**Tracy Langkilde**

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Verne M. Willaman Dean 814-865-9591

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The Pennsylvania State University

**Education and training**

2002 - 2005 ***Ph.D.*** School of Biological Sciences, University of Sydney, Australia. Supervisor: Prof. Richard Shine.

1995 - 1999 ***B.Sc.*** (1st Class Honors), School of Tropical Biology, James Cook University, Australia. Prof. Lin Schwarzkopf and Ross Alford.

**Employment History**

2020-present ***Verne M. Willaman Dean.*** Eberly College of Science, The Pennsylvania State University.

2016 - 2020 ***Head****.*Department of Biology, The Pennsylvania State University.

2016 - present ***Professor****.* Department of Biology, The Pennsylvania State University.

2012 - 2016 ***Associate Professor****.* Department of Biology, The Pennsylvania State University.

2014 ***Tombros Fellow for Undergraduate Research,*** Eberly College of Science. The Pennsylvania State University.

2007 - 2012 ***Assistant Professor****.* Department of Biology, The Pennsylvania State University.

2005 - 2007 ***Gaylord Donnelley Environmental Postdoctoral Fellow***. Forestry and Environmental Studies, Yale University.

# Honors and Awards

2019 ***Distinguished Herpetologist***, Herpetologists League.

2016 ***Campbell Biology Textbook*** featured researcher.

2011 ***George Mercer Award*** for an outstanding ecological research paper published by a young researcher. Ecological Society of America.

 ***Edward D. Bellis Award in Ecology*** for outstanding contribution and dedication to educating and training graduate students in the Intercollegiate Graduate Degree Program in Ecology. Penn State University.

2006 ***Jabez King Memorial Prize*** for the most meritorious Ph.D. thesis. School of Biological Sciences, University of Sydney.

2005 ***New South Wales Young Tall Poppy Science Award*** for scientific and intellectual excellence in science. Australian Institute of Political Sciences.

 ***Postgraduate Excellence Prize in Biological Sciences***, University of Sydney.

 ***Peter Rawlinson Prize for Postgraduate Research***. Joint Meeting of the Australian, New Zealand and Fijian Societies of Herpetologists.

# Peer-Reviewed Publications \*high school, †undergraduate or §graduate student or ∂postdoc author

116) §Tylan C., \*Camacho K., French S., Graham S.P., **†**Herr M.W., \*Jones J., §McCormick G.L., **†**O'Brien M.A., §Tennessen J.B., §Thawley C.J., Webb A., ***Langkilde T.*** 2020. Obtaining plasma to measure baseline corticosterone concentrations in reptiles: How quick is quick enough? **General and Comparative Endocrinology** 287:113324.

115) §Tylan C., Horvat‐Gordon M., Bartell, P.A., ***Langkilde T.*** 2020. Ecoimmune reallocation in a native lizard in response to the presence of invasive, venomous fire ants in their shared environment. **Journal of Experimental Zoology** 2020: 1–13.

114) †Racic A., §Tylan C., ***Langkilde T.*** Effects of temperature on plasma corticosterone in a native lizard. **Scientific Reports** 10: 16315

113) §Ensminger D., §Pritchard C., ***Langkilde T.,*** Tess G., Banfield J., Walter W.D. 2020. The influence of hunting pressure and ecological factors on fecal glucocorticoid metabolites in wild elk. **Wildlife Biology** DOI: 10.2981/wlb.00683

112) §Assis B.A., Jarrett B.J.M., Koscky G., ***Langkilde T***., Avery J.D. 2020. Plastic sexual ornaments: Assessing temperature effects on color metrics in a color-changing reptile. **PLoS ONE** 15(5): e0233221.

111) †Herr, M.W., Avery, J.D., ***Langkilde T****.****,*** ∂Howey C.A.F. 2020. Trade-off between thermal quality and predation risk at timber rattlesnake gestation sites. **Journal of Herpetology** 54: 196-205

110) §Pritchard C.E., Palme R., ***Langkilde T.*** 2020. Glucocorticoid and triiodothyronine concentrations do not correlate with behavior in vicuñas (*Vicugna vicugna*). **General and Comparative Endocrinology** 286:113299

109) ∂Trevelline B.K., ∂MacLeod K.J., ***Langkilde T.,***Kohl K.D. 2019.Gestation alters the gut microbiota of an oviparous lizard. **FEMS Microbiology Ecology** 95: fiz086

108) †Sprayberry K., §Tylan C., §Owen D.A.S., ∂Macleod K.J., Sheriff M.J., ***Langkilde T.*** 2019. History of predator exposure affects cell-mediated immunity in female eastern fence lizards, *Sceloporus undulatus* (Squamata: Phrynosomatidae). **Biological Journal of the Linnean Society** blz154

107) ∂Telemeco R.S., §Simpson D.Y., Tylan C., ***Langkilde T.,*** and Schwartz T.S. 2019. Contrasting responses of lizards to divergent ecological stressors across biological levels of organization. **Integrative and Comparative Biology** 59: 292–305

106) ∂MacLeod K.J, §McCormick G.L., and ***Langkilde T.*** 2019. Glucocorticoids do not influence a secondary sexual trait or its behavioral expression in eastern fence lizards. **Scientific Reports** 9:5229

105) §McCormick G.L., ∂Robbins T.R., Cavigelli S.A. and ***Langkilde T.*** 2019. Population history with invasive predators predicts innate immune function response to early life glucocorticoid exposure. **Journal of Experimental Biology** 222:188359

104) §Owen D.A.S., Sheriff M.J., †Heppner J., †Gerke H., **§**Ensminger DC., MacLeod K.J. and ***Langkilde, T.*** 2019. Maternal corticosterone increases thermal sensitivity of heart rate in lizard embryos. **Biology Letters** 15: 20180718

103) §Venable C.P., Adams T.S. and ***Langkilde T.*** 2019. Aversion learning in response to an invasive venomous prey depends on stimulus strength. **Biological Invasions** 21: 1973–1980

102) §Swierk L. and Langkilde T. 2019. Fitness costs of mating with preferred females in a scramble mating system. **Behavioral Ecology** 30: 658–665

100) ∂MacLeod K.J., Freidenfelds N.A., Leighton G.M. and ***Langkilde T.*** 2019. Tree selection is linked to locomotor performance and associated noise production in a lizard. ***Journal of Zoology*** 307: 195–202

101) §Tennessen B.J., Parks S.E., §Swierk L., Reinert L.K., Holden W.M., Rollins-Smith L.A., Walsh K.A. and Langkilde T. 2018. Frogs adapt to physiologically costly anthropogenic noise. **Proceedings of the Royal Society B** 285: 20182194

99) §Thawley C.J., †Goldy-Brown M., §McCormick G.L., ∂Graham S.P. and ***Langkilde T.*** 2019. Presence of an invasive species reverses latitudinal clines of multiple traits in a native species. **Global Change Biology**25:620-628

98) §Venable, C.P. and ***Langkilde T.*** 2019. Lizards display an ontogenetic shift in relative consumption of native and invasive prey. **Canadian Journal of Zoology** 97: 419-423

97) Blackburn D.G., Lestz L., Barnes M.S., Powers K.G. and ***Langkilde T.*** 2018.Morphological features of the yolk processing pattern in the Eastern Fence Lizard, *Sceloporus undulatus* (Phrynosomatidae). **Journal of Morphology** 279: 1629-1639

96) §Ensminger D., ***Langkilde T.,*** §Owen D. ∂MacLeod K. and Sheriff M. 2018. Maternal stress alters the phenotype of the mother, her eggs, and her offspring in a wild caught lizard. **Journal of Animal Ecology** 87: 1685-1697

95) ∂MacLeod K.J., Sheriff M.J., §Ensminger D.C., §Owen D.A.S. and ***Langkilde T.***2018. Survival and reproductive costs of repeated acute glucocorticoid elevations in a captive, wild animal. **General and Comparative Endocrinology** 268: 1-6

94) ∂Trevelline B.K., ∂MacLeod K.J., Knutie S.A., ***Langkilde T.*** and Kohl K.D. 2018. *In ovo* microbial communities: a potential mechanism for the initial acquisition of gut microbiota among oviparous birds and lizards. **Biology Letters** 14: 20180225

93) §Assis B.A., §Swierk L. and ***Langkilde T.*** 2018. Performance, behavior, and offspring morphology may offset reproductive costs of male-typical ornamentation for female lizards. **Journal of Zoology** 306: 235-242

92) §Owen D.A.S., Sheriff M.J., Engler H.I. and ***Langkilde T.*** 2018. Sex-dependent effects of maternal stress: stressed moms invest less in sons than daughters. **Journal of Experimental Zoology-A** 329: 317-322

91) Anton A.J., ***Langkilde T.***, ∂Graham S. and Fawcett J.D. 2018. Effects of chronic corticosterone increases on the maternal behaviour of the Prairie Skink, *Plestiodon septentrionalis*. **Herpetological Journal** 28: 123-126.

