: Physiology, Ecology, and Evolution***. *Animal Signals and Communication*, vol. 8. Springer, Cham. p. 157–201. DOI: 10.1007/978-3-030-97419-0_7

73. Méndez-Narváez J[G], Warkentin KM. 2022. Reproductive colonization of land by frogs: Embryos and larvae excrete urea to avoid ammonia toxicity. **Ecology and Evolution** 12: e8570 DOI: 10.1002/ece3.8570 – *Highlighted in AmphibiaWeb (April 4, 2022)*

72. Jung J[G], McDaniel JG, Warkentin KM. 2021. Escape-hatching decisions show adaptive ontogenetic changes in how embryos manage ambiguity in predation risk cues. **Behavioral Ecology and Sociobiology** 75: 141. DOI: 10.1007/s00265-021-03070-9

71. Warkentin KM. 2021. Queering herpetology: On human perspectives and the study of diverse animals. Chapter 4 **in *Herpetologia Brasileira Contemporânea*** Org. Toledo LF. Sociedade Brasileira de Herpetologia, São Paulo. p. 42–58 [Proceedings of the IX Brazilian Herpetology Congress: Inclusive Herpetology.]

70. González K[U], Warkentin KM, Güell BA[G]. 2021. Dehydration-induced mortality and premature hatching in gliding treefrogs with even small reductions in humidity. **Ichthyology & Herpetology** 109: 21–30. DOI: 10.1643/h2020085 – *Awarded Best Paper in Herpetology (2021) by the American Society of Ichthyologists and Herpetologists*

69. Gomez EK[U], Warkentin KM, Güell BA[G]. 2021. Egg-kicking behaviour by male gliding treefrogs (*Agalychnis spurrelli* Boulenger, 1913) does not dislodge competitors' eggs. **Herpetology Notes** 14: 157–161

68. Jung J[G], Serrano-Rojas SJ[U], Warkentin KM. 2020. Multimodal mechanosensing enables treefrog embryos to escape egg predators. **Journal of Experimental Biology** 223: jeb236141 DOI: 10.1242/jeb.236141 – *Highlighted in Inside JEB and in journal cover photo.*

67. Delia J[G], Bravo-Valencia L[U], Warkentin KM. 2020. The evolution of extended parental care in glassfrogs: Do egg-clutch phenotypes mediate coevolution between the sexes? **Ecological Monographs** 90: e01411. DOI 10.1002/ecm.1411 – *Highlighted in journal cover photo.*

66. Jung J[G], Kim SJ[U], Pérez Arias SM[U], McDaniel JG, Warkentin KM. 2019. How do red-eyed treefrog embryos sense motion in predator attacks? Assessing the role of vestibular mechanoreception. **Journal of Experimental Biology** 222: jeb206052. DOI 10.1242/jeb.206052 – *Highlighted in Inside JEB, shortlisted for the most outstanding paper in JEB in 2019*

65. Warkentin KM, Jung J[G], Rueda Solano LA[G], McDaniel JG. 2019. Ontogeny of escape-hatching decisions: vibrational cue use changes as predicted from costs of sampling and false alarms. **Behavioral Ecology and Sociobiology** 73: 51. DOI 10.1007/s00265-019-2663-2

64. Cohen KL[G], Piacentino M[G], Warkentin KM. 2019. Two types of hatching gland cells facilitate escape-hatching at different developmental stages in red-eyed treefrogs, *Agalychnis callidryas* (Anura: Phyllomedusidae). **Biological Journal of the Linnean Society** DOI 10.1093/biolinnean/bly214

63. Bernal XE, Rojas B, Pinto-E MA, Mendoza-Henao AM, Herrera-Montes A, Herrera-Montes MI, del Pilar Cáceres Franco A + ... Warkentin KM .... (254 signatories). 2019. Empowering Latina scientists. **Science** 6429: 825–826

62. Delia J[G], Rivera JM[U], Salazar Nicholls MJ[U], Warkentin KM. 2019. Hatching plasticity and the adaptive benefits of extended embryonic development in glassfrogs. **Evolutionary Ecology** 33: 37–53. DOI 10.1007/s10682-018-9963-2

61. Güell BA[U/G], Warkentin KM. 2018. When and where to hatch? Red-eyed treefrog embryos use light cues in two contexts. **PeerJ** DOI 10.7717/peerj.6018

60. Hite JL[G], Hughey MC[G], Warkentin KM, Vonesh JR. 2018. Cross-ecosystem effects of terrestrial predators link treefrogs, zooplankton, and aquatic primary production. **Ecosphere** 9: e02377.

59. Cohen KL[G], Piacentino ML[G], Warkentin KM. 2018. The hatching process and mechanisms of adaptive hatching acceleration in hourglass treefrogs. **J. Comp. Biochem. Physiol. A**. 217: 63–74 DOI 10.1016/j.cbpa.2017.10.020

58. Salica MJ[G], Vonesh JR, Warkentin KM. 2017. Egg clutch dehydration induces early hatching in red-eyed treefrogs, *Agalychnis callidryas.* **PeerJ.** 5:e3549. DOI 10.7717/peerj.3549

57. Warkentin KM, Cuccaro Diaz J[U], Güell BA[U], Jung J[G], Kim SJ[U], Cohen KL[G]. 2017. Developmental onset of escape-hatching responses in red-eyed treefrogs depends on cue type. **Animal Behaviour.** 129: 103–112. DOI 10.1016/j.anbehav.2017.05.008 – *Audio Slides available in English & Spanish.*

56. Delia J[G], Bravo-Valencia L[U], Warkentin KM. 2017. Patterns of parental care in Neotropical glassfrogs: fieldwork alters hypotheses of sex-role evolution. **Journal of Evolutionary Biology.** DOI 10.1111/jeb.13059 – *Highlighted in journal cover photo; media coverage including New York Times.*

55. Rueda Solano LA, Warkentin KM. 2016. Foraging behavior with possible use of substrate-borne vibrational cues for prey localization in *Atelopus laetissimus* (Ruiz-Carranza, Ardila-Robayo, and Hernández-Camacho, 1994). **Herpetology Notes.** 9: 191–195.

54. Cohen KL[G], Seid MA, Warkentin KM. 2016. How embryos escape from danger: the mechanism of rapid, plastic hatching in red-eyed treefrogs. **Journal of Experimental Biology.** 219: 1875–1883. DOI: 10.1242/jeb.139519 – *Highlighted in journal cover photo, Inside JEB, and video abstract; extensive media coverage.*

53. Bouchard SS, O'Leary CJ[U], Wargelin LJ[U], Charbonnier JF, Warkentin KM. 2016. Post-metamorphic carryover effects of larval digestive plasticity. **Functional Ecology.** 30: 379–388 DOI: 10.1111/1365-2435.12501 – *Highlighted in journal cover photo.*

52. Bouchard SS, O'Leary CJ[U], Wargelin LJ[U], Rodriguez WB[U], Jennings KX[U], Warkentin KM. 2015. Alternative competition-induced digestive strategies yield equal growth but constrain compensatory growth in red-eyed treefrog larvae. **Journal of Experimental Zoology.** 323A: 778–788. DOI: 10.1002/jez.1991

51. McCoy MW, Wheat SK[U], Warkentin KM, Vonesh JR. 2015. Risk assessment based on indirect predation cues: Revisiting fine-grained variation. **Ecology and Evolution.** 5: 4523–4528. DOI: 10.1002/ece3.1552

50. Hughey MC[G], Rogge JR[U], Thomas K[U], McCoy MW[P], Warkentin KM. 2015. Escape-hatching responses of individual treefrog embryos vary with threat level in wasp attacks: a mechanistic analysis. **Behaviour** 152: 1543–1568. DOI:10.1163/1568539X-00003291

49. Touchon JC, McCoy MW, Landberg T[P], Vonesh JR, Warkentin KM. 2015. Putting μ/g in a new light: plasticity in life-history switch points reflects fine-scale adaptive responses. **Ecology** 96: 2192–2202.

48. Tarvin RD[U], Silva Bermúdez C[U], Briggs VS[P], Warkentin KM. 2015. Carry-over effects of size at metamorphosis in red-eyed treefrogs: higher survival but slower growth of larger metamorphs. **Biotropica** 47:218–226. DOI 10.1111/btp.12198
– *Highlighted in journal cover photo*

47. Willink B[U], Palmer MS[U], Landberg T[P], Vonesh JR, Warkentin KM. 2014. Environmental context shapes immediate and cumulative costs of risk-induced early hatching. **Evolutionary Ecology** 28: 103–116. DOI 10.1007/s10682-013-9661-z

46. Touchon JC [P], Jiménez RR[U], Abinette SH[U], Vonesh JR, Warkentin KW. 2013. Behavioral plasticity mitigates risk across environments and predators during anuran metamorphosis. **Oecologia** 173: 801–811. DOI 10.1007/s00442-013-2714-8
– *Highlighted in journal cover photo*

45. Gomez-Mestre I[P], Warkentin KM. 2013. Risk-induced hatching timing shows low heritability and evolves independently of spontaneous hatching in red-eyed treefrogs. **Journal of Evolutionary Biology** 26: 1079–1089.

44. Touchon JC[P], McCoy MW, Vonesh JR, Warkentin KM. 2013. Effects of hatching plasticity carry over through metamorphosis in red-eyed treefrogs. **Ecology** 94: 850–860.

43. McCoy MW, Touchon JC[P], Landberg T[P], Warkentin KM, Vonesh JR. 2012. Prey responses to predator chemical cues: Disentangling the importance of the number and biomass of prey consumed by predators. **PLoS ONE** 7: e47495. doi:10.1371/journal.pone.0047495.

42. Hughey MC[G], McCoy MW, Vonesh JR, Warkentin KM. 2012. Spatial contagion shapes colonization dynamics of frogflies (*Megaselia sp. nov.*) on clutches of red-eyed treefrogs (*Agalychnis callidryas*). **Biology Letters** 8: 887-889. doi:10.1098/rsbl.2012.0468

41. Wibowo E, Wassersug R, Warkentin K, Walker L, Robinson J, Brotto L, Johnson T. 2012. Impact of androgen deprivation therapy on sexual function: A response. **Asian Journal of Andrology** 14: 793–794. doi:10.1038/aja.2012.60

40. Hughey MC[G], Nicolás A[U], Vonesh JR, Warkentin KM. 2012. Wasp predation drives the assembly of fungal and fly communities on frog egg masses. **Oecologia** 168: 1057–1068.

39. Warkentin KM. 2011. Plasticity of hatching in amphibians: Evolution, trade-offs, cues and mechanisms. **Integrative and Comparative Biology** 51: 111–127.
– *Highlighted in journal cover photo*

38. Warkentin KM. 2011. Environmentally cued hatching across taxa: Embryos respond to risk and opportunity. **Integrative and Comparative Biology** 51: 14–25.

37. McCoy MW[P], Bolker BM, Warkentin KM, Vonesh JR. 2011. Predicting predation through prey ontogeny using size-dependent functional response models. **American Naturalist** 177: 752–766.

36. Touchon JC[G], Urbina J[U], Warkentin KM. 2011. Habitat-specific constraints on induced hatching in a treefrog with reproductive mode plasticity. **Behavioral Ecology** 22: 169–175.
– *Highlighted in journal cover photo*

35. Touchon JC[G], Warkentin KM. 2011. Thermally contingent plasticity: temperature alters expression of predator-induced color and morphology in a Neotropical treefrog tadpole. **Journal of Animal Ecology** 80: 79–88.

34. Gomez-Mestre I[P], Saccoccio VL[U], Iijima T[U], Collins EM[U], Rosenthal GG, Warkentin KM. 2010. The shape of things to come: Linking developmental plasticity to postmetamorphic morphology in anurans. **Journal of Evolutionary Biology** 23: 1364–1373.
– *Highlighted in journal cover photo*

33. Caldwell MS[G], Johnston GR, McDaniel JG, Warkentin KM. 2010. Vibrational signaling in the agonistic interactions of red-eyed treefrogs. **Current Biology** 20: 1012–1017.
– *Highlighted in journal cover photo*
– *Media coverage including ScienceNOW, New York Times, Discover Magazine, Science Friday*

32. Touchon JC[G], Warkentin KM. 2010. Short- and long-term effects of the abiotic egg environment on viability, development and vulnerability to predators of a Neotropical anuran. **Functional Ecology** 24: 566–575.

31. Caldwell MS[G], McDaniel JG, Warkentin KM. 2010. Is it safe? Red-eyed treefrog embryos assessing predation risk use two features of rain vibrations to avoid false alarms. **Animal Behaviour** 79: 255–260.
– *Editor's "Featured Article in This Month's* Animal Behaviour*"*
– *Media coverage including New Scientist, Smithsonian Science, Bild der Wissenschaft, Daily Planet*

30. Warkentin KM, Caldwell MS[G]. 2009. Assessing risk: embryos, information, and escape hatching. *In* Dukas R, Ratcliffe JM (Eds) ***Cognitive Ecology II***. University of Chicago Press. pp. 177-200.

