

Kevin Edward Bonine

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CURRENT POSITION:

Adjunct Assistant Professor, University of Arizona (2002 – present)
Department of Ecology and Evolutionary Biology *and*
School of Natural Resources and the Environment

Ph.D., 2001, University of Wisconsin-Madison, Department of Zoology
B.S., 1995, Honors, Ecology and Evolutionary Biology, University of Arizona
B.A., 1995, Economics, University of Arizona

RESEARCH INTERESTS:

Herpetology, Conservation, Evolutionary & Ecological Physiology, Teaching/Learning Assessment

SELECTED RECOGNITION & AWARDS:

Distinguished Early-Career Teaching Award, College of Science, University of Arizona (Aug 2012)
National Science Foundation Graduate Research Fellowship (1996-2001)
Organization for Tropical Studies (OTS), Tropical Ecology, Universidad de Costa Rica (Winter 1996)
Flinn Foundation Scholarship (1990-1994)
Phi Beta Kappa (inducted 1993)

SELECTED PEER-REVIEWED PUBLICATIONS:

- Bergevin, C., D. S. Velenovsky, and **K. E. Bonine**. 2010. Tectorial membrane morphological variation: effects upon stimulus frequency otoacoustic emissions. *Biophysical Journal* 99:1064-1072.
- Edwards, T., C. J. Jarchow, C. A. Jones, and **K. E. Bonine**. 2010. Tracing genetic lineages of captive desert tortoises in Arizona. *Journal of Wildlife Management* 74:801-807.
- Amarello, M., **K. E. Bonine**, and D. Lazcano. 2008. Factors influencing the antipredator behavior of Mexican lance-headed rattlesnakes (*Crotalus polystictus*) toward humans. Pp. 229-234 in W. K. Hayes, K. R. Beaman, M. D. Cardwell, and S. P. Bush (eds.), *The Biology of Rattlesnakes*. Loma Linda University Press, Loma Linda, California. **Melissa Amarello was an Honors Student in my laboratory and this publication is the fruition of her Honors Thesis research.**
- Bonine K. E.** 2007. Physiological correlates of lizard foraging mode. Chapter 3 in S. Reilly, L. McBrayer, and D. Miles, eds. *Lizard Ecology: The Evolutionary Consequences of Foraging Mode*. Cambridge University Press.
- Daniel, J. A., K. A. Baker, and **K. E. Bonine**. 2006. Retention rates of surface and implantable marking methods in the Mediterranean house gecko (*Hemidactylus turcicus*), with notes on capture methods and rates of skin shedding. *Herpetological Review* 37:319–321. **Jeremy Daniel was an undergraduate in my Herpetology course and this publication was the fruition of his course research project.**
- Bonine K. E.**, T. T. Gleeson, and T. Garland, Jr. 2005. Muscle fiber-type variation in lizards (Squamata) and phylogenetic reconstruction of hypothesized ancestral states. *Journal of Experimental Biology* 208:4529-4547.
- Jung, R. E., **K. E. Bonine**, M. L. Rosenshield, A. de la Reza, S. Raimondo, and S. Droege. 2002. Evaluation of canoe surveys for anurans along the Rio Grande in Big Bend National Park, Texas. *Journal of Herpetology*. 36:390-397.
- Bonine, K. E.**, and T. Garland, Jr. 1999. Sprint performance of phrynosomatid lizards, measured on a high-speed treadmill, correlates with hindlimb length. *Journal of Zoology, London* 248:255-265.

Selected OTHER Publications:

Park, B. and **K. E. Bonine**. 2012. Ecology and natural history of Gila monsters (*Heloderma suspectum*) at Saguaro National Park: a collaborative study at the wildland-urban interface. Unpublished year-end report submitted to Saguaro National Park, Friends of Saguaro National Park, and the Desert Southwest Cooperative Ecosystem Studies Unit. 112 pp.