90) §Swierk L. and ***Langkilde T.*** 2018. Does repeated human handling of study animals during the mating season affect their offspring? **Journal of Experimental Zoology-A** 329: 80-86.

89) Mina O., Gall H.E., Elliott H.A., Watson J.E., Mashtare M.L., ***Langkilde T.,*** Harper J.P. and Boyer E.W. 2018. Estrogen occurrence and persistence in vernal pools impacted by wastewater irrigation practices. **Agriculture, Ecosystems and Environment** 257: 103-112.

88) §Owen D.A.S., ∂Robbins T.R. and ***Langkilde T.*** 2018. Trans-generational but not early-life exposure to stressors influences offspring morphology and survival. **Oecologia** 186: 347-355

87) §Tylan C. and ***Langkilde T.*** 2017. Local and systemic immune responses to different types of phytohemagglutinin in the green anole: Lessons for field ecoimmunologists.  **Journal of Experimental Zoology A** 327: 322-332

86) §Carlson B.E. and ***Langkilde T.*** 2017. Body size variation in aquatic consumers causes pervasive community effects, independent of mean body size. **Ecology and Evolution** 7: 9978-9990

85) ***Langkilde T.***, §Thawley C.J. and ∂Robbins T. 2017. Behavioral Adaptations to Invasive Species: Beneﬁts, Costs, and Mechanisms of Change. In M. Naguib, J. Podos, L. W. Simmons, L. Barrett, S. Healy, & M. Zuk (Eds.), **Advances in the Study of Behavior** (pp. 199–235)

84) Kelehear C., ∂Graham S.P. and ***Langkilde T.*** 2017. Defensive strategies of Puerto Rican Dwarf Geckos (*Sphaerodactylus macrolepis*) against Invasive Fire Ants. **Herpetologica** 73: 48-54

83) §McCormick G.L., ∂Robbins T.R., Cavigelli S.A. and ***Langkilde T.*** 2017 Ancestry trumps experience: Transgenerational but not early life stress affects the adult physiological stress response. **Hormones and Behavior** 87: 115-121

82) †Herr M.W., ∂Graham S.P. and ***Langkilde T***. 2017. Stressed snakes strike first: Hormone levels and defensive behavior in free ranging Cottonmouths (*Agkistrodon piscivorus*). **General and Comparative Endocrinology** 243: 89-95

81) §Thawley, C.J. and ***Langkilde T.*** 2017. Attracting unwanted attention: generalization of behavioural adaptation to an invasive predator carries costs. **Animal Behaviour** 123: 285-291

80) ∂Graham S.P., Freidenfelds N.A., §Thawley C.J., ∂Robbins T.R. and ***LangkildeT.*** 2017. Are invasive species stressful? The glucocorticoid profile of native lizards exposed to invasive fire ants depends on the context. **Physiological and Biochemical Zoology** 90: 328–337

79) §Tennessen, J.B., Parks, S.E., ***Langkilde, T***. 2016. Anthropogenic noise and physiological stress in wildlife. In: **The Effects of Noise on Aquatic Life II**, Advances in Experimental Medicine and Biology, Popper, A.N., Hawkins, A. eds., Springer, 1145-1148.

78) Schrey A.W., ∂Robbins T.R., Lee J., Dukes D. W. Jr., Ragsdale A.K., §Thawley C. and ***Langkilde T.*** 2016. Epigenetic response to environmental change: DNA methylation varies with invasion status. **Environmental** **Epigenetics** 2016 2: dvw008

77) §Tennessen J.B., Parks S.E., Tennessen T.P. and ***Langkilde T.*** 2016. Raising a racket: invasive species compete acoustically with native treefrogs. **Animal Behaviour** 114: 53-61.

76) **†**Herr M., ∂Robbins T.R., **†**Centi A., **§**Thawley C.J. and ***Langkilde T.*** 2016. Irresistible ants: Exposure to novel toxic prey increases consumption over multiple temporal scales. **Oecologia** 181: 749-756.

\*\* *Cover article*

75) **§**Carlson B.E. and ***Langkilde T.*** 2016. The role of prey in microgeographic variation in Red-spotted Newt (*Notophthalmus v. viridescens*)head width. **Journal of Herpetology** 50: 442-448.

74) **§**Thawley C.J. and ***Langkilde T.*** 2016. Invasive fire ant (*Solenopsis invicta*) predation of eastern fence lizard (*Sceloporus undulatus*) eggs. **Journal of Herpetology** 50: 284-288.

73) **§**McCormick G.L., Shea K. and ***Langkilde T.*** 2015. How do duration, frequency, and intensity of exogenous CORT elevation affect immune outcomes of stress? **General and Comparative Endocrinology** 222:81-87.

72) **§**Swierk L.S., **§**Tennessen J.B. and ***Langkilde T.*** 2015. Sperm depletion may not limit male reproduction in a capital breeder. **Biological Journal of the Linnean Society** 116: 684-690.

71) ∂Graham S.P., Steen D.A., Bailey M.A., Godwin J.C., Stiles J., Stiles S., Langkilde T. and Guyer C. 2015. The amphibians and reptiles of Conecuh National Forest, Escambia and Covington Counties, Alabama. **Alabama Museum of Natural History Bulletin** 32: 1-112.

*\*\* Cover article*

70) **§**Carlson B.E., **†**Newman J.C. and ***Langkilde T.*** 2015. Food or fear: hunger modifies responses to alarm cues in tadpoles. **Hydrobiologia** 743: 299-308.

69) §Swierk L.N., ∂Graham S.P. and ***Langkilde T.*** 2014. The stress of scramble: Sex differences in behavior and physiological stress response in a time-constrained mating system. **Behavioral Ecology and Sociobiology** 68: 1761-1768.

68) §Tennessen J.B., Parks S.E. and ***Langkilde T***. 2014. Traffic noise causes physiological stress and impairs breeding migration behavior in frogs. **Conservation Physiology** 2: cou032 doi:10.1093/conphys/cou032.

\*\**Editors Choice*

67) **†**Newman J.C., §Thawley C.J. and ***Langkilde T.*** 2014. Red imported fire ant predation on eggs of the eastern fence lizard. **Herpetology Notes** 7: 415-418.

66) **§**Carlson B.E. and ***Langkilde T.*** 2014. Predation risk in tadpole populations shapes behavioural responses of prey but not strength of trait-mediated indirect interactions. **Oikos** 123: 1519-1527.

\*\* *Featured in Oikos Blog*

65) **§**McCormick G.L. and ***Langkilde T.*** 2014. Immune responses of Eastern fence lizards (*Sceloporus undulatus*) to repeated acute elevation of corticosterone. **General and Comparative Endocrinology** 204: 135-140.

64) Zuk M., Bastiaans E., ***Langkilde T.*** and Swanger E. 2014. The role of behavior in the establishment of novel traits. **Animal Behavior** 92: 333-344.

63) **†**Brossman K.H., **§**Carlson B.E., Stokes A.N. and ***Langkilde T.*** 2014. Eastern newt (*Notophthalmus viridescens*) larvae alter morphological but not chemical defenses in response to predator cues. **Canadian Journal of Zoology** 92: 279-283.

62) §Carlson B.E. and ***Langkilde T.*** 2014. No evidence of selection by predators on tadpole boldness. **Behavior** 151: 23-45.

61) Du W., Warner D.A., Langkilde T., Robbins T.R., and Shine R. 2014. Latitudinal and seasonal variation in reproductive effort of the eastern fence lizard (*Sceloporus* *undulatus*). **Integrative Zoology** 9: 360-371.

60) §Swierk L.N. and ***Langkilde, T.*** 2013. Bearded ladies: Females suffer fitness consequences when bearing male traits. **Biology Letters** 9: 20130644.

 \*\* *Featured in National Geographic, LA Times, Christian Science Monitor, LiveScience, National Science Foundation*

59) §Swierk L.N. and ***Langkilde, T.*** 2013. Sizing-up the competition: Factors modulating male display behavior during mate competition. **Ethology** 119: 1-12.

58) §Rosier, R.L. and ***Langkilde T.*** 2013. Early activity rates do not predict growth and future body size of juvenile eastern fence lizards, *Sceloporus* *undulatus.* **Ethology**119: 624-633.

57) §Swierk L.N., **†**Myers A. and ***Langkilde, T.*** 2013. Male mate preference is influenced by both female behaviour and morphology. **Animal Behaviour** 85: 1451-1457.

56) **†**Brossman K.H., §Carslon B.E., §Swierk, L.N. and ***Langkilde T.*** 2013. Aquatic tail size carries over to the terrestrial phase without impairing locomotion in adult eastern red-spotted newts (*Notophthalmus v. viridescens*). **Canadian Journal of Zoology** 91: 7-12.

55) §Carlson B.E. and ***Langkilde T.*** 2013. A common marking technique affects tadpole behavior and risk of predation. **Ethology** 119: 167-177.

