

Justin G. Boyles, Ph.D.

1 July 2018

Department of Zoology
Southern Illinois University
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CURRENT POSITION:

Associate Professor, Cooperative Wildlife Research Laboratory, Department of Zoology, University of Southern Illinois Carbondale (2018-Present)

Assistant Professor, Cooperative Wildlife Research Laboratory, Department of Zoology, University of Southern Illinois Carbondale (2012-2018)

PREVIOUS POSITIONS:

Post-Doctoral Research Fellow, University of Tennessee, Knoxville. Hosts: Drs. Gary McCracken and Tom Hallam (2011-2012)

Post-Doctoral Research Fellow, University of Pretoria, South Africa. Host: Professor Andrew E. McKechnie (2009-2011)

EDUCATION:

Ph.D. in Biology, Indiana State University, Terre Haute, Indiana, 2009

M.S. in Biology, Missouri State University, Springfield, Missouri, 2004

B.S. in Ecology, Evolution and Systematics, Missouri State University, Springfield, Missouri, 2002

RESEARCH INTERESTS:

Major topics: Conservation physiology; global change biology; physiological ecology; disease ecology; agroecology; wildlife management; ecosystem services

Current interests: Responses of wild animals to anthropogenic stressors; evolution of thermoregulation; thermal ecology and energetics of animals in stressful environments; experimental methods in field studies; microclimate selection; hibernation, migration, conservation, and ecology of bats

PUBLICATIONS:

1. Koen, E. L., C. Minnaar, C. L. Roever, and **J. G. Boyles**. 2018. Emerging threat of the 21st century lightscape to global biodiversity. *Global Change Biology*. 24: 2315-2324.

2. Wetzler, G. C.* and **J. G. Boyles**. 2018. The energetics of mosquito feeding by insectivorous bats. *Canadian Journal of Zoology*. 96: 373-377. *Undergraduate student
3. Cravens, Z. M. and **J. G. Boyles**. *In Review*. Illuminating the physiological implications of artificial light on an insectivorous bat community.
4. McGuire, L. P., **J. G. Boyles**, and R. M. Brigham. *In Review*. Low apparent site fidelity in Common Nighthawks.
5. Krauel, J. J., L. P. McGuire, and **J. G. Boyles**. 2018. Testing traditional assumptions about regional migration in bats. *Mammal Research*. 63: 115-123.
6. Cravens, Z. M., V. A. Brown, T. J. Divoll, and **J. G. Boyles**. 2018. Illuminating prey selection in an insectivorous bat community exposed to artificial light at night. *Journal of Applied Ecology*. 55: 705-713.
7. Kirschman, L. J., M. D. McCue, **J. G. Boyles**, and R. W. Warne. 2017. Energetic and nutrient costs of development and metamorphosis are altered by physiological stress. *Journal of Experimental Biology*. 220: 3391-3397.
8. **Boyles, J. G.** 2017. Benefits of knowing the costs of disturbance to hibernating bats. *Wildlife Society Bulletin*. 41: 388-392.
9. **Boyles, J. G.**, N. C. Bennett, O. B. Mohammed, and A. N. Alagaili. 2017. Torpor patterns in desert hedgehogs (*Paraechinus aethiopicus*) represent another new point along a thermoregulatory continuum. *Physiological and Biochemical Zoology*. 90: 445-452.
10. **Boyles, J. G.**, E. Boyles, R. K. Dunlap, S. A. Johnson, and V. Brack, Jr. 2017. Long-term microclimate measurements add further evidence there is no “optimal” temperature for bat hibernation. *Mammalian Biology*. 86: 9-16.
11. Alagaili, A. N., N. C. Bennett, O. B. Mohammed, I. S. Zalmout, and **J. G. Boyles**. 2017. Body temperature patterns of a small endotherm in an extreme desert environment. *Journal of Arid Environments*. 137:16-20.
12. **Boyles, J. G.**, L. P. McGuire, E. Boyles, J. P. Reimer, C. A. C. Brooks, R. W. Rutherford, T. A. Rutherford, J. O. Whitaker, Jr., G. F. McCracken. 2016. Physiological and behavioral adaptations in bats living at high latitudes. *Physiology & Behavior*. 165: 322-327.
13. Maine, J. J. and **J. G. Boyles**. 2015. Bats initiate vital agroecological interactions in corn. *Proceedings of the National Academy of Science*. 112: 12438-12443.
14. Maine, J. J. and **J. G. Boyles**. 2015. Land cover influences dietary specialization of insectivorous bats globally. *Mammal Research*. 60: 343-351.