29. Touchon JC[G], Warkentin KM. 2009. Negative synergism of rainfall patterns and predators affects frog egg survival. **Journal of Animal Ecology** 78: 715–723.

28. Caldwell MS[G], McDaniel JGG, Warkentin KM. 2009. Frequency information in the vibration-cued escape hatching of red-eyed treefrogs. **Journal of Experimental Biology** 212: 566–575.

27. Rogge JR[U], Warkentin KM. 2008. External gills and adaptive embryo behavior facilitate synchronous development and hatching plasticity under respiratory constraint. **Journal of Experimental Biology** 211: 3627–3635.
– *Highlighted in journal cover photo*
– *Extensive media coverage including the cover story of Science News*

26. Touchon JC[G], Warkentin KM. 2008. Reproductive mode plasticity: aquatic and terrestrial oviposition in a treefrog. **Proceedings of the National Academy of Sciences, USA** 105: 7495–7499.
– *Highlighted in journal cover photo; extensive online media coverage*

25. Gomez-Mestre I[P], Touchon JC[G], Saccoccio VL[U], Warkentin KM. 2008. Genetic variation in pathogen-induced early hatching of toad embryos. **Journal of Evolutionary Biology** 21: 791–800.

24. Touchon JC[G] & Warkentin KM. 2008. Fish and dragonfly nymph predators induce opposite shifts in color and morphology of tadpoles. **Oikos** 117: 634-640.

23. Gomez-Mestre I[P], J.J. Wiens & Warkentin KM. 2008. Evolution of adaptive plasticity: risk-sensitive hatching in neotropical leaf-breeding treefrogs (*Agalychnis*: Hylidae). **Ecological Monographs** 78: 205–224.

22. Warkentin KM. 2007. Oxygen, gills, and embryo behavior: mechanisms of adaptive plasticity in hatching. **Comparative Biochemistry and Physiology A** 148: 720–731.

21. Gomez-Mestre I[P], Warkentin KM. 2007. To hatch and hatch not: similar selective trade-offs but different responses to egg predators in two closely related, syntopic treefrogs. **Oecologia** 153: 197–206.

20. Warkentin KM, Caldwell MS[G], Siok TD[U], D'Amato AT[U], McDaniel JG. 2007. Flexible information sampling in vibrational risk assessment by red-eyed treefrog embryos. **Journal of Experimental Biology** 210: 614–619.
– Highlighted in "Inside JEB"

19. Gomez-Mestre I[P], Touchon JC[G], Warkentin KM. 2006. Amphibian embryo and parental defenses and a larval predator reduce egg mortality from water mold. **Ecology** 87: 2570–2581.
– Highlighted in journal cover photo
– Extensive online media coverage

18. Touchon JC[G], Gomez-Mestre I[P], Warkentin KM. 2006. Hatching plasticity in two temperate anurans: responses to a pathogen and predation cues. **Canadian Journal of Zoology** 84: 556–563.

17. Warkentin KM, Caldwell MS[G], McDaniel JG. 2006. Temporal pattern cues in vibrational risk assessment by red-eyed treefrog embryos, *Agalychnis callidryas*. **Journal of Experimental Biology** 209:1376–1384.
– Highlighted in "Inside JEB"
– Media coverage including USA Today

16. Vonesh JR[P], Warkentin KM. 2006. Opposite shifts in size at metamorphosis in response to larval and metamorph predators. **Ecology** 87: 556–562. *– Highlighted in journal cover photo*

15. Warkentin KM, Buckley CR[U], Metcalf KA[U]. 2006. Development of red-eyed treefrog eggs affects efficiency and choices of egg-foraging wasps. **Animal Behaviour** 71: 417–425.

14. Warkentin KM, Gray RE, Wassersug RJ. 2006. Restoration of satisfying sex for a castrated cancer patient with complete impotence: A case study. **Journal of Sex and Marital Therapy** 32: 389–399.

13. Warkentin KM, Gomez-Mestre I[P], McDaniel JG. 2005. Development, surface exposure, and embryo behavior affect oxygen levels in eggs of the red-eyed treefrog, *Agalychnis callidryas*. **Physiological and Biochemical Zoology** 78: 956–966.

12. Warkentin KM. 2005. How do embryos assess risk? Vibrational cues in predator-induced hatching of red-eyed treefrogs. **Animal Behaviour** 70: 59–71.
– Extensive media coverage including Nature, Scientific American, Natural History, Boston Globe

11. Warkentin KM. 2002. Hatching timing, oxygen availability, and external gill regression in the tree frog, *Agalychnis callidryas*. **Physiological and Biochemical Zoology** 75:155–164.

10. Warkentin KM., Currie CC, Rehner SA. 2001. Egg-killing fungus induces early hatching of red-eyed treefrog eggs. **Ecology**. 2860–2869.

9. Warkentin KM, Wassersug RJ. 2001. Does prostaglandin regulate external gill loss in anurans? **Journal of Experimental Zoology** 289: 366-373.

8. Warkentin KM. 2000. Environmental and developmental effects on external gill loss in the red-eyed treefrog, *Agalychnis callidryas*. **Physiological and Biochemical Zoology** 73: 557–565.

7. Warkentin KM. 2000. Wasp predation and wasp-induced hatching of red-eyed treefrog eggs. **Animal Behaviour** 60: 503–510.
– Extensive media coverage including Science News, National Wildlife, BBC Wildlife, Discovery Channel

6. Warkentin KM. 1999. Effects of hatching age on development and hatchling morphology in the red-eyed treefrog, *Agalychnis callidryas*. **Biological Journal of the Linnean Society** 68: 443–470.

5. Warkentin KM. 1999. The development of behavioral defenses: a mechanistic analysis of vulnerability in red-eyed tree frog hatchlings. **Behavioral Ecology** 10: 251–262.

4. Warkentin KM. 1995. Adaptive plasticity in hatching age: A response to predation risk trade-offs. **Proceedings of the National Academy of Sciences** 92: 3507–3510.
– Extensive media coverage including Science, New Scientist, Discover, Geo, BBC, CBC and AAAS radio, Discovery Channel

3. Ryan MJ, Warkentin KM, McClelland BE, Wilczynski W. 1995. Fluctuating asymmetries and advertisement call variation in the cricket frog, *Acris crepitans*. **Behavioral Ecology** 6: 124–131.

2. Warkentin KM. 1992. Microhabitat use and feeding rate variation in green frog tadpoles (*Rana clamitans*). **Copeia** 1992: 731–740.

1. Warkentin KM. 1992. Effects of temperature and illumination on feeding rates of green frog tadpoles (*Rana clamitans*). **Copeia** 1992: 725–730.

MANUSCRIPTS SUBMITTED

Lisondro-Arosemena A[U], Salazar-Nicholls MJ[G], Warkentin KM. *In second review.* Elevated ammonia cues hatching in red-eyed treefrogs: A mechanism for escape from drying eggs. [Submitted to **J Exp Zool B** 12 July 2023, revision submitted 1 Feb 2024]

PUBLICATIONS FOR A GENERAL AUDIENCE

Warkentin KM. *In press (for April 2024).* Lessons in patience: Frog eggs, snakes, and rain. *Invited anthology contribution* in Crump ML (ed) ***Lost Frogs and Hot Snakes: Herpetologists' Tales from the Field***. Cornell University Press. [Accepted 2 May 2022]

Warkentin KM. 2023. From childhood curiosity to an egg-science career: Social and environmental effects on the development of an integrative biologist. *Invited chapter* in Arifin U, Caviedes-Solis IW, Poo S (Eds) ***Women in Herpetology: 50 Stories from Around the World.*** p. 254–259. Global Women in Herpetology https://www.womeninherpetology.com

Warkentin K. 1997. Life on the leaf. **Fauna** 1 (2): 8–20.

Schneider D, Warkentin K. 1991. Charming Snakes. **Nature Canada** 20 (3): 22–29.

Schneider D, Warkentin K. 1988. Giant silk moths: exotic creatures of the night. **Canadian Geographic** 108 (4): 58–65.

DISSERTATION AND THESIS

"Phenotypic plasticity at hatching in the red-eyed treefrog, *Agalychnis callidryas*: life history, behavior and development" PhD Dissertation in Zoology, University of Texas, Austin, 1998.

"Feeding rates in *Rana clamitans* larvae (Anura: Ranidae) in relationship to microhabitat use, with an assessment of the effects of temperature and light on tadpole feeding" MSc Thesis in Biology, Dalhousie University, 1990.

MEDIA COVERAGE

Media reports on research publications (>18 papers)

Print and online: *Coverage includes AmphibiaWeb, BBC Wildlife Magazine, Bild der Wissenschaft, Boston Globe, BU Research News, Discover, FACTS magazine, Frankfurter Allgemeine Zeitung, Forskning & Framsteg, Geo, Liberation, National Geographic, Nature, Nature Australia, Natural History, New Scientist, New York Times, NSF Discoveries website, Nürnberger Nachrichten, Québec Science, Ranger Rick, Sciences et Avenir, Science, Science News, Science Now, Scientific American, Smithsonian Magazine, Smithsonian Science, Spektrum der Wissenschaft, Today's Science, Today's Science on File, USA Today, Wiedza i Zycie*

Radio: AAAS – *Science Update*, BBC – *Science Magazine*, CBC – *Quirks and Quarks*, NPR – *Science Friday*, NSF – *Imagine That*

Television: Discovery Channel – *@discovery.ca*, *Daily Planet*

Selected general research coverage

Treefrogs, phenotypic plasticity, and linking gender & sexuality studies with biology. *Animal Behavior Podcast* interview with host Amy Strauss. July 2022.

Wheeling K. – Escape hatch. *Discover Magazine.* July/August 2015.

Buccini CK. (text) and Hahn D. (video) – Escape hatch. *BU Today*, *BU Research*, and *Bostonia.* June 2015. Social media video for *BU Facebook* – over 2.8 million views.

Fields H. – The frog that roared (print) *or* How the tree frog has redefined our view of biology: the world's most charismatic amphibian is upending the conventional wisdom about evolution (online). *Smithsonian Magazine*. January 2013.

Windfall Films, UK – *Easter Eggs Live* series. 2013.

Milius S. – Smart from the start: animal embryos get some respect for their survival skills. *Science News.* August 15, 2009.

BBC – David Attenborough's series *Life in Cold Blood*. 2008.

Holland JS. – It's a frog's life: born on the run, hiding in plain sight. *National Geographic* November 2006.

National Zoological Park exhibit, 2005.

GRANTS AND FELLOWSHIPS

– SINCE JOINING BOSTON UNIVERSITY IN 2001

NSF Research Grant IOS-1354072, "The Development of Adaptive Embryo Behavior" (Original grant $915,912 + $26,165 ROA supplement in 2019 + $24,702 Covid-19 supplement in 2021 = $966,779; co-PI JG McDaniel, BU Mechanical Engineering; ROA collaborator MS Caldwell, Gettysburg College)
Includes three one-year no cost extensions (two due to Covid-19) 2014–2022

Women In Networks Grant, BU Women in Science and Engineering, Internship support for Argentinean PhD student María José Salica ($2400) 2011

NSF Conference Grant IOS-1036933, "Symposium – Environmentally cued hatching across taxa" ($14,980, PIs K Martin, K Warkentin & R Strathmann, award to Pepperdine) 2011

Women In Networks Grant, BU Women in Science and Engineering "Symposium – Environmentally cued hatching across taxa" ($3000) 2010

Smithsonian Tropical Research Institute Senior Fellowship ($12,000) 2008

NSF Research Grant DEB-0716923, "Fear, death, and life history switch points: cumulative effects of predation and predator-induced plasticity across three life stages" ($409,000 + $106,629 in REU & ROA supplements to BU; $247,000 + ROA & REU supplements to collaborator JR Vonesh at Virginia Commonwealth U.) 2007-2011*
*Includes one-year no cost extension.

NSF Research Grant IBN-0234439, "How embryos assess danger: the role of vibrational cues" ($290,000 + $18,000 in REU supplements, co-PI JG McDaniel, Mech Eng.) 2003-2007*
*Includes one-year no cost extension.