54) ∂Robbins, T.R., Freidenfelds, N. and ***Langkilde T.*** 2013. Native predator eats invasive toxic prey: evidence for increased incidence of consumption rather than aversion-learning. **Biological Invasions** 15: 407-415.

53) §Carlson B and ***Langkilde T.*** 2013. Personality traits are expressed in Bullfrog tadpoles during open-field trials. **Journal of Herpetology** 47: 378-383.

52) ∂Robbins, T.R. and ***Langkilde T.*** 2012. The consequences of lifetime and evolutionary exposure to toxic prey: changes in avoidance behavior through ontogeny. **Journal of Evolutionary Biology** 25: 1937-1946.

*\*\* Cover article*

*\*\* Editor’s Choice*

51) **§**Swierk L.N., **†**Ridgway M. and ***Langkilde T.*** 2012. Female lizards discriminate between potential reproductive partners using multiple male traits when territory cues are absent. **Behavioral Ecology and Sociobiology** 66: 1033-1043.

50) ***Langkilde T.***and **†**Boronow K.E. 2012. Hot boys are blue: temperature-dependent color change in male Eastern Fence lizards. **Journal of Herpetology** 46: 461-465.

49) Du W., Warner D.A., ***Langkilde T.,*** ∂Robbins T.R. and Shine R. 2012. The roles of pre-hatching and post-hatching growth rates in generating a latitudinal cline of body size in the eastern fence lizard (*Sceloporus undulatus*). **Biological Journal of the Linnean Society** 106: 202-209.

48) Freidenfelds N.A., ∂Robbins T.R. and ***Langkilde T.*** 2012. Evading invaders: the effectiveness of a behavioral response acquired through lifetime exposure. **Behavioral Ecology** 23: 659-664.

47) Shine R., ***Langkilde T.***and Mason R.T. 2012. Facultative pheromonal mimicry in snakes: “she-males” attract courtship only when it is useful. **Behavioral Ecology and Sociobiology** 66: 691-695.

46) §Rosier R.L. and ***Langkilde T.*** 2012. Absence of climbing-induced limb length plasticity in the eastern fence lizard, *Sceloporus* *undulatus*. **Journal of Herpetology** 46: 162-165.

45) ∂Graham S.P., Freidenfelds N.A., §McCormick G.L. and ***Langkilde T.*** 2012. The impacts of invaders: Basal and acute stress glucocorticoid profiles and immune function in native lizards threatened by invasive ants. **General and Comparative Endocrinology** 176: 400-408.

44) §Rosier R.L. and ***Langkilde T.*** 2012. Behavior under risk: how animals avoid becoming dinner. **Nature Education Knowledge** 2:8.

43) §Rosier R.L. and ***Langkilde T.*** 2012. In response to the letter to the editor regarding the article: "Does environmental enrichment really matter? A case study using the eastern fence lizard, *Sceloporus* *undulatus.*" **Applied Animal Behaviour Science** 135: 171-172.

42) †Trompeter, W.P. and ***Langkilde T.*** 2011. Invader danger: lizards faced with novel predators exhibit an altered behavioral response to stress. **Hormones and Behavior** 60: 152-158.

 \*\* *Cover article*

41) §Rosier, R.L. and ***Langkilde, T.*** 2011 Does environmental enrichment really matter? A case study using the eastern fence lizard, *Sceloporus undulatus*. **Applied Animal Behaviour Science** 131: 71-76.

40) ***Langkilde T.*** and Freidenfelds N.A. 2010. Consequences of envenomation: Red imported fire ants have delayed effects on survival but not growth of native fence lizards. **Wildlife Research** 37: 566-573.

39) Du W., Warner D.A., ***Langkilde T.***, Robbins T. and Shine R. 2010. The physiological basis of geographic variation in rates of embryonic development within a widespread lizard species. **American Naturalist** 176: 522-528.

\*\* *Featured in the New York Times*

38) ***Langkilde T.*** and †Boronow K.E. 2010. Color as a signal: the relationship between coloration and morphology in male eastern fence lizards, *Sceloporus* *undulatus*. **Journal of Herpetology** 44: 261-271.

37) ***Langkilde T.*** 2010. Repeated exposure and handling effects on the escape response of fence lizards to encounters with invasive fire ants. **Animal Behaviour** 79: 291-298.

36) †Boronow K.E. and ***Langkilde T.*** 2010. Sublethal effects of invasive fire ant venom on a native lizard. **Journal of Experimental Zoology Part A** 313A: 17-23.

 *\*\* Cover article*

 *\*\* Feature Article*

35) Freidenfelds N.A. and ***Langkilde T.*** 2009. Natural history notes: *Sceloporus undulatus* (Eastern fence lizard). Diet. **Herpetological Review** 40: 439.

34) §Swierk L.N. and ***Langkilde T.*** 2009. Micronutrient input into a mangrove ecosystem in Jobos Bay, Puerto Rico, by the exotic green iguana, *Iguana iguana*. **Current Zoology** 55: 50-53.

33) Lance S.L., Hagen C., Glenn T.C., Freidenfelds N.A. and ***Langkilde T.*** 2009. Development and characterization of seventeen polymorphic microsatellite loci in the eastern fence lizard, *Sceloporus undulatus*. **Conservation Genetics Resources**. 1: 233-236.

32) ***Langkilde T.*** 2009. Holding ground in the face of invasion: native fence lizards (*Sceloporus undulatus*) do not alter their habitat use in response to introduced fire ants (*Solenopsis invicta*). **Canadian Journal of Zoology** 87: 626-634.

31) ***Langkilde T.*** 2009. Invasive fire ants alter behavior and morphology of native lizards. **Ecology** 90: 208-217.

 *\*\* Cover article in Ecological Bulletin*

 \*\* *Featured in Science, on Discovery News, MSNBC National Geographic, and CBC Radio.*

*\*\* Received George Mercer Award from the Ecological Society of America*

30) Uller T., While G.M., Wapstra E., Warner D.A., Goodman B.A., Schwarzkopf L., ***Langkilde T.***, Doughty P., Radder R.S., Rohr D.H., Bull C.M., Shine R. and Olsson M. 2009. Evaluation of offspring size-number invariants in twelve species of lizard. **Journal of Evolutionary Biology** 22: 143-151.

29) ***Langkilde T.***, O’Connor D. and Shine R. 2007. The benefits of parental care: do juvenile lizards obtain better-quality habitat by remaining with their parents? **Austral Ecology** 32: 950-954.

 *\*\* Cover article*

28) ***Langkilde T.*** and Shine R. 2007. Interspecific conflict in lizards: social dominance depends upon an individual's species not its body size. **Austral Ecology** 32: 869-877.

 *\*\* Cover article*

27)Shine R., ***Langkilde T.***, Wall M. and Mason R.T. 2006. Temporal dynamics of emergence and dispersal of garter snakes from a communal den in Manitoba. **Wildlife Research** 33: 103-111.

 *\*\* Cover article*

26)Allsop D.J., Warner D., ***Langkilde T.***, Du W. and Shine R. 2006. Do operational sex ratios influence sex allocation in viviparous lizards with temperature-dependent sex determination? **Journal of Evolutionary Biology** 19: 1175-1182.

25) ***Langkilde T.*** and Shine R. 2006. How much stress do researchers inflict on their study animals*?* A case study using a scincid lizard, *Eulamprus heatwolei*. **Journal of Experimental Biology** 209: 1035-1043.

24) ***Langkilde T.*** and Shine R. 2005. Different optimal offspring sizes for sons and daughters may favor the evolution of temperature-dependent sex determination in viviparous lizards. **Evolution** 59: 2275-2280.

23) ***Langkilde T.***, Alford R.A. and Schwartzkopf L. 2005. No behavioural compensation for fitness costs of autotomy in a lizard. **Austral Ecology**30: 713-718.

22) Shine R., Wall M., ***Langkilde T.*** and Mason R.T. 2005. Do female garter snakes evade males to avoid harassment or to enhance mate quality? **American Naturalist** 165: 660-668.

21)Shine R., Wall M., ***Langkilde T.*** and Mason R.T. 2005. Battle of the sexes: forcibly-inseminating male garter snakes target courtship to more vulnerable females. **Animal Behaviour** 70: 1133-1140.

20)Shine R., Wall M., ***Langkilde T.*** and Mason R.T. 2005. Scaling the heights: thermally-driven arboreality in garter snakes. **Journal of Thermal Biology** 30: 179-185.

19) Shine R., ***Langkilde T.***, Wall M. and Mason R.T. 2005. The fitness correlates of scalation asymmetry in garter snakes *Thamnophis sirtalis parietalis*. **Functional Ecology** 19: 306-314.

# 18) Shine R., *Langkilde T.*, Wall M. and Mason R.T. 2005. Alternative male mating tactics in garter snakes, *Thamnophis sirtalis parietalis*. Animal Behaviour 70: 387-396.

# 17) *Langkilde T.*, Lance V.A. and Shine R. 2005. Ecological consequences of agonistic interactions in lizards. Ecology 86: 1650-1659.