15. Carey, C. S. and **J. G. Boyles**. 2015. Interruption of passive gas exchange is not a likely mechanism of WNS-associated death in bats. *Journal of Experimental Biology*. 218: 1986-1989.
16. Neiles, B., C. S. Carey, A. Araujo, D. Burkhart, L. J. Kirschman, B. LaBumbard, S. LaGrange, J. J. Maine, A. M. Rombenso, M. N. Wood, and **J. G. Boyles**. 2015. Writing your way into high impact factor journals. *ESA Bulletin*. 96: 312-316.
17. Minnaar, C., **J. G. Boyles**, I. A. Minnaar, C. L. Sole, and A. E. McKechnie. 2015. Stacking the odds: light pollution may shift the balance in an ancient predator-prey arms race. *Journal of Applied Ecology*. 52: 522-531.
18. **Boyles, J. G.** and R. W. Warne. 2013. A novel framework for predicting use of facultative heterothermy by endotherms. *Journal of Theoretical Biology*. 336: 242-245.
19. **Boyles, J. G.***, A. B. Thompson*, A. E. McKechnie, E. Malan, M. M. Humphries, and V. Careau. 2013. A global heterothermic continuum in mammals. *Global Ecology and Biogeography*. 22: 1029-1039. *Contributed equally to this publication.
20. Cryan, P. M., C. U. Meteyer, **J. G. Boyles**, and D. S. Blehert. 2013. White-nose Syndrome in bats: illuminating the darkness. *BMC Biology*. 11:47.
21. **Boyles, J. G.**, C. L. Sole, P. M. Cryan, and G. F. McCracken. 2013. Knowledge deficiencies in estimating the economic value of insectivorous bats: A prospectus for researchers. Chapter 24 *In: Bat Evolution, Ecology and Conservation*. Adams, R. A. and S. C. Pedersen, eds. Springer Science Press, New York.
22. Verant, M. L.*, **J. G. Boyles***, W. Waldrep, Jr., G. Wibbelt, and D. S. Blehert. 2012. Temperature-dependent growth of *Geomyces destructans*, the fungus that causes bat white-nose syndrome. *PLoS ONE*. 7:e46280. *Contributed equally to this publication.
23. **Boyles, J. G.**, B. Smit, C. L. Sole, and A. E. McKechnie. 2012. Body temperature patterns in two free-ranging syntopic elephant shrew species during winter. *Comparative Biochemistry and Physiology, Part A*. 161: 89-94.
24. **Boyles, J. G.**, L. Verburgt, A. E. McKechnie, and N. C. Bennett. 2012. Adaptive heterothermy in two mole-rat species subjected to interacting thermoregulatory challenges. *Journal of Experimental Zoology, Part A*. 317: 73-83.
25. **Boyles, J. G.**, B. Smit, and A. E. McKechnie. 2012. Fur removal increases heat loss, but not variation in body temperature in two small endotherms, a homeotherm and a heterotherm. *Journal of Zoology*. 287: 224-232.

26. Halsall, A. L., **J. G. Boyles**, and J. O. Whitaker, Jr. 2012. Body temperature patterns of big brown bats (*Eptesicus fuscus*) during winter in a building hibernaculum. *Journal of Mammalogy*. 93: 497-503.
27. **Boyles, J. G.**, P. M. Cryan, G. F. McCracken, and T. H. Kunz. 2011. Economic importance of bats in agriculture. *Science*. 332: 41-42.*

*Covered by BBC World Service, Discovery, Time, The New York Times, MSNBC.com, The Los Angeles Times, among others
28. **Boyles, J. G.**, P. M. Cryan, G. F. McCracken, and T. H. Kunz. 2011. Concerns about extrapolating right off the bat—a response. *Science*. 333: 287-288.
29. Lorch, J. M., A. E. Ballman, M. J. Behr, **J. G. Boyles**, J. T. H. Coleman, P. M. Cryan, A. C. Hicks, C. U. Meteyer, D. Redell, D. M. Reeder, and D. S. Blehert. 2011. Experimental infection of bats with *Geomyces destructans* causes white-nose syndrome. *Nature*. 480: 376-378†