National Geographic Society Research Grant ($24,850) 2003-2006

– POSTDOCTORAL

Postdoctoral Fellowship & Research Grant, Smithsonian Tropical Research Institute (US$16,900; funding for 6 months of field research) 2000-2001

Natural Sciences and Engineering Research Council Postdoctoral Fellowship, "The evolution of hatching stage as an anti-predator defense" (Cdn $70,000) 1999-2001

Postdoctoral Fellowship, University of Kentucky ($21,000) 1998-1999

Short-term Postdoctoral Fellowship, Smithsonian Tropical Research Institute ($3,100) 1998

FUNDING AND AWARDS TO MY GRADUATE STUDENTS

JUSTIN C TOUCHON

Belamarich Award for *Best Biology Dissertation* at BU ($1000) 2009
BU Graduate School Award for *Most Outstanding Teaching Fellow in Biology* 2009
Gaige Award for *Best Student Presentation*, Joint Meeting of Ichthyologists & Herpetologists 2009
Smithsonian Pre-doctoral Fellowship ($16,500 for stipend, research & travel) 2007-2008
Boston University Graduate Research Abroad Fellowship ($10,000) 2007
Animal Behavior Society Research Grant ($1000) 2006
American Society of Ichthyologists and Herpetologists Travel Award ($250) 2006
NSF Dissertation Improvement Grant ($12,000) 2005-2007
American Society of Ichthyologists and Herpetologists Gaige Award ($500) 2005
Smithsonian Tropical Research Institute Short-term Fellowship ($3,000) 2004
Ecological Society of America Applied Ecology Travel Award ($750) 2004

MICHAEL S CALDWELL

Belamarich Award for *Best Biology Dissertation* at BU ($1000) 2010
NSF Dissertation Improvement Grant ($10,065) 2007
Smithsonian Tropical Research Institute Short-term Fellowship ($4,000) 2006

MYRA C HUGHEY

Encyclopedia of Life Fellowship ($22,000) 2009-2010
NSF Dissertation Improvement Grant ($15,000) 2009-2010
Smithsonian Tropical Research Institute Short-term Fellowship ($3,050) 2007
Smithsonian Tropical Research Institute Short-term Fellowship ($3,500) 2006
Lewis and Clark Fund for Exploration and Field Research Grant ($4,000) 2006
American Society of Ichthyologists and Herpetologists Gaige Award ($500) 2006

American Society of Ichthyologists and Herpetologists Travel Award ($250) 2006

KRISTINA L COHEN

Belamarich Award for *Best Biology Dissertation* at BU 2018
BU Graduate School Award for *Most Outstanding Teaching Fellow in Biology* 2015
BU Women's Guild Melville Scholarship ($1000) 2015
Graduate Research Abroad Fellowship, Boston University ($4000) 2014
Marion R Kramer Award, Boston University ($2500) 2014
Smithsonian Institution Graduate Fellowship ($6,500) 2012
EE Williams Graduate Research Award, Herpetologists League ($1000) 2012
Rosemary Grant Graduate Research Award, Society for the Study of Evolution ($1000) 2012
Ernst Mayr Fellowship, Smithsonian Tropical Research Institute ($5,000) 2011

JESSE DELIA

Belamarich Award for *Best Biology Dissertation* at BU 2019
BU Dept. of Biology Thomas H. Kunz Award ($5250) 2016
NSF Dissertation Improvement Grant ($16,380) 2015
American Society of Naturalists Student Research Fellowship ($2000) 2015
BU Dept. of Biology Thomas H Kunz Award ($5125) 2015
Boston University Dean's Graduate Fellowship ($6000) 2014
Lewis and Clark Fund for Exploration and Field Research Grant ($5000) 2014
Animal Behavior Society Research Grant ($1,300) 2014
Society for the Study of Evolution Rosemary Grant Award ($2,070) 2013
A Stanley Rand Smithsonian Graduate Fellowship ($4,200) 2013
Fulbright Fellowship for research in Colombia ($11,230) 2012
Boston University Dean's Graduate Fellowship (Supplement to Fulbright, $8,100) 2012
A Stanley Rand Short-term Fellowship, Smithsonian Tropical Research Institute ($3,600) 2012
Grant-in-Herpetology, Society for the Study of Amphibians and Reptiles ($500) 2012

JULIE JUNG

RStudio rstudio::global Diversity Scholarship 2021
EWHA-Luce fellowship to attend "Expanding Horizons International Seminar"
STEM womens' leadership program in Korea (~US$5000) 2019

JAVIER MÉNDEZ NARVÁEZ

BU Graduate Research Abroad Fellowship ($6000) 2019
BU Dept. of Biology Thomas H Kunz Award ($5500) 2019
Chicago Herpetological Society Graduate Student Research Grant ($1000) 2019
Smithsonian Tropical Research Institute Short-term Fellowship ($1000 + in kind support) 2017
Smithsonian Tropical Research Institute, Fellow Status (in kind support) 2016
Fulbright/Colciencias Fellowship supporting 4 years of PhD studies 2015–2019

BRANDON A GÜELL

BU Dept. of Biology Thomas H Kunz Award ($5981) 2021
BU Graduate Research Abroad Fellowship ($6000) 2020 (*deferred to 2021 due to Covid-19*)
Sigma Xi Grant-in-Aid of Research ($900, $500) 2018, 2019
NSF Graduate Research Fellowship ($34,000 per year for 3 years) 2017

MARÍA JOSÉ SALAZAR NICHOLLS

BU Dept. of Biology Thomas H Kunz Award ($6130) 2022
Smithsonian Tropical Research Institute Fellowship ($4860) 2022

ESTEFANY CAROLINE GUEVARA MOLINA (PhD candidate at Universidade de São Paulo, *co-advised* with Fernando Ribeiro Gomes at USP; field research in Panama with me)

Smithsonian Tropical Research Institute A Stanley Rand Fellowship ($4000) 2020
(deferred to 2022 due to Covid-19)
FAPESP–Brazil Fellowship (stipend for three years) 2022–2024
FAPESP–Brazil Study Abroad Fellowship 2023

FUNDING TO MY POSTDOCS

IVAN GOMEZ-MESTRE

Ministry of Education and Science, Spain, Postdoctoral Fellowship ($62,400) 2002-2004

VENETIA BRIGGS

UNESCO-L'Oreal Fellowship for Young Women in Life Sciences ($40,000) 2007-2009

STUDENT ADVISING

POSTDOCTORAL SCHOLARS ADVISED

Ivan Gomez-Mestre (2002–5), now Staff Scientist at Estación Biológica de Doñana, Spain.
James Vonesh (2003–4), now Associate Professor, Virginia Commonwealth University.
Michael McCoy (2008–9), now Assistant Professor, East Carolina University.
Venetia Briggs (2007–9), now Research Associate, University of Florida at Fort Lauderdale
Justin Touchon (2009–2010), now Assistant Professor, Vassar College.
Tobias Landberg (2010–2011), now Director of Research, The Amphibian Foundation.
Valeria Gómez (2014), now Postdoctoral Fellow, Centro de Ecología Aplicada de Litoral, CONICET, Corrientes, Argentina.

PHD STUDENTS ADVISED: 11 AS FIRST READER (LISTED BELOW) AND 33 OTHERS (INCLUDING 30 BU STUDENTS, PLUS STUDENTS AT THE NATIONAL UNIVERSITY OF SINGAPORE, OREGON STATE UNIVERSITY, UNIVERSIDAD DE LOS ANDES)

JC TOUCHON (2002–2009) *Developmental ecology and reproductive mode plasticity of a Neotropical treefrog: Interacting abiotic and biotic environmental effects over three life stages.* BU Postdoc 2009–2010, STRI Postdoc 2010–2011, NSF International Postdoc 2011–2013, ECU Postdoc 2013–2014, Assistant Professor at Vassar 2014–present.

MS CALDWELL (2003–2010) *The use of vibrational information by red-eyed treefrogs for communication and antipredator defense.* STRI Postdoc 2010, UMN Postdoc 2011–2014, STRI Postdoc 2014–2016, Gettysburg College Instructor and Research Associate 2014–2017, Gettysburg College Assistant Professor 2017–present.

MC HUGHEY (2005–2011) *Integrating species interactions and spatial dynamics to explain insect distribution and abundance on a patchy resource.* Virginia Tech Postdoc 2012–2015, Adjunct Assistant Professor Vassar College 2015–2016, Visiting Scholar at Vassar 2016–2018, Assistant Professor at Vassar 2018–present.

KL COHEN (2010–2017) *Evolution and plasticity of hatching mechanisms in anurans.* HHMI Postdoctoral Fellow, Brown University, 2018–2020; Lecturer, College of General Studies, Boston University 2020–present.

J DELIA (2011–2018) *Parent-embryo interactions in Neotropical glassfrogs: female mating strategies, paternal effort, and adaptive plasticity in hatching.* Postdoctoral Fellow, Stanford University, Fall 2018–Summer 2020; Postdoctoral Fellow, American Museum of Natural History, Summer 2020– (2 year fellowship).

J JUNG (2015–2021) *Developmental changes in vibration sensing and vibration-cued hatching decisions in red-eyed treefrogs.* Postdoctoral Fellow, University of Utah, June 2021– (2 year NSF *Rules of Life* postdoctoral fellowship).

J MÉNDEZ NARVÁEZ (2015–2022) *The role of phenotypic plasticity in reproductive colonization of land by frogs: urea excretion and mechanisms to prevent ammonia toxicity during terrestrial development*

LA RUEDA SOLANO (2017–2022) *Implicaciones adaptativas del sistema de aparaeamiento y "female-guarding" en ranas arlequines (Bufonidae:* Atelopus*).* Universidad de los Andes, Bogota, Colombia – dissertation co-advised with Andrew Crawford and Carlos Navas.

BA GÜELL (2017–2023) *Explosive breeding and its consequences for critical adult and embryo behaviors in gliding treefrogs*

MJ SALAZAR NICHOLLS (2018–present) *Developmental mechanisms enabling adaptive embryo behavior*

EC GUEVARA MOLINA (2020–present) *Behavioral defenses of terrestrial frog embryos and the interacting effects of heat and dehydration.* Universidade de São Paulo, Brazil – dissertation co-advised with Fernando Ribeiro Gomes at USP based on fieldwork in my lab at STRI.

BJ JOHNSON (2021–2022) *Risk perception and embryo decisions in red-eyed treefrogs* – withdrew from Boston University for personal reasons.

MA STUDENTS ADVISED: 1 AS FIRST READER + 8 OTHERS (2 AT BU + OTHERS AT UNIANDES, VIRGINIA COMMONWEALTH UNIVERSITY)

MING GUO (2012–) *Vibration-cued hatching in red-eyed treefrogs: analysis rules for temporal patterns of non-stereotyped cues.* Co-advised with Mark Crovella, Computer Science; now working in software design.

BU UNDERGRADUATES AND STRI RESEARCH INTERNS SUPERVISED (SINCE 2001): 111, OF WHOM AT LEAST 44 HAVE GONE ON TO GRADUATE SCHOOL

SCIENTIFIC SERVICE

Manuscript and grant reviewer for: *Alytes*, *American Naturalist*, *American Zoologist*, *Amphibia-Reptilia*, *Animal Behaviour*, *Archiv fur Hydrobiologie*, *Archives of Sexual Behavior*, *Behavioral Ecology*, *Behavioral Ecology and Sociobiology*, *Biological Journal of the Linnean Society*, *Biology Letters*, *Biotropica*, *Canadian Journal of Zoology*, *Copeia*, *Current Biology*, *Developmental Dynamics*, *Ecology*, *Ethology*, *Evolution*, *Evolution and Development*, *Functional Ecology*, *Herptetologica*, *Herpetological Natural History*, *Hydrobiologia*, *Integrative and Comparative Biology*, *Journal of Applied Ecology*, *Journal of Ethology*, *Journal of Experimental Biology*, *Journal of Experimental Zoology B: Molecular and Developmental Evolution*, *Journal of Herpetology*, *Journal of Insect Physiology*, *Journal of Morphology*, *Journal of Tropical Ecology*, *Learning and Behavior*, *Naturwissenschaften*, *Oecologia*, *Physiological and Biochemical Zoology*, *Proceedings of the National Academy of Sciences (USA)*, *Proceedings of the Royal Society (Lond.) B*, *Zoology*, *Zoomorphology*, M. J. Murcock Charitable Trust, National Geographic, National Research Foundation (South Africa), Grant Agency of the Academy of Sciences of the Czech Republic, the National Science Foundation (USA), and the Smithsonian Institution.

National Science Foundation Panelist: 2004, 2006, 2009, 2014. [Invited to sit on six additional NSF panels; declined due to time conflicts with teaching responsibilities and field research.]

Associate Editor, *Behavioral Ecology and Sociobiology*: 2011–2015.