Park, B. and **K. E. Bonine**. 2011. Reptiles and amphibians of Saguaro National Park's Cactus Forest Loop Drive, NPS and National Geographic BioBlitz (poster)

Weiss, M., T. Edwards, and **K. Bonine**. 2010. An assessment of genetic markers for use in Gila monster conservation. First Annual Ecology and Evolutionary Biology Undergraduate Poster Session (April 2010). **Weiss was awarded First Place in the Emerging Research category for this poster. He was also selected as the Outstanding Graduating Senior in EEB in spring 2010.**

Bonine, K. E., T. Edwards, C. Schirmer, J. Fillinger, and K. Ratzlaff. 2008. Distribution and phylogeography of the canyon treefrog (*Hyla arenicolor*) in the Rincon Mountains, Arizona. *Sonoran Herpetologist* 21:106-109. **Schirmer, Fillinger, and Ratzlaff are all former students whom I advised on undergraduate research projects. This paper represents much of their work.**

Bonine, K. E. 2008. Gourmet to Galapagos: experiential learning in the sciences. Chapter 4 in P. A. Machonis, ed. *Shatter the Glassy Stare: Implementing Experiential Learning in Higher Education*, Place as Text Series, National Collegiate Honors Council, Monographs in Honors Education.

SELECTED REPRESENTATIVE PRESENTATIONS:

Sky-island Ecology, *Sense of Place, Mt. Lemmon*, UA College of Science, Pima Canyon Residents, Nov 2012 (Invited)

Institute of Desert Ecology, *Tucson Audubon Society*, Herpetology Faculty, 19-22 April 2012 (Invited)

Annual Dinner Speaker, *Magellan Circle*, College of Social and Behavioral Science, April 2012 (Invited)

The Iconic Gila Monster (*Heloderma suspectum*) of the Sonoran Desert, *Sabino Canyon Volunteer Naturalists*, Feb 2012 (Invited)

Nasty, noxious, or not: reptile and amphibian survival strategies, *Western National Parks Association*, Oro Valley, UA College of Science, Science Café series, Jan 2012 (Invited)

BioBlitz Closing Ceremonies, *Scientist Panel*, Interviewed by Dan Marries of KOLD 13, Saguaro National Park, Oct 2011 (Invited)

Reptiles, amphibians, and our sky islands. What might small, cute, big, and ugly tell us about ecological effects of climate change? *Saguaro National Park Climate Change Symposium*, Arizona-Sonora Desert Museum, October 2010 (Invited)

Sustainability in the Peruvian Amazon, *Honors Forum Luncheon*, UA Honors College, April 2009 (Invited)

Keynote Address, *Flinn Scholar Finalist Recruitment*, UA Honors College, February 2009 (Invited)

Dendrochronology & sky-islands ecology. *DiscoveryDays*, UA Mt. Lemmon SkyCenter, Aug. 2008 (Invited)

Sky-island ecology, *Sense of Place, Mt. Lemmon*, University of Arizona College of Science, *Galileo Circle*, April 2008, Nov 2009 (Invited).

Canyon treefrogs (*Hyla arenicolor*) in the Tucson area. *Tucson Herpetological Society*, December 2007 (Invited).

Getting students involved in community projects. *Innovations in College Biology Teaching*, University of Arizona, August 2005 (Invited).

Phrynosomatid lizards show parallel variation in sprint speed and muscle fiber-type properties. *Society for Integrative and Comparative Biology*, Chicago, January 2001. **Best Student Poster Award.**

Morphology, physiology, and locomotor performance in phrynosomatid lizards. *Society for the Study of Evolution*, Madison, Wisconsin, June 1999.

Muscle fiber-type variation and locomotion in phrynosomatid lizards. *Society for Integrative and Comparative Biology*, Boston, January 1998.