†Covered by The USA Today, The Los Angeles Times, BBC, Scientific America, Reuters, among others
30. **Boyles, J. G.**, B. Smit, and A. E. McKechnie. 2011. A new comparative metric for estimating heterothermy in endotherms. *Physiological and Biochemical Zoology*. 84: 115-123.
31. **Boyles, J. G.**, F. Seebacher, B. Smit, and A. E. McKechnie. 2011. Adaptive thermoregulation in endotherms may alter responses to climate change. *Integrative and Comparative Biology*. 51: 676-690.
32. **Boyles, J. G.**, B. Smit, and A. E. McKechnie. 2011. Does use of the torpor cut-off method to analyze variation in body temperature cause more problems than it solves? *Journal of Thermal Biology*. 33: 373-375.
33. Aubrey, D. P., **J. G. Boyles**, L. S. Krysinisky, and R. O. Teskey. 2011. Spatial and temporal patterns of xylem sap pH derived from stems and twigs of *Populus deltoides*. *Environmental and Experimental Botany*. 71: 376-381.
34. Smit, B. **J. G. Boyles**, R. M. Brigham, and A. E. McKechnie. 2011. Torpor in dark times: patterns of heterothermy are associated with the lunar cycle in a nocturnal bird. *Journal of Biological Rhythms*. 26: 241-248.
35. Storm, J. J. and **J. G. Boyles**. 2011. Body temperature and body mass of hibernating little brown bats *Myotis lucifugus* in hibernacula affected by White-nose Syndrome. *Acta Theriologica*. 56: 123-127.
36. Streicher, S., **J. G. Boyles**, M. K. Oosthuizen, and N. C. Bennett. 2011. Body temperature patterns in free-ranging subterranean Damaraland mole-rats, *Fukomys damarensis*. *PLoS ONE*. 6:e26346.

37. Willis, C. K. R., A. K. Menzies, **J. G. Boyles**, and M. S. Wojciechowski. 2011. Evaporative water loss is a plausible explanation for mortality in bats suffering from white-nose syndrome. *Integrative and Comparative Biology*. 51: 364-373.
38. **Boyles, J. G.** and C. K. R. Willis. 2010. Could localized warm areas inside cold caves reduce mortality of hibernating bats affected by white-nose syndrome? *Frontiers in Ecology and the Environment*. 8: 92-98.*

*Cover Story in the March 2010 Issue. Covered by Nature, Science, The New York Times, National Public Radio, Canadian Broadcasting Corporation, The USA Today, The Los Angeles Times, National Geographic, and Scientific American, among others
39. **Boyles, J. G.** and A. E. McKechnie. 2010. Energy conservation in hibernating endotherms: why “suboptimal” temperatures are optimal. *Ecological Modelling*. 221: 1644-1647.
40. Angilletta, M. J., Jr., B. S. Cooper, M. S. Schuler, and **J. G. Boyles**. 2010. The evolution of thermal physiology in endotherms. *Frontiers in Bioscience*. E2: 861-881.
41. Cryan, P. M., C. U. Meteyer, **J. G. Boyles**, and D. S. Blehert. 2010. Wing pathology associated with White-nose Syndrome in bats suggests life-threatening disruption of physiology. *BMC Biology*. 8: 135.*

*Covered by Fox News and The USA Today
42. Willis, C. K. R., R. M. R. Barclay, **J. G. Boyles**, R. M. Brigham, V. Brack, Jr., D. L. Waldien, and J. Reichard. 2010. Bats are not birds and other problems with Sovacool's (2009) analysis of animal fatalities due to electricity generation. *Energy Policy*. 38: 2067-2069.
43. **Boyles, J. G.** and V. Brack, Jr. 2009. Modeling survival rates of hibernating mammals with individual-based models of energy expenditure. *Journal of Mammalogy*. 90: 9-16.
44. **Boyles, J. G.**, D. P. Aubrey, C. Hickman, K. L. Murray, J. C. Timpone, and C. H. Ops. 2009. Variation in physiological response of red imported fire ants (*Solenopsis invicta*) to small-scale thermal heterogeneity. *Journal of Thermal Biology*. 34: 81-84.
45. Willis, C. K. R., J. W. Jameson, P. A. Faure, **J. G. Boyles**, V. Brack, Jr., and T. H. Cervone. 2009. Thermocron iButton and iBBat temperature dataloggers emit ultrasound. *Journal of Comparative Physiology B*. 179: 867-874.

