



MATTHEW DENMAN SMITH

Postdoctoral Associate
Howard Hughes Medical Institute
University of Florida
Department of Molecular
Genetics and Microbiology
Cohn Lab. PO Box 103610
Gainesville, Florida 32610

413.214.5349
madsmith@ufl.edu
matthew-d-smith.com

20 September 2014

INTERESTS

Adaptation, animal behavior, life history evolution, evolutionary developmental biology.

EDUCATION

- Ph.D., University of Florida.** Zoology. Advisor: H. Jane Brockmann. 2012
Variation in body size and reproductive behavior in horseshoe crabs.
- M.S., University of Arizona.** Wildlife Science. Advisor: Courtney J. Conway. 2004
Function of manure-scattering behavior of burrowing owls.
- B.A., Earlham College.** Biology. Advisors: Bill Buskirk & Leslie Bishop 1997

ACADEMIC APPOINTMENTS

- Postdoctoral Associate,** Howard Hughes Medical Institute, Department of
Molecular Genetics and Microbiology, University of Florida. Present
- Adjunct Lecturer,** Department of Biology, University of Florida. 2012 - 2014
- Postdoctoral Associate,** Department of Entomology, University of Florida. 2013

PUBLICATIONS (*UNDERGRADUATE CO-AUTHOR)

10. **Smith, M.D.**, and H.J. Brockmann. 2014. The evolution and maintenance of sexual size dimorphism in North American horseshoe crabs: an evaluation of six functional hypotheses. *Animal Behaviour* 96: 127-139.
9. Monaghan, J.R., A.C. Stier, F. Michonneau, **M.D. Smith**, B. Pasch, M. Maden, and A.W. Seifert. 2014. Experimentally induced metamorphosis in axolotls reduces regenerative rate and fidelity. *Regeneration* 1: 2-14. (*Nexus Biology Working Group*).
8. **Smith, M.D.**, H.E. Schrank*, and H.J. Brockmann. 2013. Measuring the costs of alternative reproductive tactics in horseshoe crabs, *Limulus polyphemus*. *Animal Behaviour* 85: 165-173.
7. Seifert, A.W., J.R. Monaghan, **M.D. Smith**, B. Pasch, A.C. Stier, F. Michonneau, and M. Maden. 2012. The influence of fundamental traits on the mechanisms of appendage regeneration. *Biological Reviews* 87: 330-345. (*Nexus Biology Working Group*).

6. **Smith, M.D.** and C.J. Conway. 2011. Collection of mammal manure and other debris by nesting burrowing owls. *Journal of Raptor Research* 45:220-228.
5. Brockmann H.J. and **M.D. Smith**. 2009. Reproductive competition and sexual selection in horseshoe crabs. In: *Biology and Conservation of Horseshoe Crabs*, eds J. Tanacredi, M.L. Botton, and D. Smith. Springer Publishers.
4. Conway, C.J., V. Garcia, **M.D. Smith**, and K. Hughes. 2008. Factors affecting detection of burrowing owl nests during standardized surveys. *Journal of Wildlife Management* 72: 688-696.
3. **Smith, M.D.** and C.J. Conway. 2007. Use of mammal manure by nesting burrowing owls: a test of four functional hypotheses. *Animal Behaviour* 75: 65-73.
 - *Featured in:* (1) *Alcock, J. Animal Behavior: an Evolutionary Approach, 9th edition*, (2) *Goodenough, J., et al. Perspectives on Animal Behavior, 3rd edition*.
 - *Press coverage:* *Audubon Magazine*; Fox News, SciTech.
2. Conway, C.J., V. Garcia, **M.D. Smith**, L.A. Ellis, and J.L. Whitney. 2006. Comparative demography of burrowing owls in agricultural and urban landscapes in southeastern Washington. *Journal of Field Ornithology* 77: 280-290.
 - *Most Cited Papers of 2008 in Journal of Field Ornithology*.
1. **Smith, M.D.**, C.J. Conway, and L.A. Ellis. 2005. Burrowing owl nesting productivity: a comparison between artificial and natural burrows on and off golf courses. *Wildlife Society Bulletin* 33: 454-462.

In Preparation

- Brockmann, H.J., S.L. Johnson, M.D. Smith, and D. Sasson. In Review. Mating tactics of the American horseshoe crab (*Limulus polyphemus*). In: *Changing Global Perspectives on Biology, Conservation, and Management of Horseshoe Crabs*, eds R.H. Carmichael, M.L. Botton, P.K.S. Shin, and S.G. Cheung. Springer Publishers, Spring 2015.
- Smith, M.D., and H.J. Brockmann. The interaction between temperature and season length predicts a rare non-linear ecogeographic cline in body size. Submitting to: *American Naturalist*, October 2014.
- Brockmann, H.J., S.L. Johnson, D. Sasson, and M.D. Smith. Seasonal variation in horseshoe crab (*Limulus polyphemus*) nesting: a comparison of fall and spring nesting in Florida. Draft manuscript available.