SELECTED GRANTS:

- Gila Monsters in Saguaro National Park, Citizen Science Initiative**
\$6,000 – *Desert Southwest Coop. Ecosystem Studies Unit*, sp2010 (co-PI Don Swann)
- Natural History and Ecology of Gila Monsters in Saguaro National Park**
\$15,000 - *Desert Southwest Coop. Ecosystem Studies Unit*, sp2010 (co-PI Don Swann)
- Gila Monsters in Saguaro National Park**
\$10,000/year - *Friends of Saguaro National Park*, 2010-2013 (co-PI Don Swann)
- National Natural Landmarks Program, Anniversary Project**, fall 2009 (co-PI Margi Brooks)
\$25,000 – *National Park Service, Desert Southwest Cooperative Ecosystem Studies Unit*
- Dynamics of Emerging Disease in Amphibians at Saguaro National Park**
\$70,000 - *USGS*, summer 2008 (co-PIs Cecil Schwalbe and Phil Rosen)

SELECTED TEACHING:

In addition to many guest lectures in other undergraduate University of Arizona courses...

- Ecology & Natural History of the Sonoran Desert and Upper Gulf of California** (ECOL463/563), field course for pre-session 2012 & 2013. (Related press: Jazmine, W. 2011. Ecology class takes hands on approach. *Arizona Daily Wildcat*, Friday March 4, pages 1-2.)
- Sonoran Desert Discovery** (Coll. of Sci. & Biosphere 2 outreach, ECOL 464/564) Instructor (fall 2009 –)
- Introductory Biology II** (ECOL 182R) Instructor (fall 2007 –)
- Herpetology** (ECOL 483/583), Instructor (spring 2002-2008, 2011-2013)
- Galápagos Marine Ecology** (*Field Course*, ECOL 496O/596O), Instructor (summer 2007)
- Fundamentals of Ecology** (ECOL 600B), *Guest Lect- "Conservation Biology"* (2007-2008,2010,2012,2013)
- Environmental Biology** (ECOL 206), Instructor (spring 2003-2007, 2009-2010)
- Sustainable Living: Ecology & the Human Experience** (HNRS 295H), Co-instructor (fall 2006-2008)
- Conservation Biology** (ECOL 406R/506R), Instructor (fall 2003-2012)
- Conservation Biology** (*Field Course*, ECOL 406L/506L), Instructor (fall 2004-2010)
- Vertebrate Physiology** (ECOL 437), Instructor (fall 2002-2006, spring 2008-2013)

UNDERGRADUATE ADVISING AND GRADUATE COMMITTEES:

Many scores of students as preceptors, independent study, directed research, honors thesis, masters degree, PhD degree, etc. Selected examples provided below:

- Elizabeth Bercel, undergraduate, *Sonoran Desert Discovery Preceptor* (spring 2013)
- James May, undergraduate, *Herpetology Preceptor* (spring 2013)
- David Edmunds, undergraduate, *Reptile Husbandry* (fall 2012 --)
- Lauren Johnston, undergraduate, *Biology 182 Preceptor* (fall 2012)
- Michael Hess, Directed Research, *Conservation Genetics of Gila monsters* (fall 2012 --)
- Victoria Farrar, Independent Research, *Environmental Correlates of Gila Monster Activity* (fall 2012)
- Victoria Farrar, **Undergraduate Biology Research Program**, *Ecology and Population Genetics of Gila monsters* (summer 2012)
- Parker Ashbaugh, undergraduate, Aquatic Habitat Characterization for Reintroduction of the Lowland Leopard Frog, Independent Study, collaborator: Pima County Office of Natural Resources Parks & Recreation (fall 2011)
- Katie Gray, **MS Committee**, *Ecology of the desert tortoise and invasive buffelgrass in the Sonoran Desert*, School of Natural Resources, University of Arizona (2011-2012)
- Nick Massimo, recent graduate, Gila monster research technician (2011)
- Caleb Weaver, undergraduate, *Urban green space: how do native vegetation, percent cover, and ecological structure predict communities of birds, reptiles, and amphibians*, **Honors Thesis** (2010-2011)
- Caleb Weaver, undergraduate, *Conservation Biology*, Independent Study (fall 2010)