46. **Boyles, J. G.**, J. J. Storm, and V. Brack, Jr. 2008. Thermal benefits of clustering during hibernation: a field test of competing hypotheses on *Myotis sodalis*. *Functional Ecology*. 22: 632-636.
47. **Boyles, J. G.**, D. A. Aubrey, B. S. Cooper, J. G. Cox, D. R. Coyle, J. D. Hoffman, R. J. Fisher, and J. J. Storm. 2008. Statistical confusion among graduate students: sickness or symptom? *Journal of Wildlife Management*. 72: 1869-1871.
48. **Boyles, J. G.**, M. B. Dunbar, J. J. Storm, and V. Brack, Jr. 2007. Energy availability affects microclimate selection of hibernating bats. *Journal of Experimental Biology*. 210: 4345-4350.
49. **Boyles, J. G.** and J. J. Storm. 2007. The perils of picky eating: dietary breadth is related to extinction risk in insectivorous bats. *PLoS ONE*. 2: e672.
50. **Boyles, J. G.** and J. J. Storm. 2007. Avoidance of predator chemical cues by bats: an experimental assessment. *Behaviour*. 144: 1019-1032.
51. **Boyles, J. G.** 2007. Describing roosts used by forest bats: the importance of microclimate. *Acta Chiropterologica*. 9: 297-303.
52. **Boyles, J. G.**, B. L. Walters, J. O. Whitaker, Jr. and J. B. Cope. 2007. A reanalysis of apparent survival rates of Indiana myotis (*Myotis sodalis*). *Acta Chiropterologica*. 9: 127-132.
53. **Boyles, J. G.** and G. S. Bakken. 2007. Seasonal changes and wind dependence of thermal conductance in dorsal fur from two small mammal species (*Peromyscus leucopus* and *Microtus pennsylvanicus*). *Journal of Thermal Biology*. 32: 383-387.
54. **Boyles, J. G.** and D. P. Aubrey. 2006. Managing forests with prescribed fire: implications for a cavity-dwelling bat species. *Forest Ecology and Management*. 222: 108-115.

Natural History Publications:

55. **Boyles, J. G.** and V. Brack, Jr. 2014. Energetics alone is insufficient for conservation recommendations of hibernating bats. Letter to the Editor. *Bat Research News*. 55: 1-3.
56. Timpone, J. C., **J. G. Boyles**, D. P. Aubrey, K. L. Murray, and L. W. Robbins. 2010. Overlap in roosting habits of the Indiana bat (*Myotis sodalis*) and northern bat (*Myotis septentrionalis*). *American Midland Naturalist*. 163: 115-123.
57. Gikas, N. S., **J. G. Boyles**, A. A. Zurcher, B. L. Walters, and J. O. Whitaker, Jr. 2009. The first records of the eastern small-footed bat (*Myotis leibii*) in Indiana. *Proceedings of the Indiana Academy of Science*. 118: 203-204.

58. **Boyles, J. G.**, M. B. Dunbar, and J. O. Whitaker, Jr. 2006. A review of activity upon arousal in winter in North American vespertilionid bats. *Mammal Review*. 36: 267-280.
59. **Boyles, J. G.** and L. W. Robbins. 2006. Characteristics of summer and winter roost trees used by evening bats (*Nycticeius humeralis*) in Missouri. *American Midland Naturalist*. 155: 210-220.
60. Timpone, J. C., **J. G. Boyles**, and L. W. Robbins. 2006. Possible niche-overlap in roosting sites between evening bats (*Nycticeius humeralis*) and big brown bats (*Eptesicus fuscus*). *Northeastern Naturalist*. 13: 597-602.
61. **Boyles, J. G.**, B. M. Mormann, and L. W. Robbins. 2005. Use of an underground winter roost by a male evening bat (*Nycticeius humeralis*). *Southeastern Naturalist*. 4: 375-377.
62. Davis, C. R. and **J. G. Boyles**. 2005. First record of an adult male evening bat from Kansas. *Prairie Naturalist*. 37: 125-126.
63. **Boyles, J. G.**, J. C. Timpone, and L. W. Robbins. 2003. Late winter observations of red bats, *Lasiorus borealis*, and evening bats, *Nycticeius humeralis*, in Missouri. *Bat Research News*. 44: 59-61.