# 16) Shine R., O’Donnell R., *Langkilde T.*, Wall M.D. and Mason R.T. 2005. Snakes in search of sex: the relationship between mate-locating ability and mating success in male garter snakes. Animal Behaviour 69: 1251-1258.

15) ***Langkilde T.*** and Shine R. 2005. How do water skinks avoid shelters already occupied by other lizards? **Behaviour** 142: 203-216.

14) ***Langkilde T.***, Schwartzkopf L. and Alford R.A. 2004. The function of tail displays in male rainbow skinks, *Carlia jarnoldae*. **Journal of Herpetology** 39: 325-328.

# 13) *Langkilde T.*, Shine R. and Mason R.T. 2004. Predatory attacks to the head versus body modify behavioural responses of garter snakes. Ethology 110: 937-947.

# 12) *Langkilde T.* and Shine R. 2004. Competing for crevices: interspecific conflict influences retreat-site selection in montane lizards. Oecologia 140: 684-691.

11)Shine R., Lemaster M., Wall M., ***Langkilde T.*** and Mason R. 2004. Why did the snake cross the road? Effects of roads on movement and location of mates by garter snakes (*Thamnophis sirtalis parietalis*). **Ecology and Society** 9: 9. [online] URL: http://www.ecologyandsociety.org/vol9/iss1/art9

10)Shine R., Phillips B., ***Langkilde T.***, Lutterschmidt D., Waye H. and Mason R.T. 2004. Mechanisms and consequences of sexual conflict in garter snakes *(Thamnophis sirtalis,* Colubridae). **Behavioral Ecology** 15: 654-660.

9) Shine R., ***Langkilde T.*** and Mason R.T. 2004. Courtship tactics in garter snakes: how does a male’s morphology and behavior influence his mating success? **Animal Behaviour** 67: 477-483.

8)Shine R., ***Langkilde T.*** and Mason R.T. 2003. The opportunistic serpent: male garter snakes adjust courtship tactics to mating opportunities. **Behavior** 140: 1509-1526.

7)Shine R., ***Langkilde T.*** and Mason R.T. 2003. Cryptic forcible insemination: male snakes exploit female physiology, anatomy and behavior to obtain coercive matings. **American Naturalist** 162: 653-667.

6) Shine R., ***Langkilde T.*** and Mason R.T. 2003. Confusion within "mating balls" of garter snakes (*Thamnophis sirtalis*) - does misdirected courtship to other males impose significant selection on male tactics? **Animal Behaviour** 66: 1011-1017.

5) ***Langkilde T.***, Schwarzkopf L. and Alford R. 2003. An ethogram for adult male rainbow skinks, *Carlia jarnoldae*. **Herpetological Journal** 13: 141-148.

4)  ***Langkilde T.*** and Schwarzkopf L. 2003. Observations of mating behaviour and reproduction in a small tropical scincid lizard *Carlia jarnoldae.* **Herpetological Review**34:325-326.

3) ***Langkilde T.***, O’Connor D. and Shine R. 2003. Shelter-site use by five species of montane scincid lizards in south-eastern Australia. **Australian Journal of Zoology** 51:175-186.

2)  ***Langkilde T.***, †Smith V., Phillips S., Barrott E. and Shine R. 2003. Ornamental plant traps lizard. **Herpetofauna** 32:131.

1) ***Langkilde T.*** and Alford R. 2002. The tail wags the frog: attached transponders affect movement behaviour in *Litoria lesueuri.* **Journal of Herpetology** 36:711-715.

***Other Scientific Publications and Book Chapters***

Mina O., Gall H.E., Carlson B. and ***Langkilde T.*** 2014. A preliminary assessment of endocrine disrupting compounds in vernal ponds in central Pennsylvania. 2014 **American Society of Agricultural and Biological Engineers** (ASABE) Annual International Meeting Paper. DIO: 10.13031/aim.20141910944

Clemenn N., ***Langkilde T.*** and Wapstra E. 2007. Position Statement No. 1. Toe clipping of lizards. **Australian Society of Herpetologists** Inc. [online] http://www.australiansocietyofherpetologists.org/position\_statements.html

# Grants and Fellowships

2015-2019 ***National Science Foundation.*** The adaptive potential of maternal stress as a driver of variation in offspring fitness in a free-living animal. $618,535.

2016-2018 ***Pennsylvania Department of Conservation and Natural Resources, Bureau of Forestry.*** Effects of prescribed burning in Pennsylvania’s Mixed Oak Forest on Wildlife Taxa of Concern. C. Howey Co-PI. $275,159.

2014-2016 ***Pennsylvania Department of Conservation and Natural Resources,*** Bureau of Forestry***.*** Effects of prescribed burning in Pennsylvania’s Mixed Oak Forest on Wildlife Taxa of Concern. C. Howey Co-PI. $286,829.

2011-2015 ***National Science Foundation.*** LiT - Sublethal impacts of non-native species invasion. IOS-1051367. S. Cavigelli Co-PI. $500,548.

2014 ***United States Department of Agriculture***, Forest Service Northern Research Station. Effects of prescribed burning in Pennsylvania’s Mixed Oak Forest on Wildlife Taxa of Concern. C. Howey Co-PI. $10,995.

2013-2014 ***PSIEE Seed Grant,*** Penn State Institute of Energy *and Environment.* *Emerging contaminants in vernal ponds across a human impact gradient. Co-PI with E. Boyer, A. Miller; H. Gall PI. $24,725.*

 ***National Science Foundation.*** Dissertation Research: Ecological causes and consequences of intraspecific trait variation in an aquatic consumer. Carlson Co-PI.$19,370.

 ***Research Collaborations Fellowship Program***, Pennsylvania State University. Mechanisms underlying the relationship between stress, glucocorticoids, and the brain. L. Ladage PI. $10,000.

2012-2014 ***Social Science Research Institute and the Center for Brain, Behavior and Cognition***, Level 2 funding. Penn State University*. Does glucocorticoid programming allow animals to fine-tune their brain and behavior to current environmental conditions? S. Cavigelli, P. Bartell Co-PI*s***.*** $10,941.

2010-2014 ***National Science Foundation*.** LiT - Ecology and evolution of adaptive responses to rapid global change. DEB 0949483. $489,600. Plus $13,720 in REU supplements.

2012-2013 ***National Science Foundation*.** Dissertation Research: The impact of novel sound on native acoustic communities. $14,886.

2009-2010 ***Social Science Research Institute***, Level 2 funding. Penn State University. The role of stress in facilitating adaptive responses to novel threats. S. Cavigelli, E. Susman Co-PIs. $14,000.

2006 – 2008 ***National Geographic Society.*** Committee for Research and Exploration. Rapid evolution in response to invasive species. $20,180

***Eppley Foundation for Research.*** Rapid evolution in response to invasive species. PI, D. Skelly Co-PI. Support for Advanced Scientific Research. $25,200.

2006 – 2007 ***American Museum of Natural History***, Collection Study Grant. Evolution of limb-length in response to invasive species. $500.

2005 – 2007 ***Yale Institute of Biospheric Studies***, Gaylord Donnelley Environmental Postdoctoral Fellowship. Incorporating evolutionary theory into biodiversity conservation: how rapidly and effectively can native communities evolve to minimize the impact of invasive species? $84,000.

2004 ***Australian Society of Herpetologists***, Student Research Grant. 2004. Effects of research procedures on stress levels of reptiles. $750.

 ***James King of Irrawang Travelling Scholarship***. University of Sydney. $3,485.

 ***Ethel Mary Read Research Grant***. Royal Zoological Society of New South Wales. $750.

 ***Student Scholarship***. Australian and New Zealand Council for the Care of Animals in Research and Training. $165.

 ***Student Travel Award***. Australasian Society for the Study of Animal Behaviour. $155.

2003 ***Student Travel Award***. Society for Research on Amphibians and Reptiles in New Zealand. $50.

 ***Student Travel Award***. Australasian Society for the Study of Animal Behaviour. $270.

2002 - 2005 ***Australian Postgraduate Award***, University of Sydney. 2002-2005. Factors shaping habitat use in a guild of montane skinks. $83,478.

 ***Postgraduate Research Support Scheme*** research funding. University of Sydney. $2,440.

**Invited Talks**

2019 ***Odum School of Ecology Seminar Series,*** University of Georgia, Athens, GA. Imperfect fixes: Costs of adaptive responses of lizards and frogs to invasive predators and novel noise (November).

 ***Distinguished Herpetologist Keynote Lecture***, Joint Meeting of Ichthyologists and Herpetologists, Snowbird, UT. Imperfect fixes? Costs of adaptive responses to environmental perturbations (July).

***Darwin Lecture****,* Ohio Center for Ecology and Evolutionary Studies,Ohio University, Athens, OH.Evolutionary responses of animals to environmental challenges: coping with noisy neighborhoods and invasive species (February).

2018 ***Gordon Research Conference on Predator-Prey Interactions***, Ventura CA. Impacts of transgenerational versus early-life stress on lizard physiology (January).