SOCIETY MEMBERSHIPS AND SERVICE

International Biotremology Network
- Member of Scientific Committee for biannual Biotremology Symposium — 2016–present

Society for Integrative and Comparative Biology
- Symposium Organizer for symposium on "Environmentally cued hatching across taxa" at the January 2011 meetings (with co-organizers Karen Martin and Richard Strathmann)

American Society of Ichthyologists and Herpetologists
- Candidate for President (nominated and ran, not elected) — 2010
- Board of Governors (elected) — 2003–2008
- Resolutions Committee — 2005
- Long range planning and program committee — 2003–2009
- Chair, contributed paper session at annual meeting — 2002, 2010
- Stoye Award judge (Ecology and Ethology) — 1999, 2003, 2010
- ASIH Equal Participation Committee — 1995–1997

Society for Conservation Biology
- SCB University of Texas Chapter Secretary — 1995–1996
- SCB University of Texas Chapter Vice-President — 1992–1993

Additional Memberships: Animal Behavior Society, Canadian Association of Herpetologists, Colombian Association of Herpetologists, Ecological Society of America, Sigma Xi, Society for the Study of Evolution

SELECTED DIVERSITY-RELATED SERVICE

Inclusive education work funded by the National Science Foundation

Network Participant in *RCN-UBE Incubator: Creating a More Inclusive Biology Curriculum* (NSF award 2018693 to PI Sarah Eddy, Florida International University) 2021–2022

Intensive Advisory Board Member for *NSF-IUSE: Fostering More Accurate and Identity-Affirming Science Teaching and Learning at Hispanic-Serving Institutions* (Improving Undergraduate STEM Education, Collaborative Grants 2234633, 2235957 and 2235833 to PIs Aramati Casper, CSU-Fort Collins; Sarah Eddy, FIU & UMN-Twin Cities; Antonio Duran, ASU; $598,410) 2023–2026

For Boston University

Biology Antiracism Committee – inaugural chair, then co-chair	2020–2021
CAS Diversity and Inclusion Action Team member, on Initiatives Subcommittee	2020–2021
Strategic Implementation Group, Initiative Owner: LGBTQIA+ Center	2020–2021
Data Governance, SOGI terms and questions for BU use	2020
LGBTQIA+ Faculty & Staff Task Force, co-chair	2018–2019
CAS Dean's Task Force on the Future of Women's Studies at BU	2009–2010

TEACHING

Faculty, Boston University

Phenotypic Plasticity BI506	9 times from 2002–2013 + 2015, 2017, 2019, 2021, 2023
Diversity of Sex BI507 & WS507	Fall 2023
Sex, Sexes, and Sexual Phenotypes BI 594 (4 credits)	Spring 2020
Sex, Sexes, and Sexual Phenotypes BI581/BI582 (2 credits)	Fall 2013, Spring 2018
Gender and Sexuality: An Interdisciplinary Intro. WS101	Fall 2011–2014, 2016–2020, 2022
Progress in Ecology, Behavior, Evolution & Marine Biology BI 579	Fall 2017
Herpetology BI416/616	Spring 2014
Advanced Animal Behavior: Information use and behavioral decisions BI582	Spring 2011
Biodiversity (non-majors) CC106	Spring 2004, 2005, 2006, 2007, 2008, 2010, 2011
The Evolution of Life and Intelligence (non-majors) CC106	Spring 2002, 2003

Guest Lectures since joining BU in 2001

Boston University:

BI 407, Animal Behavior	2021
BI 225, Behavioral Biology	2014, 2016
WS 801, Theories & Methods in Women's, Gender & Sexuality Studies	2013
BI 224, Behavioral Biology	2010, 2011, 2012, 2013
GRS 671, Graduate Survey of Ecology, Behavior & Evolution	most years since 2012
BI 410/610, Development	2010, 2011, 2012
BI 303, Ecology	2005, 2006, 2008, 2010
BI 107 Introductory Biology (honors section)	2001–2009
BI 306, Global Change Biology	2009
BI 508, Behavioral Ecology	2007
CS 107, Computational Systems	2004, 2005

Ohio Northern University: class visits in six courses for Keiser lectureship	2022
Otterbein College: Animal Behavior + Gender & Biology	2021
Harvard University: Herpetology	2018, 2020

Simon Fraser University: Tropical Biology (undergraduate field course)	2013
McGill University: Tropical Ecology and Conservation (graduate field course)	2009, 2011, 2012
East Carolina University: Tropical Biology (undergraduate field course)	2009, 2012
Butler University: Tropical Biology (undergraduate field course)	2009, 2010

Assistant Instructor, University of Texas

Topics in Biology (non-majors)	Spring 1996 and 1998
Evolution	Spring and Fall 1997
Animal Behavior	Fall 1996
Heredity, Evolution and Society	Fall 1995
Tropical Field Ecology (graduate course)	Summer 1993

Resource Person, Organization for Tropical Studies

Tropical Biology: An Ecological Approach (graduate field course)	Summer 1993

Teaching Assistant, Dalhousie University

Environmental Ecology	Spring 1991
Introductory Biology	Fall 1990
Biological Issues of Our Times (non-majors)	Fall 1988 and 1989, Spring 1989 and 1990
Terrestrial Diversity	Spring 1989

PUBLIC EDUCATION – INVITED PRESENTATIONS FOR BROAD AUDIENCES

2022 Keiser Distinguished Lecture in Life Sciences. Ohio Northern University, Ada, OH. Crossing boundaries, disrupting binaries: A queer perspective on the diversity of life. October.

Ada Rotary, OH. Learning from frogs. October 2022.

2022 Schuellein Lecture in the Biological Sciences. University of Dayton, OH. Crossing boundaries, disrupting binaries: A queer perspective on the diversity of life. October 2022.

"Activism in Academia" Faculty Panel. *Panelist* – for BU students, CAS Diversity & Inclusion. 17 October 2022

BU CELLS: Careers Exploration and Learning in Life Sciences. *Panelist* – for Boston area high school students. April 2021

Society for Integrative and Comparative Biology Meeting. *Invited panelist.* Embracing variation among humans: Perspectives on LGBTQ+ experiences in biology and academia. Austin, TX. January 2020.

Students for Reproductive Freedom, Boston University. Intersex and the diversity of human sexual development. November 2019.

Underrepresented Minority Graduate Students Symposium, Boston University. *Keynote address*. Benefits of human diversity for science: different people ask different questions. September 2019.

Queer Activist Collective, Boston University. On being a queer adult. March 2019.

2018 University Lecture, Boston University. Diversity and plasticity of life: a biologist's journey from embryo self-defense to sexual behavior. November 2018.

Open Mic at the Old Oak Dojo, Jamaica Plain. Egg science. November 2018.

Alumni College, Boston University. Ask the frogs – on natural history, fieldwork, and the origins of research programs. September 2018.

Science Writing class, John's Hopkins Program in Saudi Arabia (for gifted teenage girls). Phenotypic plasticity, embryo behavior, and tropical rainforest research. 2014.

The Education Cooperative, Dedham, MA: Summer Science Institute (for middle and high school science teachers). Phenotypic plasticity, hatching, and eggs as organisms. 2013.

OUTlook LGBTQ lecture series of Marsh Chapel, Boston University. Evolutionary history, developmental mechanisms, and diversity in human sexuality. 2012.

Center for Gender, Sexuality and Activism, Boston University. Human sexuality in evolutionary context. 2011.

Management Conference, Boston University. Eggs as organisms: adaptive embryo behavior. 2009.

Centennial Celebration, Boston University Dept. of Biology. Ecology and development in a dangerous world: embryo responses to risk. 2004

Undergraduate Research Symposium, Boston University Parents' Weekend. Keynote address: Ecology and development in a dangerous world: embryo responses to danger. 2004.

Gamboa Rainforest Resort, Panama. Ecología, evolución, y comportamiento de embriones de rana y de renacuajos. 2004

Fundación Neotropica, Centro BOSCOSA, Agua Buena, Costa Rica. Workshop: Anfibios de la Peninsula de Osa. 1994.

PEDAGOGY AND COMMUNICATION PRESENTATIONS

Inclusive Excellence Academy, University of Dayton. *Lunch and Learn Faculty Workshop* – Complicating biological norms for gender-inclusive teaching. 20 October 2022.

Education and Teaching (EAT) Lunch *Workshop*, Boston University. Inclusive teaching: Sexual and reproductive biology for a gender-diverse student body. February 2019.

Strategic Communication Series, Boston University. *Panelist*, Science through video: How to tell a compelling story. March 2018.

Teaching Talk, Boston University Center for Teaching and Learning. Interdisciplinary team-teaching and the "Thought Experiment" assignment (with Carrie Preston, Dept. of English). February 2013.

Women's, Gender & Sexuality Studies Pedagogy Workshop for graduate certificate students, Boston University. 2014, 2016, 2017.

RESEARCH PRESENTATIONS

Scientific meetings: Oral presentations

(*presenter)

102. Warkentin KM. *Pending* – June 2024. Plasticity, modularity, and cross-sexual transfer: a nonbinary framework for sexual diversity. ***Invited symposium talk*** for *Increasing the visibility of LGBTQ+ scientists and building a queer-friendly community in the Animal Behavior Society*. Animal Behavior Society meeting, London ON.

101. Salazar-Nicholls MJ[G]*, Allard C, Lisondro A[U], Bellono N, Warkentin KM. 2024. Neural control of hatching enzyme release enables rapid escape-hatching in red-eyed treefrogs. Society for Integrative and Comparative Biology meeting, Seattle, WA.
– winner of the Marlene Zuk Award for Best Student Talk in Animal Behavior

100. Flores D[U]*, Zurita D[U], Warkentin KM, Salazar-Nicholls MJ[G], Debut A, Vizuete K, Romero-Carvajal A. 2023. Mecanismo de eclosión de tres especies del orden Anura: *Hyloxalus awa*, *Epipedobates anthonyi* (Dendrobatidae) y *Espadarana prosoblepon* (Centrolenidae). Congreso Latinoamericano de Herpetología, Cochabamba, Bolivia.

99. Lisondro-Arosemena A[U]*, Salazar-Nicholls MJ[G], Warkentin KM. 2023 Elevated ammonia cues hatching in red-eyed treefrogs: A mechanism for escape from drying eggs. STRI Fellows Symposium. Smithsonian Tropical Research Institute, Panama City, Panama.

98. Warkentin KM. May 2023. Crossing boundaries, disrupting binaries: A queer perspective on the diversity of life. ***Plenary Address*** for the Ontario Ecology, Ethology, and Evolution Colloquium, London ON.

97. Warkentin KM. April 2023. Development and mechanisms of adaptive embryo behavior. ***Plenary Address*** for the Justin Schmidt Spring Symposium, University of British Colombia, Vancouver, BC.

96. Warkentin KM. March 2023. Plasticity, modularity, and cross-sexual transfer: a nonbinary framework for sexual diversity. ***Invited talk*** for Royal Society Theo Murphy Meeting on Genetics and Evolution of Sexual Orientation. Cookham, UK.

95. Warkentin KM. 2022. Tecnología simple y avanzada, invención y uso no autorizado: desarrollando métodos para investigar el comportamiento de embriones de ranas. ***Plenary Address*** for the Congreso Colombiano de Herpetología. Cali, Colombia. [A version of this talk, presented at the Smithsonian Tropical Research Institute is available online.]

94. Méndez-Narváez J[G]*, Warkentin KM. 2022. Riesgo de desecación, toxicidad y tolerancia del amoniaco, y la excreción de urea durante el desarrollo terrestre en anuros. Congreso ***Symposium***: Rasgos y mecanismos fisiológicos que subyacen la diversidad fenotípica. Colombiano de Herpetología. Cali, Colombia.

93. Zurita D[U]*, Salazar Nicholls MJ[G]*, Vizuete K, Debut A, Romero Carvajal A, Warkentin KM. 2022. Estrategias de eclosión en dendrobatidos. ***Symposium***: Rasgos y mecanismos fisiológicos que subyacen la diversidad fenotípica. Congreso Colombiano de Herpetología. Cali, Colombia. – *Awarded best student presentation in symposium*

92. Güell BA[G]*, Warkentin KM. 2022. Comportamientos reproductivos, fenología y los desencadenantes ambientales de los eventos de reproducción explosiva de la rana planeadora, *Agalychnis spurrelli.* ***Symposium***: Comportamiento reproductivo y comunicación en anfibios y reptiles. Congreso Colombiano de Herpetología. Cali, Colombia.

91. Salazar Nicholls MJ[G]*, Warkentin KM. 2022. ¿Cómo perciben el oxígeno los embriones de *Agalychnis callidryas*? Mecanismos claves en el comportamiento adaptativo durante el desarrollo. ***Symposium***: Rasgos y mecanismos fisiológicos que subyacen la diversidad fenotípica. Congreso Colombiano de Herpetología. Cali, Colombia.