Technical Reports

- Conway, C.J., L. A. Ellis, V. Garcia, and **M.D. Smith**. 2005. Population ecology and habitat use of Burrowing Owls in eastern Washington: 2004 annual report. Wildlife Research Report #2005-02. Arizona Cooperative Fish and Wildlife Research Unit, Tucson, AZ.
- Conway, C.J., **M.D. Smith**, and L. A. Ellis. 2003. Burrowing owl conservation on golf courses in North America. Final Report, U.S. Golf Association, Wildlife Links Program, Stillwater, Okla.

Miscellaneous

- Smith, M.D.** and C. J. Conway. 2005. Use of artificial burrows on golf courses for burrowing owl conservation. *Turfgrass & Environmental Research Online* 4:1-6.

Smith, M.D. and C.J. Conway. 2005. Golf courses may help save burrowing owls. United States Golf Association, Green Section Record. September issue.

Smith, M.D. and C.J. Conway. 2000. Golf Courses and Owls May be Mutually Beneficial. Golf Course News Magazine (Issue 5). Portland, ME, USA.

GRANTS AND FELLOWSHIPS

University of Florida , Singer Biology Fund (<i>Nexus Biology Working Group</i>) <i>Life-history correlates of limb regeneration in axolotls.</i> \$15,000	2009
American Museum of Natural History , Lerner-Gray Grants for Marine Research <i>Costs of alternative mating tactics in horseshoe crabs.</i> \$2,030	2008
National Science Foundation , Doctoral Dissertation Improvement Grant <i>Post-copulatory mating success and male accessory gland size</i> (declined).	2007
Sigma Xi , Grants-in-aid-of-research <i>Ontogeny of male accessory glands in field crickets.</i> \$795	2006
University of Florida , Department of Biology, John Olowo Memorial Award <i>Ontogeny of male accessory glands in field crickets.</i> \$300	2006
University of Florida , Department of Biology, Grinter Fellowship. \$6,000	2005
American Museum of Natural History , Frank Chapman Memorial Grant <i>Function of manure-scattering behavior of burrowing owls.</i> \$750	2002
Sandpiper Technologies , Equipment grant <i>Function of manure-scattering behavior of burrowing owls.</i> \$200	2001

AWARDS

University of Florida, Department of Biology: Graduate Teaching Award.	2010
University of Florida, Department of Biology: Graduate Travel Award. \$300	2006
American Ornithologist's Union: Marcia Bradey-Tucker Travel Award. \$700	2003
American Ornithologists' Union: 3-year student membership award.	2001
Cooper Ornithological Society: 2-year student membership award.	2001

INVITED SEMINARS

Smithsonian Marine Station at Fort Pierce, Ft. Pierce, FL <i>Behavioral and evolutionary ecology of horseshoe crabs.</i>	2013
University of New Hampshire, Department of Biological Sciences, Durham, NH <i>Pattern, process, and mechanism in the study of animal behavior.</i>	2012
Earlham College, Department of Biology, Richmond, IN <i>Use of mammal manure by burrowing owls.</i>	2004
American Ornithologist's Union conference, Urbana, IL <i>Conservation of burrowing owls on golf courses.</i>	2003

PRESENTATIONS AT PROFESSIONAL MEETINGS (14 TOTAL)

Animal Behavior Society Annual Meeting	2012, 2009, 2006
International Society for Behavioral Ecology	2010, 2008
University of Florida's Annual Marine Biology Meeting, St. Augustine, FL	2011- 2009
Benthic Ecology Annual Meeting	2010
1st International Symposium on Horseshoe Crabs, Long Island, NY	2007
American Ornithologist's Union Annual Meeting	2004- 2002
Ecological Society of America Annual Meeting,	2002

TEACHING APPOINTMENTS

Adjunct Lecturer, University of Florida

Zoology 4926: Introduction to Animal Behavior Spring 2012, 2013, 2014
Lecture course, independently developed and taught.

Zoology 4307: Vertebrate Biodiversity Fall 2013, Spring 2014
Lecture and Lab course, Lecture independently taught

Biology 2009: Biological Science (for non-majors) Fall 2013
On-line Lecture course with lab, Lecture independently taught

Course Instructor, University of Florida

Interdisciplinary Honors 2931: Seminar in Scientific Inquiry, Animal Behavior 2011
Lecture and discussion course, team taught.

Visiting Instructor of Biology, Earlham College

Biology 111: Ecological Biology 2004-05
Lecture, team taught. Discussion section and lab, independently taught.

Biology 121: Human Biology
Lecture and lab course, independently developed and taught.