2017 ***Natural Science Convocation,*** Lock Haven University, Lock Haven, PA. Convocation Speaker.How animals deal with environmental challenges: road noise and invasive species (November).

***Society for Behavioral Neuroendocrinology***, Long Beach CA. Presidential Symposium. Adaptive responses to environmental change: road noise and invasive species (June).

***EEB Spring Symposium,*** Iowa State, Ames IA. Keynote Speaker. What doesn’t kill you...Adaptive responses to environmental change (February).

2016 ***Ecological Morphology Symposium,*** ***International Congress of Vertebrate Morphology***, Washington, D.C. The role of behavior in the ecomorphological paradigm. (June).

***John G. Ostrom Program Series, Yale Peabody Museum***, New Haven, CT. Adapting to a changing world. (March)

2015 ***Duquesne University***, Pittsburg, PA. What doesn’t kill you… Stress caused by invaders may actually benefit native species. (October)

***Southern Illinois University Carbondale,*** Carbondale, IL. Responses of native lizards to invasive predatory fire ants: Adaptation at what cost? (April)

***University of Alabama at Birmingham,*** AL. Responses of native lizards to invasive predatory fire ants: Adaptation at what cost? (March)

2014 ***University of California, Santa Cruz,*** CA. Responses of native lizards to invasive predatory fire ants: Adaptation at what cost?.(January)

2013 ***Archbold Biological Station,*** Venus, FL. Invasive species management viewed through an evolutionary lens: Lessons from fire ants. (May)

2012 ***World Congress of Herpetology,*** Vancouver, Canada. Invasive species management viewed through an evolutionary lens: lessons from Fire Ants. (August)

***University of Tennessee,*** Knoxville, TN. Mechanisms and consequences of adaptive responses to invasive species. (August)

***Cornell University***, Ithaca, NY. Fitness consequences of invader-induced stress. (April)

2011 ***Harvard University***, Boston, MA. Multimodal impacts of invaders: complex responses to novel selective pressures. (September).

***Yale University***, New Haven, CT. Keynote speaker at the Forestry and Environmental Studies Doctoral Conference. Changes in selective pressure across ontogeny mediate tradeoffs in survival strategies. (October).

***Yale Institute of Biospheric Studies***, New Haven, CT. Keynote speaker at the Advisory Board Meeting. Mechanisms and consequences of adaptive responses to invasive species. (October).

***University of Pittsburg***, Pittsburg, PA. Fitness consequences of invader-induced stress. (October).

***North American Society for Comparative Endocrinology***. Ann Arbor, MI. Stress and invasion: elevated levels of corticosterone may facilitate survival-enhancing behavior of native lizards. (July).

***International Symposium on Amphibian and Reptilian Endocrinology and Neurobiology***. Ann Arbor, MI. Avoiding invaders: lizards exhibit altered behavioral stress responses following invasion by a novel predator. (July).

2010 ***Bryn Mawr College,*** Bryn Mawr, PA. Stress and invasion: Factors influencing the escape behavior of native fenced lizards in response to introduced fire ants. (October).

2009 ***Texas Tech University***, Lubbock, TX. Boogie or die: native lizards adapt to survive invasion by fire ants. (December).

***Penn State University, Altoona,*** PA. Boogie or die: native lizards adapt to survive invasion by fire ants. (November).

***University of Western Ontario***, London, Ontario, Canada. Boogie or die: adaptive responses of native lizards to fire ant invasion. (October).

 ***University of Pittsburg***, Pittsburg, PA. Boogie or die: adaptive responses of native lizards to fire ant invasion. (October).

***Fordham University,*** Bronx, NY. Surviving invasion: native lizards alter their behavior and morphology in response to deadly fire ants. (October).

***Rutgers University***, New Brunswick, NY. Surviving invasion: native lizards alter their behavior and morphology in response to deadly fire ants. (September).

***Villanova University***, Villanova, PA. (2 talks) Invasive fire ants and the evolution of escape behavior and Competing for crevices: the nature and consequences of interference competition in montane lizards? (March).

***University of South Florida***, Tampa, FL. (Declined due to scheduling conflict).

2008 ***James Madison University,*** Harrisonburg, VA. Invasive fire ants and the evolution of escape behavior. (October).

***Sixth World Congress of Herpetology***, Manaus, Brazil. Defensive behaviour of lizards. (August).

***University of Mississippi***, Oxford, MS. Competition, invasion and the ghost of competition past. (May).

***Iowa State University***, Ames, IA. Competition, invasion and the ghost of competition past. (March).

2007 ***University of California, Irvine***, CA. Competition, invasion and the ghost of competition past. (January).

2006 ***University of Pennsylvania,*** PA. Competition, invasion and the ghost of competition past. (January).

2005 ***Marine Biological Laboratory***, Woods Hole, MA. Habitat use in montane skinks: do social interactions affect shelter site choice? (April).

2004 ***Washington University***, St. Louis, MO. The ecological consequences of interspecific aggression in montane skinks. (May).

***Contributed Oral Presentations*** (†undergraduate, §graduate, #high school student author, \*prize awarded. Presenter underlined if not first author.)

2018 ***Joint Meeting*** ***of Ichthyologists and Herpetologists***, Rochester, NY. Effects of anthropogenic noise on wood frog tadpoles. Langkilde T, Adams T, Avery J, Warne R.

2017 ***Society of Integrative and Comparative Biology***, New Orleans, LA. Why does the Mexican Jumping Bean jump? Langkilde T, Robbins TR, †Dewitt G, †Hook M, †Jacobs A and †McGinley S (January)

***Society of Integrative and Comparative Biology***, New Orleans, LA. Female lizards with male-typical ornamentation have strategies to offset reproductive costs. Assis BA, Swierk LN and Langkilde T. (January)

***Society of Integrative and Comparative Biology***, New Orleans, LA. The Effect of maternal stress on maternal behavior and offspring morphology in *Sceloporus undulatus*. Ensminger D, Langkilde T, §Owen D, MacLeod K, Sheriff M (January)

***Society of Integrative and Comparative Biology***, New Orleans, LA. Stress kills: chronic low-level stress reduces female survival and hatching success in fence lizards. MacLeod KJ, Sheriff MJ, §Owen DAS, §Ensminger DC and Langkilde T. (January)

***Society of Integrative and Comparative Biology***, New Orleans, LA. Choosing a meal: Lizards differentially kill and consume native versus invasive ants. §Venable CP and Langkilde T (January)

***Society of Integrative and Comparative Biology***, New Orleans, LA. Impacts of pH and UV-B on stress and developmental rates of wood frog tadpoles: implications with regard to prescribed fire. §Mead M, Howey C and Langkilde T (January)

***Society of Integrative and Comparative Biology***, New Orleans, LA. Hot and bothered: maternal stress alters metabolic rate and thermal sensitivity in lizard embryos. §Owen DAS, Sheriff MJ, †Heppner J, †Gerke H, §Ensminger DC, MacLeod KJ and Langkilde T (January)

***Society of Integrative and Comparative Biology***, New Orleans, LA. Local and systemic immune response to phytohemagglutinin: Validation of the PHA skin test in the green anole, *Anolis carolinensis*. §Tylan C and Langkilde T. (January).

2016 ***Joint Meeting of Ichthyologists and Herpetologists***, New Orleans, LA. Impacts of pH and UV-B on stress and developmental rates of wood frog tadpoles: implications with regard to prescribed fire. §Mead M, Howey C and Langkilde T (July)

***Joint Meeting of Ichthyologists and Herpetologists***, New Orleans, LA. Invasive fire ant (Solenopsis invicta) predation of eastern fence lizard (*Sceloporus undulatus*) eggs. §Thawley C.J. and Langkilde T (July)

***Joint Meeting of Ichthyologists and Herpetologists***, New Orleans, LA. Thermoregulation and predation risk trade-offs at timber rattlesnake rookery sites. Howey C, †Mead M, †Herr M and Langkilde T (July)

***Joint Meeting of Ichthyologists and Herpetologists***, New Orleans, LA. Collecting baseline corticosterone samples in reptiles and amphibians: is under 3 minutes good enough? §Tylan C, #Camacho K, Graham S, †Herr M, #Jones J, §McCormick G., †O'Brien M, §Tennessen J, §Thawley C.J, and Langkilde T. (July)

***Society of Integrative and Comparative Biology,*** Portland, OR. Developmental and cross-generational history with stress affect the physiological stress response and immune function in lizards. §McCormick G, Robbins TR, Cavigelli S. and Langkilde T. (January)

***Society of Integrative and Comparative Biology***, Portland, OR. An invasive predator, the red imported fire ant, alters latitudinal gradients of multiple traits in a native lizard, *Sceloporus undulatus*. §Thawley, CJ, †Goldy-Brown M., §McCormick G., Graham S. and Langkilde T. (January)