- Brian Park, non-degree seeking graduate student, Gila monster research field supervisor (2010-2012)
- Michael Weiss, undergraduate, *Conservation Genetics of Gila monsters*, Indep. Research (spring 2010) [**EEB Outstanding Senior**, spring 2010; **Vanier Canada Graduate Scholarship** 2011]
- Karri Hobaica, undergrad., *Student Sustainability Residence*, Indep. Study (spring & summer 2010)
- Chelsey Killebrew, undergraduate, *SNRE Conserv. Biol Capstone Experience* (spring & summer 2010)
- Alex Podolsky, undergraduate, *Biology 182 Preceptor* (fall 2009) [**EEB Excellence in Undergraduate Research**, spring 2010]
- Tommaso Cioni, undergraduate, *Research and outreach: Gila monsters in Saguaro National Park*, Internship (fall 2009 – summer 2010) [Currently: Science and Italian Teacher, BASIS Oro Valley]
- Matt Lutheran, undergraduate, *Lizard-ear otoacoustic emissions*, Independent Study (spring 2009)
- Antje Adams, undergraduate, *Population structure of the mountain spiny lizard (Sceloporus jarrovii) in southern Arizona & origin(s) of the novel S. jarrovii population in the Santa Catalina Mountains*, Independent Research (spring 2009)
- Laura Stein, undergraduate, *Biology 182 Preceptor* (fall 2008) [**EEB Outstanding Senior, College of Science Outstanding Senior**, spring 2009]
- Kim Baker, **MS Advisor**, *Hyla arenicolor population and disease ecology*, School of Natural Resources, University of Arizona (Jan 2008 – Dec 2010) [**EEB Outstanding Senior**, fall 2007]
- Linda Peery, undergraduate, *Road closures: methodology and monitoring*, SNR Conservation Biology Capstone Experience, in collaboration with Sky Island Alliance (spring 2008) [**Outstanding Graduating Senior, School of Natural Resources & the Environment**, spring 2008]
- Ming Min-Lee, graduate student, *Herpetology*, Independent Study (spring 2008)
- Vanessa Buzzard, undergraduate, *Conservation genetics of Bolson Tortoise reintroductions*, Independent Research (spring 2008)
- Vangie Rodriguez, undergraduate, *Real-time PCR to quantify amphibian chytrid infections*, Independent Study (spring 2008)
- Karie Decker, **MS Committee**, *Evolution of avian life-history strategies*, School of Natural Resources, University of Arizona (fall 2007 – 2009) [Currently: **Invasive Species Program Coordinator for the Nebraska Cooperative Fish and Wildlife Research Unit**]
- Kelly Donithan, undergraduate, *Implications of invasive buffel grass for lizard communities on Tumamoc Hill* (Jan - Dec 2007) [Currently: Animal Management Specialist, White Oak Conservation Center, FL]
- Patricia Wheeler, **MS Advisor**, *PCR test to detect chytrid fungus*, UA General Biology Program for Secondary School Science Teachers (2005 – 2008)
- David Hall, **Ph.D. Committee**, *Mud turtle population ecology and conservation*, School of Natural Resources, University of Arizona (fall 2005 – spring 2008)
- Christine Schirmer, undergraduate, *Hyla arenicolor phylogeography* (fall 2005 - summer 2006). [Recognized for **Excellence in Undergraduate Research** by the College of Science, 2006. Accepted research technician position at **Broad Institute of MIT and Harvard**]
- Chip Cochran, undergraduate, *Herpetofauna of Sonora, MX: Photo-specimen vouchers* (spring 2006)
- Nathan Fitzgibbon, **high school** student, *Histocompatibility in unisexual whiptail lizards* (2005)
- Leslie Wood, undergrad., *Desert Box Turtles (Terrapene ornata luteola) in San Simon Valley, AZ* (2005)
- Daniel Post, *Incremental environmental impacts of urban development: a GIS-based modelling approach*. Undergrad. **Honors Thesis** (2005) [Currently: teaching K-12 biology in NYC]
- Megan Chambers, undergraduate, *Multiscale analysis of legal framework relevant to the Sonoran Desert Conservation Plan, Pima County, Arizona*. Independent Study (spring 2005)
- Melissa Amarello, *Defensive behavior of Crotalus polystictus (Mexican lance-headed rattlesnakes) towards humans*. Undergraduate **Honors Thesis** (2004-2005) [Currently: pursuing **PhD at Arizona State University. Awarded NSF Predoctoral Fellowship**]