90. Warkentin KM. 2021. Crossing boundaries, disrupting binaries: A queer perspective on studying behavioral diversity. ***Plenary Address**** for Animal Behavior Society meeting, virtual.
**Video viewed over 3000 times, used in courses in multiple universities*

89. Guevara Molina EC[G]*, Ribeiro Gomes F, Warkentin KM. 2021. Hydration-dependent heat-induced hatching of red-eyed treefrogs: drying reduces thermal tolerance. Animal Behavior Society meeting, virtual.

88. Gomez EK[U]*, Chaiyasarikul A[U], Güell BA[G], Warkentin KM. 2021. Developmental changes in red-eyed treefrog embryo behavior increase escape success in wasp attacks. Animal Behavior Society meeting, virtual.

87. Güell BA[G]*, Gomez EK[U], Warkentin KM. 2021. Gliding treefrog reproduction: Possible functions of diverse male behavior in terrestrial breeding aggregations. Society for Integrative and Comparative Biology meeting, virtual.

86. Jung J[G]*, Serrano-Rojas SJ, Warkentin KM. 2020. Multimodal mechanosensing enables treefrog embryos to escape egg-predators. Animal Behavior Society meeting, virtual.

84. Güell BA[G]*, Caldwell MS, Warkentin KM. 2020. Treefrog egg-clutch biomechanics and their effect on embryo escape-hatching behavior. Society for Integrative and Comparative Biology Meeting, Austin, TX.

83. Méndez-Narvaez J[G]*, Warkentin KM. 2020. Nitrogen excretion plasticity and reproductive colonization of land by frogs: multiple strategies to avoid ammonia toxicity. Society for Integrative and Comparative Biology Meeting, Austin, TX.

82. Warkentin KM. 2019. All the variations matter: bridging disciplines and communities to study diversity in life history and sexual behavior. ***Opening Plenary Address*** to Ecological Society of America. Louisville, KY.

81. Warkentin KM. 2019. Queering herpetology: on human perspectives and the study of diverse animals. ***Plenary Address*** to the Brazilian Congress of Herpetology. Campinas, São Paulo, Brazil.

80. Méndez Narváez J*, Warkentin KM. 2018. Plasticidad fenotipica en la excreción de nitrogeno durante el desarrollo en anuros con reproducción terrestre. ***Invited symposium speaker.*** Simposio: Ecología sensorial, fisiología reproductiva, y comportamiento. V Congreso Colombiano de Zoología. Bogota, Colombia.

79. Warkentin KM. 2018. Proximate and ultimate causes of plastic hatching timing. ***Plenary Address*** to the International Society for Behavioral Ecology, Minneapolis, MN

78. Jung J[G]*, McDaniel JG, Warkentin KM. 2018. Ontogenetic adaptation in information use for escape-hatching decisions: older embryos selectively accept more false alarms. Society for Integrative and Comparative Biology Meeting, San Francisco, CA.

77. Warkentin KM. 2017. From field observations of *Agalychnis* eggs to integrative and comparative biology of environmentally cued hatching – herpetological research and gender studies insights. ***Invited symposium speaker.*** Simposio: Mujeres herpetólogas en Latinoamérica: logros y desafíos. Congreso Latinoamericano de Herpetología, Quito, Ecuador.

76. Cohen KL[G]*, Warkentin KM. 2017. Different hatching mechanisms but similar escape-hatching processes in two Neotropical treefrogs. Joint Meeting of Ichthyologists and Herpetologists, Austin, TX.

75. Delia J[G]*, Warkentin KM. 2017. The evolution of parent–embryo interactions in glassfrogs. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

74. Cohen KL[G]*, Piacentino ML[G], Warkentin KM. 2017. Two types of hatching glands facilitate escape-hatching of red-eyed treefrogs across multiple contexts and developmental stages. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

73. Warkentin KM. 2016. Biología integradora y el comportamiento adaptativo en embriones de ranas neotropicales. ***Plenary Address*** to Primer Congreso Colombiano de Herpetología, Medellín, Colombia.

72. Cohen KL[G]*, Warkentin KM. 2016. The proximate mechanisms of adaptive early hatching in hourglass treefrogs. Animal Behavior Society Meeting, Colombia, MO.

71. Warkentin KM. 2016. What's shaking? Egg vibrations as risk cues in the escape-hatching decisions of embryos. ***Plenary Address*** to Studying Vibrational Communication: 1st International Symposium on Biotremology. San Michele all'Adige, Italy.

70. Warkentin KM*, Cohen KL[G], Cuccaro Diaz J[U], Güell BA[U], Jung J[G]. 2016. Development of embryo behavior: hatching mechanisms, performance, and decisions in red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Portland, OR.

69. Cohen KL[G]*, Warkentin KM. 2016. Mechanism of early hatching of hourglass treefrogs in drying and ant attacks. Society for Integrative and Comparative Biology Meeting, Portland, OR.

68. Warkentin KM. 2015. Environmentally cued hatching: development, information, and adaptive behavior of embryos. ***Plenary Address*** to the Brazilian Congress of Herpetology, Gramado, Brazil.

67. Warkentin KM. 2014. Información, desarrollo, y decisiones bajo riesgo: la eclosión de *Agalychnis callidryas*. ***Invited symposium speaker***, Simposio de Evolución de Señales y Comportamientos de Comunicación en Anfibios y Reptiles. Congreso Latinoamericano de Herpetología, Cartagena, Colombia.

66. Delia J[G]* Bravo-Valencia L[G], Warkentin KM. 2014. Evolución de los interacciones entre los padres y embriones en ranas de cristal. ***Invited symposium speaker***, Simposio del Cuidado Parental en Anuros. Congreso Latinoamericano de Herpetología, Cartagena, Colombia.

65. Bravo-Valencia L[G]*, Delia J[G], Amézquita A, Warkentin KM. 2014. Evolución del cuidado materno en ranas de cristal (Centrolenidae). ***Invited symposium speaker***, Simposio del Cuidado Parental en Anuros. Congreso Latinoamericano de Herpetología, Cartagena, Colombia.

64. Cohen KL[G]*, Warkentin KM. 2014. El mecanismo de eclosión de *Agalychnis callidryas* varía con la ontogenia y el contexto en respuesta a amenazas ambientales. Congreso Latinoamericano de Herpetología, Cartagena, Colombia.

63. Touchon JC*, McCoy M, Landberg T, Vonesh JR, Warkentin KM. 2014. Simultaneous evaluation of pre- and post-metamorphic risk determines flexible timing of emergence and duration of metamorphosis in red-eyed treefrogs. Ecological Society of America Meeting, Sacramento, CA.

62. Landberg T[P]*, Warkentin K, Willink B[U], Mount K, Clouse E, Whiteman H. 2013. Larval density affects jumping performance development during metamorphosis in two arboreal frogs. Society for Integrative and Comparative Biology Meeting, San Francisco, CA.

61. Warkentin KM. 2012. Environmentally cued hatching: Integrative and evolutionary biology of a critical life-stage transition. ***Plenary Address*** to World Congress of Herpetology, Vancouver, BC.

60. Vonesh JR*, McCoy MW, Warkentin KM. 2012. Consequences of prey size-, density- and dose-dependent responses to predator cues for population size structure. Ecological Society of America Meeting, Portland OR.

59. Delia JRJ[G]*, Warkentin KM. 2012. Hatching plasticity and the function of parental care in two glassfrogs (Anura: Centrolenidae). Society for Integrative and Comparative Biology Meeting, Charleston, SC.

58. Cohen KL[G]*, Seid MA, Warkentin KM. 2012. The mechanism of rapid, plastic hatching in red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Charleston, SC.

57. Landberg T[P], Willink B[U], Noss CF[U], Greene RS[U], Vonesh JR, Warkentin KM. 2012. Development of climbing performance and behavior during red-eyed treefrog metamorphosis: the effects of larval competition. Society for Integrative and Comparative Biology Meeting, Charleston, SC.

56. McCoy MW[P]*, Touchon JC[P], Landberg T[P], Warkentin KM, Vonesh JR. 2011. Determining mechanisms for risk assessment: Disentangling the relative importance of prey number and prey biomass for generating indirect cues of predation risk. Ecological Society of America Meeting, Austin TX.

55. Hughey MC[G]*, McCoy MW[P], Vonesh JR, Warkentin KM. 2011. Patterns and mechanisms of spatial variation in the abundance of a frog egg mass-infesting fly and its eucoiline parasitoid. Ecological Society of America Meeting, Austin TX.

54. Warkentin KM. 2011. Introduction to the Symposium: Eggs as organisms – environmentally cued hatching and adaptive embryo responses to risk and opportunity. ***Symposium organizer & speaker*** for "Environmentally cued hatching across taxa: Embryos choose a birthday" Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT.

53. Warkentin KM. 2011. Hatching plasticity in amphibians: evolution, trade-offs, cues and mechanisms. ***Symposium organizer & speaker*** for "Environmentally cued hatching across taxa: Embryos choose a birthday" Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT.

52. Bouchard SS*, Jenney CR[U], Charbonnier JF[G], Warkentin KM. 2011. Density-dependent digestive plasticity in red-eyed treefrogs before and after metamorphosis. Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT. [*NSF–ROA collaborator.]

51. Landberg T*[P], Cohen KL[G], Willink B[U], Warkentin KM. 2011. Effects of hatching age and predator cues on the development of escape swimming performance and survival with dragonfly predators in red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT.

50. Vonesh JR*, McCoy MW[P], Hughey MC[G], Warkentin KM. 2011. Sequential predator effects across life stages: Predicting phenotypic and density effects of egg predators on larval survival and growth. Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT.

49. Russell BR* [U], Warkentin KM, Rosengaus R. 2010. Temporal and acoustic attributes of the pathogen alarm response and head banging behavior in *Zootermposis angusticollis*. Entomological Society of America Meeting, San Diego, CA.

48. Hughey MC*[G], McCoy MW[P], Vonesh JR, Warkentin KM. 2010. Disentangling pre- and post-colonization processes operating in a simple insect community associated with a spatially patchy resource. Ecological Society of America Meeting, Pittsburgh, PA.

47. Vonesh JR*, McCoy MW[P], Touchon JC[P], Warkentin KM. 2010. Size and density-mediated interactions among sequential predators of different life stages of the red-eyed treefrog. Ecological Society of America Meeting, Pittsburgh, PA.

46. McCoy MW*[P], Touchon JC[P], Warkentin KM, Vonesh JR. 2010. Influence of resource availability on the outcome of size structured interactions. Ecological Society of America Meeting, Pittsburgh, PA.

45. Hite JL*, Hughey MC[G], McCoy MW[P], Warkentin KM, Vonesh JR. 2010. Terrestrial predators and abiotic conditions affect hatching phenotype and survival of arboreal frog eggs: Implications for aquatic food web dynamics. Ecological Society of America Meeting, Pittsburgh, PA.

44. Touchon JC*[P], McCoy MW[P], Vonesh JR, Warkentin KM. 2010. Interacting effects of hatching plasticity, larval resources, perceived risk, and predation on phenotypes and recruitment of juvenile red-eyed treefrogs. Ecological Society of America Meeting, Pittsburgh, PA.

43. Warkentin KM.*, Touchon JC[P], McCoy MW[P], Hughey MC[G], Vonesh JR. 2010. Consequences of hatching timing in red-eyed treefrogs: timescale, currency and context-dependence of trade-offs. Joint Meeting of Ichthyologists and Herpetologists, Providence, RI.

42. McCoy MW*[P], Vonesh JR, Warkentin KM, Bolker B. 2009. Using response surface experiments to study consumer–resource interactions. ***Invited speaker*** in symposium on "Transcending tradition to understand and model complex interactions in ecology." Ecological Society of America Meeting, Albuquerque, NM.

41. Hughey MC*[G], Rogge JR[U], McCoy MW[P], Warkentin KM. 2009. Deciding when to hatch: Predator and embryo cues in wasp-induced hatching of red-eyed treefrogs. Society of Integrative and Comparative Biology Meeting, Boston, MA.

40. Touchon JC*[G], Warkentin KM. 2009. Morphological responses to abiotic and biotic factors: Temperature effects on predator-induced phenotypes in a neotropical treefrog tadpole. Society of Integrative and Comparative Biology Meeting, Boston, MA.

39. Gomez-Mestre I*[P], Touchon JC[G], V.L. Saccoccio[U], Warkentin KM. 2009. Quantitative genetic analyses of risk-induced hatching reveal limits to plasticity of inducible defenses. Society of Integrative and Comparative Biology meetings, Boston, MA.

38. McCoy MW*[P], Warkentin KM, Vonesh JR. 2009. Phenotypic plasticity in metamorphic timing: Understanding the role of size- and density-dependant processes. Society of Integrative and Comparative Biology Meeting, Boston, MA.

37. Touchon JC*[G], Warkentin KM. 2008. Reproductive mode plasticity in the treefrog *Dendropsophus ebraccatus*. World Congress of Herpetology, Manaus, Brazil.