POPULAR BOOK:

1. **Boyles, J. G.**, J. C. Timpone, and L. W. Robbins. 2009. *Bats of Missouri*. Indiana State University and the Center for North American Bat Research and Conservation. 60 pp.

RESEARCH GRANT SUPPORT:

- | | |
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| 2017 | National Science Foundation for “Community (physiological) ecology: linking consumer homeostatic physiology and behavior to plant community dynamics”. Warne, R. W. and J. G. Boyles . \$200,000 |
| 2017 | National Fish and Wildlife Foundation and Bat Conservation International for “Manipulating microclimates to reduce disease severity from White-nose Syndrome”. McGuire, L. P., J. G. Boyles (Co-PI with McGuire), and W. F. Frick. \$381,846 |
| 2015 | Missouri Department of Conservation for “Assessment of bat communities in lightly surveyed parts of Missouri”. Boyles, J. G. \$146,000 |
| 2015 | Indiana Department of Conservation for “Analysis of microclimates in Indiana bat hibernacula” Boyles, J. G. and E. Boyles. \$15,000 |
| 2014 | US Fish and Wildlife Service for “A regional-scale assessment of autumn migration and swarming movements of Indiana bats (<i>Myotis sodalis</i>) and northern myotis (<i>Myotis septentrionalis</i>) in the Indiana bat Midwest Recovery Unit”. Boyles, J. G. , L. P. McGuire (Co-PI with Boyles), P. M. Cryan, A. Kurta, M. P. Ward, and V. Brack, Jr. \$231,749 |

- 2014 US Fish and Wildlife Service for “A regional-scale assessment of spring migration and swarming movements of Indiana bats (*Myotis sodalis*) and northern myotis (*Myotis septentrionalis*) in the Indiana bat Midwest Recovery Unit”. **Boyles, J. G.**, L. P. McGuire (Co-PI with Boyles), P. M. Cryan, A. Kurta, M. P. Ward, and V. Brack, Jr. \$55,000
- 2014 US Park Service for “Migratory pathways and molecular ecology of *Myotis* bats in Wrangell-St. Elias National Park”. McCracken, G. F. and **J. G. Boyles**. \$71,430
- 2014 APEX Clean Energy and USFWS for “Autumn migration of Indiana bats (*Myotis sodalis*) and northern myotis (*Myotis septentrionalis*) in eastern Illinois—potential implications for wind energy development”. **Boyles, J. G.** and L. P. McGuire. \$35,607
- 2014 SIU Faculty Seed Grant Program (OVCR) for “Experimental evaluation of changes in community-level processes caused by climate change”. **Boyles, J. G.**, M. W. Eichholz, and C. I. Hatziaioniu. \$40,000
- 2013 National Geographic for “Going the distance: does heterothermy facilitate long-distance migrations in goatsuckers?” McGuire, L., **J. G. Boyles** (Co-PI with McGuire), and R. M. Brigham. \$20,000
- 2013 Illinois Department of Natural Resources for “Evaluating hibernating physiology of endangered Indiana bats, a cavernicolous species affected by White-nose Syndrome”. **Boyles, J. G.** \$23,386
- 2013 Bat Conservation International for “Top-down suppression of herbivory by bats in agroecosystems”. **Boyles, J. G.** and J. J. Maine. \$45,774
- 2012 US Fish and Wildlife Service for “Pre- and post-White nose syndrome survival of bats assessed using passive transponders on a continental scale”. Willis, C. K. R., H. Broders, **J. G. Boyles**, W. Frick, J. Foster, and M. Kilpatrick. \$173,913
- 2010 Journal of Experimental Biology for “The interactive effects of food availability and temperature on heterothermy in endotherms”. **Boyles, J. G.** \$1,300
- 2009 British Ecological Society for “The optimal expression of heterothermy under varying ecological scenarios”. **Boyles, J. G.** (Co-P.I. with McKechnie) and A. E. McKechnie. \$11,560
- 2008 United States Fish and Wildlife Service for “Can artificial thermal refugia reduce mortality associated with white-nose syndrome?” Willis, C. K. R., **J. G. Boyles** (Co-P.I. with Willis), M. Timonin, K. Jonasson and T. D. Parkinson. \$28,081
- 2008 New York Department of Environmental Conservation for “Evaluating the energetic effects of white-nose syndrome on hibernating cave bats”. **Boyles, J. G.** (P.I.), D. W. Sparks, J. J. Storm and V. Brack, Jr. \$5,000
- 2007 Indiana State University, Office of Information Technology for “Recording of behavior and habitat selection of hibernating bats with a remote monitoring system”. **Boyles, J. G.** (Co-P.I. with Whitaker), J. O. Whitaker, Jr., V. Brack, Jr., and D. W. Sparks. \$6,600
- 2006 Indiana Academy of Science for “The thermal benefits of clustering in the federally endangered Indiana bat”. **Boyles, J. G.** \$2,740