Graduate Teaching Assistant,

University of Florida 2005-10
Zoology 6005: Integrative Principles (graduate course)
Zoology 3513: Animal Behavior Lab (3x)
Zoology 3713: Functional Vertebrate Anatomy Lab (6x)

University of Arizona 2000-04
Molecular and Cellular Biology 181: Introduction to Biology Lab (2x)
Ecology 302: Ecology Lab
Ecology 206: Environmental Biology Lab

GUEST LECTURES AT THE UNIVERSITY OF FLORIDA

CBH 3003: Comparative Psychology

Using strong inference to test functions of animal behavior. 2011

ZOO 3513: Animal Behavior

<i>Proximate and ultimate causes of behavior.</i>	2010
<i>Recording and measuring data: introduction to statistics.</i>	2010
<i>Parental care I: Evolution of care and parent-offspring conflict.</i>	2008
<i>Parental care 2: Begging, sibling rivalry, and brood parasitism.</i>	2008
<i>Optimality modeling and anti-predator behavior.</i>	2007

ZOO 6005: Integrative Principles

<i>Hypothetico-deductive method and strong inference.</i>	2009
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UNDERGRADUATE MENTORING

Senior Thesis (*highest honors)

Kathleen Colby*	<i>Ontogeny of male accessory glands in field crickets.</i>	2006-07
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Independent Projects for Credit

Danielle Morgas	<i>Sexual differences morphological of horseshoe crabs.</i>	2013
Shelly Wright	<i>Testing the intermediate disturbance hypothesis in ants.</i>	2013
Jo Anna Platzer	<i>Do horseshoe crabs have copulatory courtship?</i>	2012
Sean Connolly	<i>The role of telomerase in limb regeneration of axolotls.</i>	2010-11
Mckayla Spencer	<i>The role of telomerase in limb regeneration of axolotls.</i>	2010-11
Vanessa Schipani	<i>Characterization of mating scars in female horseshoe crabs.</i>	2009-10
Kim Barbeitos	<i>Stable isotope signature of horseshoe crab claw chitin.</i>	2010
Lindsay Keegan	<i>Growth pattern of juvenile horseshoe crabs in Florida.</i>	2008-10
Hunter E. Schrank	<i>Can attached male horseshoe crabs feed?</i>	2008-09
Tony Nguyen	<i>Response of monandrous females to simulated satellites.</i>	2007-10

FIELD RESEARCH COORDINATOR

Project Coordinator , University of Arizona	2001-2003
<i>Demography of burrowing owls in south central Washington</i>	

Project Coordinator , Washington State University	2000
<i>Use of artificial burrows on golf courses as nesting habitat for burrowing owls</i>	

PROFESSIONAL ORGANIZATIONS

Animal Behavior Society	International Society for Behavioral Ecology
Society of American Naturalists	Sigma Xi, The Scientific Research Society

PROFESSIONAL SERVICE

Manuscript reviewer for:

<i>Behavioral Ecology (1)</i>	<i>Animal Behaviour (1)</i>	<i>Evolution (1)</i>
<i>Oecologia (1)</i>	<i>J. of Avian Biology (1)</i>	<i>J. of Raptor Research (2)</i>
<i>J. of Wildlife Management (4)</i>	<i>Wildlife Society Bulletin (2)</i>	

Postdoctoral Affairs Advisory Committee Representative, Univ. of Florida	2013 - 2014
Curriculum Committee Representative. Delaware Dept. of Fish & Wildlife. Scientific enhancement, " <i>Green Eggs and Sand</i> " education program	2009
Space Committee Representative. Univ. of Florida, Dept. of Biology.	2008-2009
Graduate Presentation Forum Co-founder. Univ. of Florida, Dept. of Biology.	2006-2007
Curriculum Committee Representative. Univ. of Arizona, School of Nat. Res.	2002-2004
Student Nominating Committee Chairman. Earlham College.	1996-1997

COMMUNITY OUTREACH

Volunteer Science Educator. Columbia High School, Lake City, FL. <i>Marine Biology class field trip to Seahorse Key Marine Lab, FL.</i>	2012
Volunteer Teaching Assistant. University of Florida, Dept. of Biology. <i>Integrative Principles class field trip to the Whitney Marine Lab, FL</i>	2011
Panel Participant. Graduate Seminar, University of Florida, Dept. of Biology Topic: <i>Writing your Curriculum Vitae.</i>	2010
Trip Leader. Faculty Search Committee, University of Florida, Dept. of Biology	2009
Trip Leader. Graduate Recruitment Weekend, University of Florida, Dept. of Biology	2008
Trip Leader. Graduate Invited Speaker Committee, University of Florida, Dept. of Biology	2007
Science Consultant. Port-of Pasco, Pasco, WA. <i>Educational kiosk about flora and fauna of the northwest Shrub-Steppe.</i> On display at the Tri-Cities Airport.	2003
Science Consultant. Tri-Cities, WA golf course superintendents. <i>Created how-to-guide for installing artificial burrows on golf courses.</i>	2002
Volunteer Science Educator. Tri-Cities, WA <i>Created and distributed public-education brochure about efforts to study and conserve burrowing owl populations in eastern Washington.</i>	2002
Presentation. Lower Columbia-Basin Audubon Society, Kennewick, WA.	May 2002