36. Hughey MC*[G], Warkentin KM. 2008. Interactions among egg predators of red-eyed treefrogs (*Agalychnis callidryas*) and consequences for both predators and prey. World Congress of Herpetology, Manaus, Brazil.

35. Warkentin KM*, Caldwell MS[G], McDaniel JG. 2008. Vibrational cues in predator-induced hatching of red-eyed treefrogs. ***Invited speaker*** in symposium on "Sensory ecology of anuran communication." World Congress of Herpetology, Manaus, Brazil.

34. Caldwell MS[G]*, McDaniel JG, Warkentin KM. 2008. Vibrational signaling in male-male agonistic interactions of red-eyed treefrogs. ***Invited speaker*** in symposium on "Sensory ecology of anuran communication." World Congress of Herpetology, Manaus, Brazil.

33. McCoy MW*[P], Vonesh JR, Warkentin KM. 2008. Switch point phenotypes and recruitment across complex life cycles: role of size and density-dependent processes. Ecological Society of America Meeting, Milwaukee, WI.

32. Gomez-Mestre I*[P], Wiens JJ, Warkentin KM. 2007. Evolution of risk-sensitive hatching in neotropical leaf-breeding treefrogs (*Agalychnis*: Hylidae). European Herpetological Society Meeting, Porto, Portugal.

31. Warkentin KM*, Caldwell MS[G]. 2007. Information and risk assessment by red-eyed treefrogs embryos. ***Invited speaker*** in symposium on "Evolutionary ecology of learning, memory, and information use" Animal Behavior Society Meeting, Burlington, VT.

30. Rogge JR*[U], Warkentin KM. 2007. Embryo behavior, gills and oxygen gradients: how red-eyed treefrogs avoid premature hatching. Animal Behavior Society Meeting, Burlington, VT.

29. Caldwell MS[G]*, McDaniel JG, Warkentin KM. 2007. Vibrational information in two life stages of the red-eyed treefrog: agonistic communication signals and predation risk cues in an arboreal environment. ***Invited speaker*** in symposium on "Seismic communications by animals." Acoustical Society of America Meeting, Salt Lake City, UT.

28. Warkentin KM*, Caldwell MS[G], McDaniel JG. 2007. Vibrational risk assessment as a signal detection problem: escape hatching of red-eyed treefrog eggs. ***Invited speaker*** in symposium on "Seismic communications by animals." Acoustical Society of America Meeting, Salt Lake City, UT.

27. Warkentin KM. 2006. Embryo behavior, oxygen stress, and heterokairy in gill regression: does respiratory plasticity facilitate predation-sensitive hatching timing? ***Invited speaker*** in symposium on "Developmental transitions in respiratory physiology." First International Congress of Respiratory Biology, Bonn, Germany.

26. Warkentin KM*, Caldwell MS[G], Siok TD[U], McDaniel JG. 2006. Timing of vibration-cued hatching in red-eyed treefrogs: how much information is enough to assess predation risk? American Society of Ichthyologists and Herpetologists Meeting, New Orleans, LA.

25. Touchon JC*[G], Warkentin KM. 2006. Long-term effects of short-term variation: how egg environment changes tadpole phenotype and survival. American Society of Ichthyologists and Herpetologists Meeting, New Orleans, LA.

24. Gomez-Mestre I*[P], Saccoccio VL[U], Warkentin KM. 2006. The shape of things to come: linking larval plasticity to juvenile morphology in frogs. American Society of Ichthyologists and Herpetologists Meeting, New Orleans, LA.

23. Warkentin KM*, Caldwell MS[G], McDaniel JG. 2006. Vibrational risk assessment by red-eyed treefrog embryos**. ***Invited speaker*** in symposium on "Acoustic interactions in animal groups." Acoustical Society of America Meeting, Providence, RI.

** This presentation was covered by *Science Now*, the AAAS radio show *Science Update*, *Today's Science*, *American Scientist*, and other popular media.

22. Warkentin KM*, Caldwell MS[G], Wright KC[U], McDaniel JG. 2005. Wasp-induced hatching of red-eyed treefrogs: are vibrational cues sufficient? American Society of Ichthyologists and Herpetologists Meeting, Tampa FL.

21. Vonesh JR*[P] and Warkentin KM. 2005. Predator-induced shifts in metamorphosis in response to larval and metamorph risk. American Society of Ichthyologists and Herpetologists Meeting, Tampa FL.

20. Gomez-Mestre I*[P], Touchon JC[G], Warkentin KM. 2005. Embryos defenses against water mold infection in wood frogs, American toads and spotted salamanders. American Society of Ichthyologists and Herpetologists Meeting, Tampa FL.

19. Touchon JC*[G], Warkentin KM. 2005. Interacting risks: rainfall reliability and egg predation in the neotropical treefrog, *Hyla ebraccata*. American Society of Ichthyologists and Herpetologists Meeting, Tampa FL.

18. Gomez-Mestre I*[P], Warkentin KM, Schneider JC, Wiens JJ. 2005. Phylogenetic analysis of the evolution of hatching plasticity in tropical treefrogs. Society for the Study of Evolution Meeting, Fairbanks AK.

17. Caldwell MS*[G], McDaniel JG, Warkentin KM. 2005. Do red-eyed treefrog embryos use frequency cues in distinguishing egg predators from benign disturbances? Society for Integrative and Comparative Biology Meeting, San Diego, CA.

16. Warkentin KM*, Gomez-Mestre I[P]. 2004. Effects of development, surface exposure, and embryo behavior on oxygen levels in red-eyed treefrog eggs. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

15. Warkentin KM, Caldwell MS*[G], McDaniel JG. 2004. The feeling of danger: how red-eyed treefrog embryos use vibrations to assess risk. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

14. Gomez-Mestre I*[P], Warkentin KM. 2004. Embryo response to risk varies among species of leaf-breeding treefrogs, genus *Agalychnis.* Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

13. Buckley CR*[U], Metcalf KA[U], Warkentin KM. 2003. Effects of egg development on efficiency and choices of wasps foraging on red-eyed treefrog eggs. Society for Integrative and Comparative Biology Meeting. Toronto, ON.

12. Warkentin KM. 2002. Risk assessment by embryos: frequency and temporal pattern of vibrational cues affect escape hatching in red-eyed treefrogs. American Society of Ichthyologists and Herpetologists Meeting, Kansas City, MO.

11. Buckley CR*[U], Metcalf KA[U], Warkentin KM. 2002. Effects of egg development on efficiency and choices of wasps foraging on red-eyed treefrog eggs. American Society of Ichthyologists and Herpetologists Meeting, Kansas City, MO.

10. Warkentin KM. 2001. Hatching as a defense against egg predators: the role of vibrational cues. Society of Integrative and Comparative Biology Meeting, Chicago, IL.

9. Niedzwiecki J*, Warkentin KM. 2000. Examining population variation in life history traits of the sister species *Ambystoma texanum* and *Ambystoma barbouri*. Society for the Study of Evolution Meeting, Bloomington, IN.

8. Warkentin KM. 1999. Escape hatching in red-eyed treefrogs: embryos respond to wasp attack and fungus infestation. American Society of Ichthyologists and Herpetologists Meeting, State College, PA.

7. Warkentin KM. 1997. Behavioral correlates of hatchling vulnerability in the red-eyed treefrog: a mechanistic link between morphology and performance. American Society of Ichthyologists and Herpetologists Meeting, Seattle, WA.
6. Warkentin KM. 1996. Plasticity in hatching: a response to predation risk trade-offs. Animal Behavior Society Meeting, Flagstaff, AZ.
5. Warkentin KM. 1996. Size, shape and vulnerability in hatchling red-eyed tree frogs. American Society of Ichthyologists and Herpetologists Meeting, New Orleans, LA.
4. Warkentin KM. 1995. Effects of hatching age on development in the red-eyed treefrog, *Agalychnis callidryas*. American Society of Ichthyologists and Herpetologists Meeting, Edmonton, Alberta.
3. Warkentin KM. 1993. Plasticity in hatching: an adaptation to predation risk trade-offs. American Society of Ichthyologists and Herpetologists Meeting, Austin, TX.*****

   *****Winner of the Stoye Award for best student paper in ecology and ethology.
2. Warkentin KM. 1992. Does hatching time reflect mortality risk trade-offs? American Society of Ichthyologists and Herpetologists Meeting, Champaign, IL.
1. Warkentin KM. 1990. Feeding rate variation and microhabitat use in *Rana clamitans* tadpoles. American Society of Ichthyologists and Herpetologists Meeting, Charleston, SC.

Scientific meetings: Posters, video presentations & lightning talks

61. Zurita-Paredes D[U]*, Flores D[U], López-Ruano K[U], Salazar-Nicholls MJ[G], Vizuete K, Debut A, Warkentin KM, Romero Carvajal A *Pending* March 2024. Hatching mechanism in Dendrobatids. Latin American Developmental Biology meeting, Valparaiso, Chile.
60. Lisondro A[U], Salazar-Nicholls MJ[G], Warkentin KM. 2024. Elevated ammonia cues hatching in red-eyed treefrogs: a mechanism for escape from drying eggs. Society for Integrative and Comparative Biology meeting, Seattle, WA.
59. Romero Carvajal A*, Young RL, Zurita D[U], Salazar Nicholls MJ[G]*, Vizuete K, Debut A, Warkentin KM. 2023. From gastrulation to hatching: how changes in the transcriptional control of gastrulation could lead to changes in hatching gland development. Society for Developmental Biology meeting, Chicago, IL.
58. Mendez JM[U]*, Wentworth HA[U]*, Warkentin KM, Caldwell MS. 2022. Do snakes use the vibrations produced by calling frogs to locate prey? Animal Behavior Society meeting, San Jose, Costa Rica.
57. Gomez EK[U], Güell BA[G], Warkentin KM. 2020. Gliding treefrog reproductive behavior: "Egg scraping" by males does not dislodge competitors' eggs. Animal Behavior Society virtual meeting.
56. Güell BA[G]*, Warkentin KM. 2020. Gliding treefrog reproductive behavior: Possible alternative male tactics in a terrestrial breeder. Animal Behavior Society virtual meeting.
55. González K[U], Warkentin KM, Güell BA[G]. 2020. Effects of hydration on the arboreal eggs of gliding treefrogs: even small reductions in humidity induce premature hatching, reduce hatchling size, and kill embryos. Society for Integrative and Comparative Biology Meeting, Austin, TX. **figshare:** https://doi.org/10.6084/m9.figshare.11594697.v4

54. Guevara Molina, EC[G], Ribeiro Gomez F, Warkentin KM. 2020. The VTMax of embryos: interacting effects of waming and dehydration on hatching behavior in red-eyed treefrogs, *Agalychnis callidryas* (Anura: Phyllomedusidae). Society for Integrative and Comparative Biology Meeting, Austin, TX.

53. Salazar-Nicholls MJ[G], Macias H[U], Warkentin KM. 2020. Ontogeny and extent of hatching enzyme accumulation in red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Austin, TX.

52. Serrano-Rojas SJ[G], Jung J[G], Warkentin KM. 2020. Multimodal mechanosensing for escape-hatching decisions of red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Austin, TX.

51. Fouilloux C[U], Jung J, Ospina AM[U], Snyder R[U], Warkentin KM. 2019. Do developmental changes in fitness trade-offs predict how embryos use mechanosensory cues for escape-hatching decisions? European Society for Evolutionary Biology Meeting, Turku, Finland. **figshare:** https://doi.org/10.6084/m9.figshare.9758372.v2

50. Almanzar A[U], Warkentin KM. 2018. How development changes escape-hatching success in snake attacks: a video analysis of red-eyed treefrog embryo behavior and performance. Society for Integrative and Comparative Biology Meeting, San Francisco, CA.

49. Snyder RK[U], Ospina-Larrea AM[U], Warkentin KM. 2018. When does flooding induce hatching? Behavioral decisions of red-eyed treefrog embryos under moderate hypoxia. Society for Integrative and Comparative Biology Meeting, San Francisco, CA.

48. Güell BA[G], Warkentin KM. 2018. Does accelerated development impair predator-detection and escape-hatching of phyllomedusid treefrog embryos? Society for Integrative and Comparative Biology Meeting, San Francisco, CA.

47. Jung J[G], Güell BA[G], Warkentin KM. 2018. Inner ear development across onset and improvement of escape-hatching ability in red-eyed treefrogs: a confocal and µCT analysis. Society for Integrative and Comparative Biology Meeting, San Francisco, CA.

46. Salazar-Nicholls MJ[U], Escobar KD[U], Warkentin KM. 2017. Development of hatching ability in red-eyed treefrogs: escape from complications. Congreso Latinoamericano de Herpetología, Quito, Ecuador.