2015 ***Ecological Society of America***, Baltimore MD. The physiological stress response is affected by both developmental and evolutionary exposure to stressors. §McCormick G.L., Robbins T., Cavigelli S. and Langkilde T. (August)

***Ecological Society of America***, Baltimore MD. An invasive predator, the red imported fire ant, alters latitudinal gradients of multiple traits in a native lizard. §Thawley C., †Goldy-Brown M., §McCormick G., Graham S. and Langkilde T. (August)

***Society for the Study of Amphibians and Reptiles***, Lawrence, KA. What doesn’t kill you… Stress caused by invasive fire ants may actually benefit lizards. Langkilde T. (July)

***Society for the Study of Amphibians and Reptiles,*** Lawrence, KA. Exposure to novel toxic prey on multiple temporal scales has persistent effects on behavior of eastern fence lizards. †Herr M., Robbins T.R., and Langkilde T. (July)

***Society for the Study of Amphibians and Reptiles,*** Lawrence, KA. An invasive predator, the red imported fire ant, alters latitudinal gradients of multiple traits in a native lizard. §Thawley C., †Goldy-Brown M., §McCormick G., Graham S. and Langkilde T. (July)

***Evolution***, Guaruja Brazil. An invasive predator, the red imported fire ant, alters latitudinal gradients of multiple traits in a native lizard. §Thawley C., †Goldy-Brown M., §McCormick G., Graham S. and Langkilde T. (June)

***Society of Integrative and Comparative Biology***, Palm Beach, FL. Bearded ladies: female lizards suffer fitness consequences when bearing male traits. Langkilde T., †Norjen C.M. and §Swierk L.N. (January)

***Society of Integrative and Comparative Biology,*** Palm Beach, FL. Attracting unwanted attention: the costs and benefits of adaptation to an invasive predator. §Thawley C.J., Robbins T.R. Freidenfelds N.A. and Langkilde T. (January)

2014 \****Joint Meeting of Ichthyologists and Herpetologists***, Chattanooga, TN. The costs and benefits of adaptation: A case study using native Fence Lizards and invasive Fire Ants. §Thawley C.J., Robbins T.R. Freidenfelds N.A. and Langkilde T. (August)

***Joint Meeting of Ichthyologists and Herpetologists***, Chattanooga, TN. Bearded ladies: female lizards suffer fitness consequences when bearing male traits. Langkilde T., §Swierk L.N. and †Norjen C.M. (August)

***Joint Meeting of Ichthyologists and Herpetologists***, Chattanooga, TN. Trouble in paradise: Responses of Anoles to Fire Ants in the British Virgin Islands. Graham S.P. Kelehear C. and Langkilde T. (August)

***Joint Meeting of Ichthyologists and Herpetologists***, Chattanooga, TN. Exposure to an invasive species during juvenile development results in adaptive behavior mediated by the stress hormone corticosterone. Robbins T.R. and Langkilde T.(August)

\****Joint Meeting of Ichthyologists and Herpetologists***, Chattanooga, TN. Stressed snakes strike first: Hormone levels and defensive behavior in free ranging Cottonmouths (*Agkistrodon piscivorus*) †Herr M., Graham S.P, and Langkilde T. (August)

***Animal Behavior Society***, Princeton NJ. What makes stress stressful? Why the acute-chronic stress regime is incomplete. §McCormick G. and Langkilde T. (August)

***American Society of Agricultural and Biological Engineers,*** Montreal, QC, Canada. The presence of endocrine disrupting compounds in vernal pools across a human gradient. §Mina O., §Carlson B.E., Langkilde T. and Gall H. (July)

***American Society of Naturalists,*** Pacific Grove, CA. Impacts of invasive species: complex responses of native lizards to novel selective pressures imposed by fire ants. Langkilde T. (January)

***Society of Integrative and Comparative Biology***, Austin, TX. Pervasive effects of size variation in tadpoles on pond communities. §Carlson B.E. and Langkilde T. (January)

2013 \****Society for Integrative and Comparative Biology***, San Francisco, CA. Behavioral variation among tadpole populations: ecological causes and consequences. §Carlson B.E. and Langkilde T (January).

***Society for Integrative and Comparative Biology***, San Francisco, CA. Survival at what cost?: Consequences of a native lizard’s adaptations to invasive fire ants. §Thawley C.J., Robbins T.R. and Langkilde T. (January).

 ***Society for Integrative and Comparative Biology***, San Francisco, CA.

 Native predator eats invasive toxic prey: Evidence for increased incidence of consumption rather than aversion-learning. Robbins T.R, Freidenfelds N.A. and Langkilde T. (January).

***Society for Integrative and Comparative Biology***, San Francisco, CA. Potential competitors drive boldness variation in the absence of predation. §Rosier R.L. and Langkilde T. (January).

***Society for Integrative and Comparative Biology,*** San Francisco, CA. Are invasive species stressful? Langkilde T., Freidenfelds N.A., §Thawley C.J., Robbins T.R. and Graham S.P. (January).

***Society for Integrative and Comparative Biology***, San Francisco, CA. Immune costs of the physiological stress response are affected by cross-generational exposure to stress. §McCormick G. and Langkilde T. (January).

2012 ***Animal Behavior Society***, Albuquerque, NM. Indirect effects of male-male competition on female wood frogs. §Swierk L.N. and Langkilde T. (June).

***Kansas Herpetological Society,*** Hays, KA. Effects of chronic corticosterone increases on the maternal behavior of the Prairie Skink, Plestiodon septentrionalis. §Anton A.J., Fawcett J., French J., Rauther C., Graham S. and Langkilde T. (November).

 ***Alabama Partners in Amphibian and Reptile Conservation***, Dauphin Island, AL. Survival under pressure: adaptive responses of the Eastern Fence Lizard (*Sceloporus undulatus*) to invasive fire ants (*Solenopsis invicta*). §Thawley C.J.,Robbins T.R. and Langkilde T. (September).

***Alabama Partners in Amphibian and Reptile Conservation***, Dauphin Island, AL. The impacts of invaders: Basal and acute stress profiles of native lizards (*Sceloporus undulatus*) threatened by invasive ants. Graham S.P., Freidenfelds N.A., §McCormick G. and Langkilde T. (September)

***World Congress of Herpetology***, Vancouver, Canada. Native predator eats invasive toxic prey: Evidence of increased consumption rather than aversion-learning. Robbins T.R. and Langkilde T. (August)

***World Congress of Herpetology,*** Vancouver, Canada. The impacts of invaders: Basal and acute stress glucocorticoid profiles and immune function in lizards threatened by invasive ants. Graham S.R., Freidenfelds N.A., §McCormick G. and Langkilde T. (August)

***Animal Behavior Society***, Albuquerque, NM. Indirect effects of male-male competition on female Wood Frogs. §Swierk L. and Langkilde T. (June).

***Society of Integrative and Comparative Biology***, Charleston, SC. The impacts of invaders: Basal and acute stress glucocorticoid profiles and immune function in native lizards threatened by ants. Graham, S.P., Freidenfelds N.A., §McCormick G.L. and Langkilde T. (January).

***Society of Integrative and Comparative Biology,*** Charleston, SC. Evading invaders: Adaptive significance of a behavioral response. Langkilde T., Freidenfelds N.A. and Robbins T.R. (January)

***Society of Integrative and Comparative Biology***, Charleston, SC. Survial under pressure: lethal and sublethal effects of an invasive predator, the red imported fire ant, on a spiny lizard. §Thawley C.J., Robbins T.R. and Langkilde T. (January).

***Society of Integrative and Comparative Biology***, Charleston, SC. Personality across ontogeny in an amphibian. §Carlson B.E. and Langkilde T. (January).

2011 ***Ecological Society of America***, Austin, TX. Predicting body size: The role of behavior in determining growth rates of juvenile eastern fence lizards, *Sceloporus undulatus*. §Rosier R.L. and Langkilde T. (August).

***Society of Integrative and Comparative Biology***, Salt Lake City, UT. Invader danger: lizards faced with novel predators exhibit altered behavioral stress responses. Langkilde T. and †Trompeter W.P. (January).

***Society of Integrative and Comparative Biology***, Salt Lake City, UT. Stress and invasion: Factors influencing the escape behavior of native fence lizards in response to introduced fire ants. Robbins T.R. and Langkilde T. (January).

2010 ***Partners in Amphibian and Reptile Conservation***, Alabama Chapter, Andalusia, AL. Stress and invasion: Factors influencing the escape behavior of native fence lizards in response to introduced fire ants. Langkilde T., Freidenfelds N.A. and Robbins T.R. (November).

***Ecological Society of America***, Pittsburg, PA. Stress and Invasion: Factors influencing the escape behavior of native fence lizards in response to introduced fire ants. (August).

\*\* Selected for ESA press release. Featured in MSNBC, Live Science

2009 ***Ecological Society of America***, Albuquerque, NM. Adaptation to invasion: Native lizards modify their behavior and morphology following fire ant invasion. (August).

***Society of Integrative and Comparative Biology***, Boston, MA. Surviving in the face of invasion: native lizards modify their behavior and morphology following the introduction of fire ants. (January).