- 2006 United States Fish and Wildlife Service for “The thermal benefits of clustering in the federally endangered Indiana bat”. **Boyles, J. G.** (P.I.) and V. Brack, Jr. \$1,000

FELLOWSHIPS AND MAJOR AWARDS:

- 2010-11 Claude Leon Foundation Post-Doctoral Fellowship. ~\$26,000/yr
 2009-10 University of Pretoria Post-Doctoral Research Fellowship. ~\$22,000/yr
 2008 Cave Conservancy Foundation Ph.D. Fellowship. \$15,000
 2007 American Society of Mammalogists Fellowship in Mammalogy. \$18,000

TEACHING EXPERIENCE:

Lecture:

- 2015-2018 Mammalogy (Given 3 times)
 2017 Ecology
 2012-2017 Wildlife Techniques (Given 4 times)
 2016 Sophomore Seminar
 2014 Philosophy of Science, Statistics, and Publishing in Ecology (Graduate)
 2011-2012 Mammal Ecology, University of Pretoria (Given twice)
 2010 Co-Leader, Honour’s Degree Discussion Course, University of Pretoria

Laboratory:

Teaching Assistant for Ecology, Mammalogy, Principles of Biology, Organismic, Biology II for majors, Identification of Woody Plants, Introductory Biology for non-majors, and Big Game Management

UNIVERSITY SERVICE:

- 2014-2016 Center for Ecology Distinguished Speaker Selection Committee
 2014-2016 Teaching Technology Mentor for the Department of Zoology
 2013-2015 Graduate Education Committee, Department of Zoology
 2012-2013 Ad-hoc committee for faculty search

PROFESSIONAL ACTIVITY AND SERVICE:

Society Service:

- 2017 Member of the Mammal Endangered Species Technical Advisory Committee for the Illinois Endangered Species Protection Board
 2017 Advisory Board Member: Bats Forever program of Fish and Wildlife Foundation
 2014-2016 Member and Ecosystem Services Lead: Ecology and Evolution Working Group, National White-nose Syndrome Working Group
 2012-2014 Board member: Midwest Bat Working Group
 2008-2013 Committee member: Grants-in-Aid Committee, American Society of Mammalogists

- 2004-06 Committee member: Conservation Committee, American Society of Mammalogists
- 2003-04 Vice President of the Ozark Biological Graduate Student Association
- 2003 Local committee member, Annual Meeting of the Central Plains Society of Mammalogists

Editorships:

- 2010-Present Associate Editor and Editor for Reviews, *Mammal Research*
- 2013-2016 Associate Editor, *PLoS ONE*
- 2009 Guest Editor, *Northeastern Naturalist*

Reviewed Manuscripts For:

Peer-reviewed Journals (58 journals in total)