45. Cohen KL[G], Warkentin KM. 2017. Different hatching mechanisms but similar escape-hatching processes in two Neotropical treefrogs. Animal Behavior Society Meeting, Toronto, ON.

44. Warkentin KM. 2017. Development of red-eyed treefrog embryos: a staging table for integrative research on environmentally cued hatching. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

43. Tippett, CM[U], Warkentin KM. 2017. How not to die if its too dry: a comparison of spontaneous and dehydration-induced hatching in red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

42. Chaiyasarikul A[U], Warkentin KM. 2017. Escape hatching of red-eyed treefrogs in wasp attacks: how development changes survival. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

41. Salazar-Nicholls MJ[U], Escobar KD[U], Warkentin KM. 2017. Development of hatching ability in red-eyed treefrogs: escape from complications. Society for Integrative and Comparative Biology

Meeting, New Orleans, LA.

40. Rivera-Ordonez JM[U], Salazar-Nicholls MJ[U], Warkentin KM, Delia J[G]. 2017. The adaptive value of delayed hatching in glassfrogs. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

39. Jung J[G], McDaniel JG, Warkentin KM. 2017. Ontogeny of vibration-cued escape-hatching in red-eyed treefrogs: two reasons older embryos hatch more. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

38. Méndez-Narváez J[G], Warkentin KM. 2017. Nitrogen excretion plasticity in early life stages of aquatic- and terrestrial-foam-nesting frogs: a potential mechanism facilitating reproductive colonization of land. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.

37. Rueda Solano LA[G], Warkentin KM. 2016. Comportamiento de forrajeo con posible uso de pistas vibracionales para la localización de presas en *Atelopus laetissimus* (Anura: Bufonidae). Primer Congreso Colombiano de Herpetologia, Medellín, Colombia.

36. Kim SJ[U], Jung J[G], Pérez Arias SM[U], McDaniel JG, Warkentin KM. 2016. Is ear function necessary for vibration-cued hatching in red-eyed treefrogs? Animal Behavior Society Meeting, Colombia, MO.

35. Güell BA[U], Warkentin KM. 2016. When and where to hatch: red-eyed treefrog embryos use light cues. Society for Integrative and Comparative Biology Meeting, Portland, OR.

34. Jung J[G], Kim SJ[U], Güell BA[U], Cohen KL[G], Warkentin KM. 2016. Ontogeny of escape hatching in red-eyed treefrogs: onset of response to flooding and attack cues. Society for Integrative and Comparative Biology Meeting, Portland, OR.

33. Kim SJ[U], Jung J[G], Pérez Arias SM[U], McDaniel JG, Warkentin KM. 2016. Shake and roll: testing the ontogenetic correlation of vibration-cued hatching and otic mechanoreception in red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Portland, OR.

32. Moskowitz NA[U], Vásquez AM[U], Warkentin KM. 2016. Embryo decisions and developmental changes in metabolism across the plastic hatching period of red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Portland, OR.

31. Vázquez AM[U], Moskowitz NA[U], Warkentin KM. 2016. Embryo decisions, metabolism, and development when arboreal eggs are flooded. Society for Integrative and Comparative Biology Meeting, Portland, OR.

30. Gómez VI[P], Warkentin KM. 2015. Metamorphic plasticity: an aquatic predator affects timing of and morphology at emergence in red-eyed treefrogs. Brazilian Herpetological Congress, Gramado, Brazil.

29. Cuccaro Diaz J[U], Cohen KL[G], Warkentin KM. 2014. El desafío de salir del huevo: La eclosión más temprana y desarrollo del desempeño de eclosión en *Agalychnis callidryas* Congreso Latinoamericano de Herpetología, Cartagena, Colombia. [Video presentation.]

28. Pérez Arias S[U], Tanner A [U], McDaniel JG, Warkentin KM. 2014. ¿Funciona el sistema vestibular de los embriones de *Agalychnis callidryas* como sensor para vibraciones de serpientes? Congreso Latinoamericano de Herpetología, Cartagena, Colombia. [Video presentation.]

27. Warkentin KM, Addis CJ[U], Cohen KL[G]. 2014. Ear development and function in red-eyed treefrog embryos: a sensor for egg-predator cues? Society for Integrative and Comparative Biology Meeting, Austin, TX.

26. Cohen KL [G], Warkentin KM 2014. Do distinct types of hatching glands mediate hatching at different ontogenetic stages in red-eyed treefrogs? Society for Integrative and Comparative Biology Meeting, Austin, TX.

25. Rodriguez W[U], Jennings KX[U], Bouchard SS, Warkentin KM. 2014. Competition-induced gut length plasticity, food intake and growth in red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Austin, TX.

24. Delia J[G], Warkentin K. 2012. Parental care and hatching plasticity in two glassfrogs (Centrolenidae): Interspecific and geographic comparisons. World Congress of Herpetology, Vancouver, BC.

23. Jenney CR[U], Bouchard SS, Warkentin KM. 2012. Carryover effects of larval digestive plasticity in postmetamorphic red-eyed treefrogs, *Agalychis callidryas*. Society for Integrative and Comparative Biology Meeting, Charleston, SC.

22. Wargelin, LJ[U], Bouchard SS, Warkentin KM. 2012. Metabolic carryover effects in postmetamorphic red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Charleston, SC.

21. Jimenez RR[U], Abinette SH[U], Touchon JC, Vonesh JR, Warkentin KM. 2012. Ontogeny of risk across the aquatic-terrestrial interface: how changing behavior and morphology affect predation through anuran metamorphosis. Society for Integrative and Comparative Biology Meeting, Charleston, SC.

20. Salica, MJ[G], Vonesh JR, Warkentin KM. 2012. Egg clutch dehydration induces early hatching in red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Charleston, SC.

19. Wheat SK[U], Cayron E [U], Vonesh JR, Warkentin KM. 2012. How do tadpoles use chemical cues to assess risk? Cue concentration versus pulse frequency. Society for Integrative and Comparative Biology Meeting, Charleston, SC.

18. Cohen KL[G], Seid MA, Rouben CM[U], Warkentin KM. 2011. The mechanism of rapid, plastic hatching in red-eyed treefrogs, *Agalychnis callidryas.* Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT.

17. Willink B[U], Landberg T[P], Vonesh JR, Warkentin KM. 2011. Effect of hatching timing on red-eyed treefrog tadpoles: relative vulnerability varies among predators but not with hatchling age-structure, growth varies with the presence of more vulnerable tadpoles. Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT.

16. Palmer, MS[U], Willink B[U], Landberg T[P], Vonesh JR, Warkentin KM. 2011. Costs of hatching early: vulnerability and period of exposure to predators. Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT.

15. Schleier Hernandez SL[U], Warkentin KM. 2011. Effects of hatching age and predator cues on the onset of feeding in red-eyed treefrogs. Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT.

14. Greene RS[U], Noss CF[U], Landberg T[P], Vonesh JR, Warkentin KM. 2011. Behavior of red-eyed treefrogs during metamorphosis. Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT.

13. Warkentin K, Rouben CM[U], Seid MA. 2010. Highspeed video analysis of the hatching process in red-eyed treefrogs, *Agalychnis callidryas*. Joint Meeting of Ichthyologists and Herpetologists, Providence, RI.

12. Lebron AM[U], Warkentin KM. 2010. Induction, acclimation, and behavioral phenotypes: Predator cues change flight initiation distance in hatchling red-eyed treefrogs. Joint Meeting of Ichthyologists and Herpetologists, Providence, RI.

11. Lebron AM[U], Warkentin KM. 2010. Induction, acclimation, and behavioral phenotypes: Predator cues change flight initiation distance in hatchling red-eyed treefrogs. Ecological Society of America Meeting, Pittsurgh, PA.

10. Gomez-Mestre I[P], Touchon JC [G], Saccoccio VL[U], Warkentin KM. 2009. Probing the limits of plasticity: quantitative genetic analyses of risk induced hatching. European Society for Evolutionary Biology 12th Congress, Torino, Italy.

9. Gonyer KM[U], McCoy MW[P], Vonesh JR, Warkentin KM. 2009. Effects of habitat structure on predation of *Agalychnis callidryas* tadpoles by giant water bugs (Belostomatidae). Society for Integrative and Comparative Biology Meeting, Boston, MA.

8. Hughey MC[G], Warkentin KM. 2006. Phorid fly predation of red-eyed treefrog eggs: do maggots induce hatching? American Society of Ichthyologists and Herpetologists Meeting, New Orleans, LA.

7. D'Amato AT[U], Warkentin KM. 2006. Snake predation on red-eyed treefrog eggs: feeding behavior and egg hatching induced by four colubrids. American Society of Ichthyologists and Herpetologists Meeting, New Orleans, LA.

6. Touchon JC[G], Warkentin KM. 2006. Reproductive mode variation in a Neotropical treefrog: the leaf-breeding *Hyla ebraccata* lays eggs in water. American Society of Ichthyologists and Herpetologists Meetings, New Orleans, LA.

5. Touchon JC[G], Vonesh JR[P], Warkentin KM. 2005. Variation in larval predation risk across breeding sites of two hylid frogs. American Society of Ichthyologists and Herpetologists Meeting, Tampa FL.

4. Caldwell MS[G], Warkentin KM, McDaniel JG. 2004. Clutch vibrations and risk perception in red-eyed treefrog embryos: a mechanical engineering analysis. American Society of Ichthyologists and Herpetologists Meeting, Norman, OK.

3. Warkentin KM, Gomez-Mestre I[P]. 2003. Effects of development, surface exposure, and embryo behavior on oxygen levels in red-eyed treefrog eggs. American Society of Ichthyologists and Herpetologists Meeting, Manaus, Brazil.

2. Gomez-Mestre I[P], Warkentin KM. 2003. Embryo response to risk varies among species of leaf-breeding treefrogs, genus *Agalychnis.* American Society of Ichthyologists and Herpetologists Meeting, Manaus, Brazil.

1. Warkentin KM. 2002. Risk assessment by embryos: frequency and temporal pattern of vibrational cues affect escape hatching in red-eyed treefrogs. International Society for Behavioral Ecology Meeting, Montreal, Quebec.

Invited speaker–professional seminars

94. Smithsonian Tropical Research Institute, Panama City. Plasticity, modularity, and cross-sexual transfer: a nonbinary framework for sexual diversity. June 2023.

93. University of Bridgeport, Bridgeport, CT. Development and mechanisms of adaptive embryo behavior. January 2023.

92. McGill University, Montreal, Canada. Redpath Museum. Crossing boundaries, disrupting binaries: A queer perspective on the diversity of life. November 2022.

91. McGill University, Montreal, Canada. Department of Biology. Development and mechanisms of adaptive embryo behavior. November 2022.

90. Ohio Northern University, Ada, OH. Department of Biological and Allied Health Sciences. ***2022 Keiser Distinguished Lecturer*** High tech, low tech, invention and off-label use: Developing methods to study the behavior of frog embryos. October 2022.

89. Smithsonian Tropical Research Institute, Panama City. Tecnología simple y avanzada, invención y uso no autorizado: desarrollando métodos para investigar el comportamiento de embriones de ranas / Low tech, high tech, invention and off-label use: developing methods to study the behavior of frog embryos. ***Bilingual seminar*** – Spanish with English slides. July 2022.

89. Smithsonian Tropical Research Institute, Gamboa. Crossing boundaries, disrupting binaries: a queer perspective on studying behavioral diversity. ***Plenary address*** *for STRI Fellows Symposium*. June 2022.

88. McMaster University, Hamilton, ON. Dept of Biology (Zoom). Crossing boundaries, disrupting binaries: a queer perspective on studying biological diversity. December 2021.

87. University of Arizona, Tucson, AZ. Dept of Ecology & Evolutionary Biology (Zoom – Diversity & Inclusion series). Crossing boundaries, disrupting binaries: a queer perspective on studying behavioral diversity. November 2021.

86. Purdue University, West Lafayette, IN. Dept. of Biological Sciences (Zoom). Different people ask different questions: a queer perspective on studying diversity in life history and behavior. February 2021.

85. Rutgers University, New Brunswick, NJ. Ecology and Evolution Program (Zoom). Different people ask different questions: a queer perspective on studying diversity in life history and behavior. January 2021.

84. Utah State University, Logan, UT, Dept. of Biology (Zoom). Proximate and ultimate causes of hatching plasticity. November 2020.

83. Florida International University, Miami, FL. Dept. of Biological Sciences (Zoom). Proximate and ultimate causes of hatching plasticity. November 2020.

82. Brown University, Providence RI, Dept. of Ecology & Evolutionary Biology. Proximate and ultimate causes of hatching plasticity. December 2019.

81. Brown University, Providence RI, oSTEM & EEB. Different people ask different questions: a queer perspective on studying diversity in life history and behavior. December 2019.