2008 ***World Congress of Herpetology***, Manaus, Brazil. Invited symposium talk. Defensive behaviour of lizards. (August).

2006 ***Ecological Society of America***, Memphis, TN. Do you save your sons or your daughters? Temperature-dependent sex determination offers a potential solution to this difficult choice. (August).

2006 ***Yale Institute for Biospheric Studies***, New Haven, CT. Factors shaping habitat use in a guild of montane skinks (January).

2005 ***Yale University,*** New Haven, CT. How much stress do researchers impose on their study animals? (October).

***University of Sydney,*** Postgraduate Excellence Prize Seminar. Factors shaping habitat use in a guild of montane skinks\* (April).

***Joint Meeting of the Australian Society of Herpetologists, Society for Research on Amphibians and Reptiles in New Zealand, and the Fijian Society of Herpetologists,*** Springbrook, QLD, Australia. Sophie’s choice: should you save your sons or your daughters?\* (February).

2004 ***Joint Meeting of Ichthyologists and Herpetologists***, Norman, OK. The ecological consequences of interspecific aggression in montane skinks. (May).

***Animal Behavior Society,*** Oaxaca, Mexico. The ecological consequences of interspecific aggression in native montane lizards. (June).

***Australasian Society for the Study of Animal Behaviour,*** Adelaide, SA, Australia. Factors influencing habitat use in montane skinks. (April).

2003 ***Australian Society of Herpetologists,*** Mary River Park, NT, Australia. Competing for crevices: interspecific conflict influences retreat-site selection in montane lizards. (December).

***Australasian Society for the Study of Animal Behaviour,*** Canberra, ACT, Australia. Habitat use in montane skinks: do social interactions affect shelter-site choice? (April).

***Society for Research on Amphibians and Reptiles in New Zealand,*** Whakatane, New Zealand. Shelter-site use in montane skinks: the role of social interactions\* (January).

2002 ***Australian Society of Herpetologists,*** Canberra, ACT, Australia. Habitat use in montane skinks: do social interactions affect shelter-site choice? (July).

2001 ***Australian Society of Herpetologists***, Gumleaves, TAS, Australia. The tail wags the frog: attached transponders affect movement behaviour in *Litoria lesueuri*\* (February).

***Posters***

2018 ***Beneficial Microbes***, Madison, WI. Gut microbiota over gestation in an oviparous lizards: Do the changes mirror findings in humans? Kohl KD, Trevelline BK, MacLeod KJ, Langkilde T.

 ***Beneficial Microbes***, Madison, WI. In ovo microbial communities: A potential mechanism for the initial acquisition of gut microbiota among oviparous vertebrates. Trevelline BK, MacLeod KJ, Knutie S, Langkilde T, Kohl K.

2017 ***Society of Integrative and Comparative Biology***, New Orleans, LA. Differential contributions to medial cortex volume in Eastern Fence Lizards *Sceloporus undulatus*. †Leri J; Graham Z, Ladage L, McCormick G, Langkilde, T (January)

2015 ***New Mexico IDeA Networks of Biomedical Research Excellence (NM-INBRE) Annual Symposium,*** Santa Fe, NM Fence lizard response to fire ant invasion at the phenotypic, epigenetic, and genetic levels. †Pacheco P, †Jaramillo D, Schrey A, Langkilde T, Izaguirre-Sierra M, Robbins TR.

 ***Academic Research Creativity Scholarship Symposium,*** Northern New Mexico College, Española, NM Fence lizard response to fire ant invasion at the phenotypic, epigenetic, and genetic levels. †Pacheco P, †Jaramillo D, Schrey A, Langkilde T, Izaguirre-Sierra M, Robbins TR.

***Academic Research Creativity Scholarship Symposium,*** Northern New Mexico College, Española, NM. Delayed development in a lizard: a possible animal model for determinants of ageing and life span. †Jaramillo D, †Pacheco P, Martinez M, †Jacobs A, Schrey A, Izaguirre-Sierra M, Langkilde T, and Robbins TR.

2014 ***Joint Meeting of Ichthyologists and Herpetologists***, Chattanooga, TN. The Effects of Red Imported Fire Ant Venom on Whole Body Performance and Hemolysis of Eastern Fence Lizards, *Sceloporus undulatus*. †Goldy-Brown M, §Thawley C, Langkilde T. (August)

***SETAC North America Endocrine Disruption Focused Topic Meeting, USEPA*** Research triangle Park, NC. Assessing the presence and impact of endocrine disrupting chemicals in vernal pools. Gall H., §Mina O., §Carlson B, Langkilde T. (Feb)

2013 ***Society for Integrative and Comparative Biology***, San Francisco, CA. Fire ant invasion status accounts for variation in DNA methylation of a lizard population. Robbins T.R., Schrey A., Richards C. and Langkilde T. (Jan)

2012 ***Ecological Society of America,*** Portland OR. Predator-induced morphological and chemical defenses in newt (*Notophthalmus v. viridescens*) larvae. †Brossman K.H., §Carlson B.E., Stokes A.N. and Langkilde T. (August).

***Ecological Society of America,*** Portland OR. Presence of potential predators increases boldness behavior over time in a lizard. §Rosier R.L. and Langkilde T. (August)

***Ecological Society of America,*** Portland OR. Breeding season blues: Noise disrupts female wood frog attraction to a male chorus. §Tennessen J.B., Parks S. E. and Langkilde T. (August)

***Ecological Society of America, P***ortland OR. The effect of sex ratio on male mating tactics and female fitness in *Rana sylvatica* breeding aggregations. §Swierk L.N. and Langkilde T.

2011 ***Ecological Society of America,*** Austin, TX. A tail of two newts: Aquatic tail size carries over but does not impair terrestrial locomotion in eastern newts (*Notopthalmus v. viridescens*). §Carlson B.E., †Brossman K.H., §Swierk L.N. and Langkilde T. (August).

 Joint Meeting of the Animal Behavior Society and the International Ethological Society, Bloomington, IN. Mating tactics in a scramble system: Phenotypic drivers of mating success at carried sex ratios. §Swierk L.N. and Langkilde T. (July).

***Ecology Society of America Mid-Atlantic Chapter*** Annual Meeting. Montclair, NJ. Does spatial variation in prey resources influence morphological variation among subpopulations of eastern newts? §Carlson B.E. and Langkilde T. (April).

***Ecology Society of America Mid-Atlantic Chapter*** Annual Meeting. Montclair, NJ. Male fence lizards, *Sceloporus undulatus*, use female behavior and size to choose a mate. †Myers, A.C., §Swierk L.N. and Langkilde T. (April).

***Ecology Society of America Mid-Atlantic*** Chapter Annual Meeting. Montclair, NJ. A tail of two newts: Aquatic tail size carries over but does not impair terrestrial locomotion in eastern newts (*Notopthalmus v. viridescens*). †Brossman, K.H., §Carlson B.E., §Swierk L.N. and Langkilde T. (April).

2010 ***Partners in Amphibian and Reptile Conservation***, Alabama Chapter, Andalusia, AL. Consequences of envenomation: red imported fire ants have delayed effects on survival but not growth of native fence lizards. Freidenfelds N.A. and Langkilde T. (November).

***International Congress of Vertebrate Morphology,*** Punta del Este, Uruguay. Fetal membrane structure and development in an oviparous lizard, *Sceloporus undulatus*. §Anderson K.E., Blackburn D.G., Freidenfelds N.A. and Langkilde T. (July).

***Joint Meeting of Ichthyologists and Herpetologists,*** Providence, RI. Finding a perfect match: Female choice on male traits in eastern fence lizards, *Sceloporus undulatus*. §Swierk L.N. and Langkilde T. (July).

***Ecology Society of America,*** Pittsburg, PA. Bigger isn’t bolder: The role of behavior in body size variation in the eastern fence lizard, *Sceloporus undulatus*. §Rosier, R.L. and Langkilde T. (August).

***Ecology Society of America,*** Pittsburg, PA. Finding a perfect match: Femal choice on male traits in eastern fence lizards, *Sceloporus undulatus*. §Swierk L.N. and Langkilde T. (August).