Acta Chiropterologica, Acta Theriologica, American Midland Naturalist, Anatomical Record, Animal Behaviour, Animal Conservation, Annals of Applied Biology, Behaviour, Biologia, Biological Conservation, Biological Journal of the Linnean Society, Biology Letters, Central European Journal of Biology, Comparative Biochemistry and Physiology-Part A, Diversity and Distributions, Ecological Applications, Ecological Modelling, Ecology, Ecology Letters, Ecosphere, Ethology, Evolutionary Ecology, Folia Zoologica, Forest Ecology and Management, Frontiers in Ecology and the Environment, Functional Ecology, Global Change Biology, Global Ecology and Biogeography, Integrative and Comparative Biology, Ibis, ILAR Journal, International Journal of Biometeorology, Journal of Animal Ecology, Journal of Comparative Physiology B, Journal of Experimental Biology, Journal of Experimental Zoology-Part A, Journal of Mammalogy, Journal of Ornithology, Journal of Theoretical Biology, Journal of Wildlife Diseases, Journal of Zoology, Methods in Ecology and Evolution, Molecular Ecology, Naturwissenschaften, Northeastern Naturalist, Northwestern Naturalist, Oecologia, Physiological and Biochemical Zoology, Physiology & Behavior, PLoS ONE, Proceedings of the Royal Society B, Scientific Reports, Southeastern Naturalist, Southwestern Naturalist, Systematic Biology, Temperature, Wildlife Research, Zoology

Books

- Lovegrove, B. G. and A. E. McKechnie (eds.) 2008. Hypometabolism in animals: torpor, hibernation and cryobiology.
- Kingston, T. and C. C. Voigt (eds.) 2014. Bats in the Anthropocene: conservation of bats in a changing world.

Reviewed Grant Proposals For:

American Society of Mammalogists, Bat Conservation International, Czech Science Foundation, National Geographic, National Research Foundation (South Africa), National Science Foundation, Natural Sciences and Engineering Research Council (Canada), Polish National Science Centre, United States-Israel Binational Science Foundation

STUDENTS SUPERVISED:

Post-doctoral Fellows

Jennifer Krauel: Southern Illinois University. Title: Migration of bats in the Midwestern United States. 2015.

Master's Degree

Nikki Walker: Southern Illinois University. Title: Community (physiological) ecology in a desert ecosystem.

Omar Morales: Southern Illinois University. Title: Predator effects on movements of small desert mammals.

Wes Holland: Southern Illinois University. Title: Evolution of skull biomechanics and venom in shrews.

Zachary Cravens: Southern Illinois University. Title: Molecular and physiological analysis of diet shifts in bats around artificial light. Graduated 2018

Michelle Wood: Southern Illinois University. Title: Coadaptation of thermoregulation and system level thermal sensitivity in endotherms. Graduated 2016

Josiah Maine: Southern Illinois University. Title: Ecosystem services provided by insectivorous bats in agriculturally dominated landscapes. Graduated 2014.

Corneile Minnaar: University of Pretoria. Title: Mechanistic model of diet selection in insectivorous bats. Graduated 2014.

Charleve Carey: Southern Illinois University. Title: Separating cutaneous and pulmonary water loss in hibernating bats. Graduated 2014.

Honour's Degree (South Africa)

Ezit Malan. University of Pretoria. Title: Examining patterns of endothermic thermoregulation in an evolutionary context. Graduated 2011.

Corneile Minnaar. University of Pretoria. Title: Bats, moths and light: testing the effect of artificial light on diet composition in insectivorous bats. Graduated 2010.

Undergraduate Research

Angelica Bahena
Gabrielle Wetzler
Camille Alvino
Julie Driebergen

Served as a Committee Member for:

Jared Bilak (Ph.D.)
 Elizabeth Tristano (Ph.D.)
 Kelley Fritz. SIU (Ph.D.)
 Ryan O'Shaughnessy. SIU (Ph.D.)
 Lucas Kirschman. SIU (Ph.D.)
 Zuyi Chen SIU (Ph.D.)
 Timothy Knudson. SIU (M.S.)
 Jennie Mook. SIU (M.S.)
 Katie Heiden SIU (M.S.)
 Miranda Vesey (M.S.)