80. University of Toronto, ON, Canada, Ecology & Evolutionary Biology. Proximate and ultimate causes of hatching plasticity *and* Different people ask different questions: a queer perspective on studying diversity in life history and behavior. (2 talks) November 2019.

78. Smithsonian Tropical Research Institute, Panama City. All the variations matter: bridging disciplines and communities to study diversity in life history and sexual behavior. August 2019.

78. Smithsonian Tropical Research Institute, Gamboa, Panama. Queering herpetology: on human perspectives and the study of diverse animals. July 2019.

77. University of Massachusetts, Boston, Dept. of Biology. Proximate and ultimate causes of plastic hatching timing. February 2019.

76. Smithsonian Tropical Research Institute, Panama City. Benefits of human diversity for science: social science research and personal experience. July 2018.

75. Smithsonian Tropical Research Institute, Panama City. Proximate and ultimate causes of hatching plasticity. July 2018. [Repeated at STRI in Gamboa.]

74. Clark University, Worcester, MA, Dept. of Biology. ***Graduate student invited speaker***. How and why development changes behavior: ontogenetic adaptation, developmental constraints, and embryo self-defense. April 2018.

73. Smithsonian Tropical Research Institute, Gamboa, Panama. From field observations of *Agalychnis* eggs to integrative & comparative biology of environmentally cued hatching – herpetological research & gender studies insights (presented in Spanish). July 2017.

72. Smithsonian Tropical Research Institute, Gamboa, Panama. Integrative biology and adaptive embryo behavior of Neotropical frogs. June 2017.

71. Universidad del Magdalena, Santa Marta, Colombia. Evolución, desarrollo, y la diversidad de comportamiento sexual no reproductivo. November 2016.

70. Smithsonian Tropical Research Institute, Panama. What's shaking? Egg vibrations as risk cues in the escape-hatching decisions of embryos. Gamboa – July 2016, Panama City – August 2016.

69. Marine Biological Laboratory, Woods Hole, MA. Environmentally cued hatching: development, information, and the adaptive behavior of embryos. April 2016.

68. University of California, Riverside, Dept. of Biology. Environmentally cued hatching: development, information, and the adaptive behavior of embryos. April 2016.

67. University of California, Los Angeles, Dept. of Ecology and Evolutionary Biology. Environmentally cued hatching: development, information, and the adaptive behavior of embryos. April 2016.

66. Smithsonian Tropical Research Institute, Panama City, Panama. Environmentally cued hatching: development, information, and the adaptive behavior of embryos. October 2015.

65. Smithsonian Tropical Research Institute, Gamboa, Panama. Adaptive embryo behavior and the integrative biology of early life stages. June 2015.

64. Boston University Center for the Philosophy and History of Science. Development, evolution, and the diversity of non-reproductive sexual behavior: an introduction. *In colloquium on: Diversity, Plasticity, and the Science of Sexuality*. April 2015. (Video available at http://www.bu.edu/cphs/colloquium/archives-2014-2015/ - sexuality)

63. Smithsonian Tropical Research Institute, Panama City, Panama. Behavior, development, and adaptive plasticity at life history switch points: hatching and metamorphosis. June 2014.

(Webcast available at http://www.stri.si.edu/english/webcast/recent_webcasts.php; search for Warkentin)

62. Smithsonian Tropical Research Institute, Gamboa, Panama. Behavior, mortality, and plasticity at metamorphosis: critical missing information. 2013.
61. Brown University, Multisensory Lab – Dept. of Cognitive, Linguistic and Pyschological Sciences and Dept. of Neuroscience. Environmentally cued hatching: "eco-devo" and the integrative organismal biology of embryos. 2013.
60. Oklahoma State University, Dept. of Zoology. Plasticity, predation, and trade-offs across hatching and metamorphosis. 2013.
59. Boston University Medical School. Evolutionary history, developmental mechanisms, and diversity in human sexuality. Invited by the Medical Gay and Lesbian Organization and the American Medical Women's Association. 2012.
58. Tufts University, Dept. of Biology, Medford, MA. Environmentally cued hatching: Integrative and evolutionary biology of a critical life-stage transition. 2012.
57. Smithsonian Tropical Research Institute, Gamboa, Panama. Egg vibrations as cues to risk: what do we know and where are we going? 2012.
56. University of North Texas, Denton, Developmental Integrative Biology Cluster. Mechanisms of plasticity in hatching: integrative biology of red-eyed treefrog embryos. 2012.
55. University of Texas at Austin, Section of Integrative Biology. How do egg vibrations cue escape hatching? 2012.
54. University of Texas at Austin, Section of Integrative Biology. Environmentally cued hatching across taxa. 2012.
53. Smithsonian Tropical Research Institute, Panama City, Panama. Environmentally cued hatching across taxa. 2011.
52. University of Guelph, Guelph, ON, Canada. Environmentally cued hatching in red-eyed treefrogs: the integrative biology of early life stages. 2010.
51. Bennington College, Bennington VT. Adaptive embryo behavior: risk-cued hatching and responses to the environment *in ovo*. 2010.
50. Smithsonian Tropical Research Institute, Gamboa, Panama. Adaptive embryo behavior: risk-cued hatching and responses to the environment *in ovo*. 2009.
49. Clark University, Dept. of Biology, Worcester, MA. Adaptive embryo behavior: risk-cued hatching and responses to the environment *in ovo*. 2009.
48. University of Minnesota, Dept. of Ecology, Evolution and Behavior, St. Paul, MN. Adaptive embryo behavior: risk-cued hatching and responses to the environment *in ovo*. January 2009.
47. Smithsonian Tropical Research Institute, Gamboa, Panama. Phenotypic plasticity in red-eyed treefrogs. 2008.
46. Harvard University, Dept of Organismic and Evolutionary Biology, Boston, MA. Phenotypic plasticity in complex life cycles: lessons from amphibians. 2008.
45. Virginia Commonwealth University, Dept. of Biology, Richmond VA. Phenotypic plasticity in complex life cycles: lessons from amphibians. 2007.
44. Smithsonian Tropical Research Institute, Panama City, Panama. Phenotypic plasticity in complex life cycles: lessons from amphibians. 2007.

43. University of Rhode Island, Dept. of Biol. Sci., Kingston RI. Adaptive plasticity in hatching: ecology, evolution and mechanisms. 2007.
42. Queen's University, Dept. of Biology, Kingston, ON. Adaptive plasticity in hatching: ecology, evolution and mechanisms. 2006.
41. State University of New York, Stonybrook, Dept. of Ecology and Evolution. Inducible defenses of embryos: mechanisms and evolution of hatching plasticity. 2006.
40. Smithsonian Tropical Research Institute, Panama City, Panama. Embryo behavior, oxygen stress, and heterokairy in gill regression: does respiratory plasticity facilitate predation-sensitive hatching timing? 2006.
38. Cornell University, Dept. of Ecology and Evolutionary Biology, Ithaca, NY. Adaptive plasticity in hatching: ecology, evolution and mechanisms. 2005.
38. Boston University, Dept. of Aerospace and Mechanical Engineering. How animals use vibrational information: risk assessment in red-eyed treefrog eggs. 2005.
37. Smithsonian Tropical Research Institute, Gamboa, Panama. Eggs as organisms: the integrative biology of embryos. 2005.
36. Yale University, Dept. of Ecology and Evolutionary Biology, New Haven, CT. Eco-devo in a dangerous world: adaptive plastic responses of embryos to risk. 2005.
35. Rhode Island College, Dept. of Biology, Providence, RI. Ecological developmental biology in a dangerous world: adaptive responses of embryos to risk. 2004.
34. Smithsonian Tropical Research Institute, Panama City, Panama. Eco-devo in a dangerous world: adaptive responses of embryos. STRI Science Symposium, 2004.
33. Marine Biological Laboratory, Woods Hole, MA. Mechanisms of adaptive plasticity: risk-induced hatching in red-eyed treefrogs. 2004.
32. Smithsonian Tropical Research Institute, Gamboa, Panama. Hatching plasticity as an embryo defense in red-eyed treefrogs. 2003.
31. State University of New York, Binghamton, Dept. of Biology. Multiple risks, multiple cues: how treefrog embryos assess danger. 2003.
30. University of Massachusetts, Program in Organismic and Evolutionary Biology, Amherst, MA. Multiple risks, multiple cues: how treefrog embryos assess danger. 2003.
29. Northeastern University, Dept. of Biology, Boston, MA. Multiple risks, multiple cues: how treefrog embryos assess danger. 2003.
28. University of Florida, Dept. of Zoology, Gainesville, FL. Multiple risks, multiple cues: how treefrog embryos assess danger. 2002.
27. Skidmore College, Dept. of Biology, Saratoga Springs, NY. How do embryos assess danger? Patterns and cues in risk-sensitive hatching. 2002.
26. Tufts University, Dept. of Biology, Boston MA. Embryonic defenses and the behavioral ecology of hatching. 2002.
25. Pepperdine University, Dept. of Biology, Malibu CA. How do embryos assess danger? Patterns and cues in risk-sensitive hatching. 2002; NSF visiting scientist.
24. Boston Behavior Club, Boston MA. Embryonic anti-predator defenses and the behavioral ecology of hatching in amphibians. 2002.
23. Colby College, Dept. of Biology, Waterville ME. How do embryos assess danger? Patterns and cues in risk-sensitive hatching. 2002.

22. University of Maine, Dept. of Biological Sciences, Orono. How do embryos assess danger? Patterns and cues in risk-sensitive hatching. 2002.
21. University of Connecticut, Dept. of Ecology and Evolutionary Biology, Storrs. How do embryos assess danger? Patterns and cues in risk-sensitive hatching. 2002.
20. Smithsonian Tropical Research Institute, Panama City, Panama. How do embryos assess danger? Patterns and cues in risk-sensitive hatching. 2001.
19. University of Western Ontario, Dept. of Zoology, London, ON. Embryonic anti-predator defenses and the evolutionary ecology of hatching. 2001.
18. Clemson University, Dept. of Biology, Clemson, SC. Embryonic anti-predator defenses and the evolutionary ecology of hatching. 2001.
17. University of Texas at Austin, Section of Integrative Biology. How do embryos assess danger? Patterns and cues in risk-sensitive hatching. 2001.
16. Texas A & M University, Dept. of Biology, College Station. Embryonic anti-predator defenses and the integrative biology of hatching. 2001.
15. Boston University, Dept. of Biology, Boston, MA. Embryonic anti-predator defenses and the evolutionary ecology of hatching. 2001.
14. University of California at Davis, Division of Biology, Section of Ecology and Evolution. Embryonic anti-predator behavior and the evolutionary ecology of hatching. 2000.
13. McGill University, Dept. of Biology, Montreal, PQ. Embryonic anti-predator defenses and the evolutionary ecology of hatching. 2000.
12. Carleton University, Dept. of Biology, Ottawa, ON. Embryonic anti-predator defenses and the evolutionary ecology of hatching. 2000.
11. University of Wisconsin, Madison, Dept. of Psychology. Embryo decisions under predation risk: the behavioral ecology of hatching in red-eyed treefrogs. 2000.
10. University of Wisconsin, Madison, Dept. of Entomology. Wasp-frog interactions: predation by *Polybia rejecta* on arboreal frog eggs. 2000.
9. Smithsonian Tropical Research Institute, Panama City and Barro Colorado Island, Panama. Phenotypic plasticity in hatching of red-eyed treefrog eggs. 1998.
8. University of California at Berkeley, Museum of Vertebrate Zoology. Phenotypic plasticity in hatching as a response to selection. 1998.
7. University of California at Davis, Center for Population Biology. Phenotypic plasticity in hatching of red-eyed treefrogs: a response to predation risk trade-offs. 1998.
6. University of Kentucky, Center for Ecology, Evolution and Behavior; Workshop on Multiple Prey Responses to Multiple Predators, Lexington, KY. Multiple responses of tropical treefrogs to predators: behavior, life history and morphology. 1996.
5. Western State College, Dept. of Sciences, Gunnison, CO. Escape hatching in red-eyed treefrogs in Costa Rica: from snake jaws to shrimp claws. 1996.
4. Dalhousie University, Dept. of Anatomy & Neurobiology, Faculty of Medicine, Halifax, NS. Sex and death in the rainforest: treefrog eggs, snakes and shrimp. 1994.
3. University of Guelph, Dept. of Zoology, Guelph, ON. Plasticity in hatching: a response to predation risk trade-offs. 1994.
2. Universidad de Costa Rica, Escuela de Biologia, San José, Costa Rica. Plasticidad en el tiempo de la eclosión: una respuesta a trueques en riesgos de depredación. 1993.

1. Dalhousie University, Dept. of Biology, Halifax, NS. Does hatching time reflect mortality risk trade-offs? 1992.