**Professional Service**

***Associate Editor,*** Evolutionary Ecology (2015-2020)

***Associate Editor,*** Integrative and Comparative Biology (2016-2020)

***Advisory Editorial Board Member,*** Journal of Experimental Zoology – A (2014-2017)

***Awards Committee.*** Ecological Society of America. Member (2013-2016)

***Nominations Committee,*** Society for Integrative and Comparative Biology, Division of Ecology and Evolution. Member (2012-2013)

***Affiliate Editor*** for ESL authors, Herpetologica.

***Journal Peer Review***

Allergy, Asthma and Clinical Immunology, Amphibia-Reptilia, American Naturalist, Animal Behaviour, Animal Conservation, Annales Zoologici Fennici, Austral Ecology, Australian Journal of Zoology, Behavioral Ecology, Behavioral Ecology and Sociobiology, Behaviour, Biological Conservation, Biological Invasions, Biological Journal of the Linnean Society, Biology Letters, Canadian Journal of Zoology, Central European Journal of Biology, Comparative Biochemistry and Physiology, Copeia, Current Zoology, Ecology, Ecoscience, Environmental Management, Ethology, Evolutionary Ecology, Functional Ecology, General and Comparative Endocrinology, Global Change Biology, Herpetologica, Herpetological Conservation and Biology, Herpetological Journal, Herpetological Review, Hormones and Behavior, Ibis, Journal of Applied Ecology, Journal of Experimental Biology, Journal of Experimental Zoology A, Journal of Herpetology, Journal of North American Herpetology, Journal of Thermal Biology, Journal of Zoology, Molecular Ecology, Nature Education, Oecologia, Oikos, PLOS ONE, Proceedings of the Royal Society B, Physiology and Behavior, Western North American Naturalist, Wildlife Research (52 journals, 157 manuscripts)

***Granting Bodies Peer Review***

National Geographic Society (2 proposals), National Science Foundation (3 panels, 5 ad-hoc reviews)

***Book Reviews***

Oxford University Press (3 books), University of Chicago Press (1 book)

***Society Membership***

American Association for the Advancement of Science, American Society of Naturalists, Animal Behavior Society, Australian Society of Herpetologists, Ecological Society of America, Sigma Xi, Society for Integrative and Comparative Biology, Society for the Study of Amphibians and Reptiles

**Teaching**

***Animal Behavior,*** Biol 429 (2009, 2011, 2012, 2013)

Enrollment: 45-49 students

Student Evaluations (out of a maximum of 7):

***Populations and Communities***, Biol 220W (2009-2013, variously with Dr. Baums, Dr. Dickins, Dr. Hass, Dr. Makova, Dr. Shea, Dr. Yang).

Enrollment: 315-370 students

Student Evaluations (out of a maximum of 7):

***First Year Seminar***, PSU 016 (2010, 2014).

Enrollment: 26 students

***Science Research Seminar***, SC 297B (2014). With Dr. Williams.

Enrollment: 110 students

***Advances in Ecology***, Eclgy 597B (2009-2013), 2 week module on Advances in Invasion Biology.

Enrollment: 8-18 graduate students

***Critical Evaluation of Literature in Biology***, Biol 592 (2009). Module on the Ethical Use of Animals In Research with Dr. Braithwaite and Dr. Waters.

Enrollment: 11 graduate students

***Ecology Seminar Discussion***, Eclgy 597F (2009). With Dr. Baums, Dr. Marden, Dr. Read, Dr. Stephenson.

Enrollment: 10 graduate students

***Biology of Terrestrial Vertebrates*** (2005). Guest Lecturer, School of Biological Sciences, University of Sydney.

***Living Systems, Ecosystems to Genes, Vertebrates and their Origins, Ecophysiology, Biology of Terrestrial Vertebrates, Animal Physiology*** (2002 - 2005). Graduate Teaching Assistant, School of Biological Sciences, University of Sydney.

***Field Biology and Animal Adaptation, Animal Form and Function Field Course, Rainforest Populations and Communities, Australian Vertebrate Fauna, Tropical Australian Herpetology, Field Ecology*** (2000 - 2001). Teaching Assistant. School of Tropical Biology, James Cook University.

**Students and Trainees Advised**

***Postdoctoral Advisees***

Kirsty MacLeod (2016-2018; Marie Curie Fellow, University of Lund)

Christopher Howey (2014-2017; Assistant Professor, University of Scranton)

Gail McCormick (2016; Communications Analyst, Penn State University)

Lindsey Swierk (2014; Assistant Research Professor, Department of Biological Sciences

Binghamton University (SUNY))

Sean Graham (2011-2013; Assistant Professor, Sul Ross State University)

Travis Robbins (2010-2013; Instructor, University of Nebraska Omaha)

Renee Rosier (2012; Instructor, Clarion University)

***Ph.D. Students***

Dustin Owen (Ecology; 2015-present)

Braulio Assis (Ecology; 2015-present)

Catherine Tylan (Biology; 2015-present)

Catherine Pritchard (Wildlife and Fisheries Science; 2017-2019; Animal Welfare Policy Scientist, NIH)

David Ensminger (Wildlife and Fisheries Science; 2017-2019; NSF Postdoctoral Fellow, UC Berkeley)

Cameron Venable (Biology; 2016-2019; postdoc, University of Denver)

Christopher Thawley (Ecology; 2011-2016; Assistant Professor of Biology, Neumann University)

Gail McCormick (Ecology; 2011-2016; Communications Analyst, Penn State University)

Jennifer Tennessen (Ecology; 2011-2015; postdoc at NOAA)

Bradley Carlson (Ecology; 2009-2014; Assistant Professor, Wabash College)

Lindsey Swierk (Ecology; 2009-2013; Assistant Research Professor, Department of Biological Sciences, Binghamton University (SUNY))

Renee L. Rosier (Biology; 2008-2012; Instructor, Clarion University)

***M.Sc. Students***

Kelly Brossman (Biology; 2012-2013; PA Fish and Boat Commission Biologist)

Michaleia Mead (Biology; 2016-present; on hold)

***Graduate Student Thesis Committees***

*Penn State University*

Kevin Rosenfield (2019-present). Anthropology, Ph.D.

Monique Pipkin (2018-present). Ecology, M.Sc.

Asia Murphy (2018-present). Ecosystem Science and Management, Ph.D.

Alexis Sullivan (2017-2020). Biology, Ph.D.

Carli Dinsmore (2017-2019). Ecology, M.Sc.

Sharmaine Miller (2015-2019). Biology, Ph.D.

Staci Amburgey (2015-2019). Ecology, Ph.D.

Catharine Pritchard (2014-2018), Ecosystem Science and Management, Ph.D.

Christina Aiello (2013-2018), Ecology, Ph.D.

Lauren Chaby (2013-2016), Neuroscience, Ph.D.

Becky Heinig (2013-2015), Entomology, Ph.D.

Michael Avery (2010-2011), Biology, Ph.D.

Tiffany Cloud (2013), Biology, M.Sc.

Katey Glunt (2011-2013), Biology, Ph.D.

Cairsty Grassie (2010-2013), Forest Resources, Ph.D.

Steven Beri (2011-2012), Forest Resources, M.Sc.

Daniel Schmehl (2010-2012), Entomology, Ph.D.

Cara Hotchkin (2009-2012), Applied Research Laboratory, Ph.D.

Jason Hill (2009-2012), Forest Resources, Ph.D.

Christina Ragan (2009-2011), Biobehavioral Health, Ph.D.

Erin Becker (2007-2010), Biology, Ph.D.

James Julian (2009), Cooperative Wetlands Center, Ph.D.

Dan Gill (2009), Biology, M.Sc.

*Other Institutions*

Joshua Hall (2015-2020). Biological Sciences. Auburn University, Ph.D.

Jessica Thomas (2013-2016). Biological Sciences, Duquesne University, Ph.D.

Lisa Cantwell (2013-2016). Ecol and Evol Biology, U Tennessee, Knoxville, Ph.D.

Krista Mougey (2012-2016). Dept Natural Resource Management, Texas Tech, Ph.D.

***External PhD Thesis Evaluator***

University of Melbourne, Australia; James Cook University, Australia; University of Victoria, New Zealand, University of Sydney, Australia; Macquarie University, Australia

***Undergraduate Research Advisees***

Richard Novak (2016- 2020)

Kristen Sprayberry (2016-2019)

Jennifer Heppner (2016-2019)

Michaleia Mead (2015-2016)

Cecilia Zemanek (2014-2015)

Mark Herr (2013-2016)

Danielle Rosenberg (2013)

Courtney Norjen (2013)

Mark Goldy-Brown (2013)

Jennie Williams (REU 2013)

Jillian Newman (REU 2012)

Shannen McGinley (2011-2013)

Grace DeWitt (2011-2012)

Whitney Trompeter (2009-2010)

Katherine Boronow (2007-2009)

In addition, I have mentored >60 Undergraduate Research Assistants or Independent Studies Students.

***Lab Managers***

Nicole Freidenfelds (2007-2011)

***Research Associates***

Tom Adams (2016-2018)

**Media Coverage of Research**

***Print*** : Science Magazine, The Weekend Australian, The Townsville Sun, The Quitman County Democrat, Helix Magazine, “Yes” Magazine, the award winning book “Why the Cheetah Cheats: And Other Mysteries of the Natural World” by Lewis Smith; ***Television***: Totally Wild, Discovery Channel Canada, CBS “Brink”; ***Podcast and Radio***: Ecological Society of America, National Geographic, Quirks and Quarks; World Wide ***Online***: National Geographic, LATimes, MSNBC, Discovery Channel, Christian Science Monitor, Guardian Express, Headlines & Global News, The Scientist, Science Live, Science Illustrated, Scientific American, Science News.