PROFESSIONAL SOCIETIES:

American Association for the Advancement of Science
 American Society of Mammalogists
 Central Plains Society of Mammalogists
 Indiana Academy of Science
 Midwest Bat Working Group
 North American Society for Bat Research
 North Dakota Natural Science Society
 Society for Integrative and Comparative Biology

INVITED TESTIMONY:

2011 Importance of bats to agriculture. Expert testimony before the U.S. House of Representatives, Natural Resources Committee, Subcommittee on Fisheries, Wildlife, Oceans, and Insular Affairs for the hearing "Why should we care about bats: devastating impact white-nose syndrome is having on one of nature's best pest controllers" 24 June, 2011. C-Span coverage can be seen [here](#).

INVITED PRESENTATIONS:

2018 Bats in a human world. Departmental Seminar, Texas Tech University, Lubbock (**J. G. Boyles**)
 2017 Bats in a human world. Departmental Seminar, Eastern Illinois University, Charleston (**J. G. Boyles**)
 2016 Bats in a human world. Departmental Seminar, University of Maine, Orono (**J. G. Boyles**)
 2015 Bats in a human world: 'n kaktus in 'n vistenk? Departmental Seminar, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa (**J. G. Boyles**)
 2013 Causes and consequences of White-nose Syndrome. Departmental Seminar, Georgia Southern University, Statesboro, Georgia (**J. G. Boyles**)
 2012 White-nose Syndrome: An emerging epizootic of hibernating bats. Departmental Seminar, University of Illinois, Champaign-Urbana, Illinois (**J. G. Boyles**)

- 2012 Adaptive thermoregulation in endotherms. Departmental Seminar, University of Tennessee, Knoxville, Tennessee (**Boyles, J. G.**)
- 2011 Studying White-nose Syndrome in bats: A race against extinction. Departmental Seminar, Texas State University, San Marcos, Texas (**Boyles, J. G.**)
- 2011 Adaptive thermoregulation in endotherms. Departmental Seminar, University of Winnipeg, Canada (**Boyles, J. G.**)
- 2011 Adaptive thermoregulation may modify effects of climate change on endotherms. Invited Symposium Presentation, Society for Integrative and Comparative Biology Meeting. Salt Lake City, Utah (**Boyles, J. G.**, F. Seebacher, B. Smit, A. E. McKechnie)
- 2011 Energy and water conservation during hibernation and its relationship to bat conservation. Invited Symposium Presentation, Society for Integrative and Comparative Biology Meeting. Salt Lake City, Utah (Willis, C. K. R., **J. G. Boyles**, M. S. Wojciechowski, P. M. Cryan, A. Menzies)
- 2010 How hibernation increases overwinter survival and a new fungus threatens it. Keynote Speech, Gauteng and Northern Regions Bat Interest Group, Johannesburg, South Africa (**Boyles, J. G.**)
- 2009 The evolution and optimal expression of heterothermy in endotherms. Departmental Seminar, Genetics, University of Pretoria, South Africa (**Boyles, J. G.**)
- 2009 Energetics and survival during hibernation-a model without the math. Departmental Seminar, Zoology and Entomology, University of Pretoria, South Africa. (**Boyles, J. G.**)
- 2009 Can thermal refugia increase survival in white-nose affected bats? White-Nose Syndrome Webinar. (**Boyles, J. G.** and C. K. R. Willis)
- 2008 Thermal benefits of clustering during hibernation: a field test of competing hypotheses on *Myotis sodalis*. ASM Fellowship Presentation at the American Society of Mammalogists Meeting. Brookings, South Dakota (**Boyles, J. G.**)
- 2008 Energy expenditure in hibernating bats: the implications of white nose syndrome. White-Nose Syndrome Planning Meeting. Albany, New York (Tomasi, T. E., C. K. R. Willis, **J. G. Boyles**, C. Frank, J. Reichard).
- 2008 Energy limitations in cave bats as caused by white-nose syndrome. Southeastern Bat Diversity Network/Northeastern Bat Working Group meeting. Blacksburg, Virginia (**Boyles, J. G.**)
- 2007 Hibernation ecology of the Indiana bat. Indiana Department of Forestry HEE meeting. Indianapolis, Indiana (**Boyles, J. G.** and V. Brack, Jr.)
- 2004 Ecology of forest dwelling bats in Missouri. Departmental seminar at Southwest Missouri State University. Springfield, Missouri (Robbins, L. W., **J. G. Boyles**, B. M. Mormann, M. B. Milam)