EXAMPLES OF SERVICE:

College of Science Commencement, *EEB Representative* (Dec 2012)
 Conservation of Middle San Pedro Watershed, Optional Conservation Biol. Field Experience (Nov 2012)
 Gila Monster Ecol & Research, *Field Workshop* with Cactus Rangers at Saguaro Nat'l Park (Oct 2012)
 CEDO (Intercultural Center for the Study of Deserts and Oceans), *Business Plan Workshop* with DAI (Development Alternatives Inc.; 26-28 February 2012)
 Flinn Foundation, Flinn Scholar *Application Review & Applicant Interviews* (2011-2012)
 UA Science: Flandrau, Spring 2012 Exhibit: *Biters, Hiders, Stinkers & Stingers*, Consultant, Animal Loan, Animal Husbandry (fall 2011-summer 2012)
 Saguaro Census, Saguaro National Park, Optional Conservation Biology Field Experience (Nov 2011)
 BioBlitz Scientist, Canyon Treefrog Variation at Madrona Pools, Rincon Mountain District, Saguaro National Park, Sabino High School Students (Oct 2011)
 ASDM (Arizona-Sonora Desert Museum) *Board of Trustees* (fall 2011 –)
 UAScience Connections, Advisory Committee, *Strategic Planning Retreat* (August 18-19, 2011)
 HerpCount.org, *Citizen Science Initiative* (spring 2011 –)
 ASDM (Arizona-Sonora Desert Museum) *Science and Conservation Council* (spring 2011 –)
 UA Office of Instruction & Assessment, *Curriculum-focused Faculty/Professional Learning Community*, Coordinator: Lisa Elfring (2010-2011)
 Friends of Saguaro National Park, *Board of Directors* (2010 –)
 UAScience Connections, Co-chair, *Assessment Working Group* (2010 –)
 Science and Art Meet: Communicating Conservation Awareness, *Student Art Installation*, Biosphere 2 (2010-2011)
 Tucson Festival of Books, *Moderator*, Conservation and Sustainability Forum (March 2010)
 Undergraduate Assessment Team, Undergraduate Task Force, EEB (2009-2011)
 DiscoveryDays, Mt. Lemmon SkyCenter, Sky Island Ecology, outreach (summer 2009 & 2010)
 Amazon: changing identities on a rainforest frontier, Peruvian Faculty Field Institute, Experiential Education, National Collegiate Honors Council, *Co-Facilitator* (March 2009)
 Partners in the Parks, National Collegiate Honors Council, *Steering Committee* (2008 – 2011)
 Conservation Biol. Option, School of Natural Resources & Environment, *Steering Committee* (2006-11)
 CEDO (Intercultural Center for the Study of Deserts and Oceans), *Board of Directors* (2008 –)
 Borders, Barriers, and Barrios, Arizona/Sonora Faculty Field Institute, Experiential Education, National Collegiate Honors Council, *Facilitator* (March 2008)
 UA Student Chapter, Tucson Herpetological Society, *Faculty Advisor* (2007 – 2011)
 Photo Specimen Voucher Initiative, Museum of Natural History, U. of Arizona, Herpetology Collection
 [http://eebweb.arizona.edu/collections/Herp/UAZ_PSV_2006/UAZ_Sonora_Herp_Photo_Voucher_Initiative_2006.html] (2006-2010)
 National Collegiate Honors Council, Honors Semester *Board of Directors* (2006-2011)
 Society for Conservation Biology, Smith Postdoctoral Fellows *Application Reviewer* (2005 – 2008)
 Flinn Foundation, Flinn Scholar *Application Reviewer* (2005 – 2008)
 Tucson Herpetological Society, *Vice President* (2006-2007)
 UA Men's Club Ultimate Frisbee Team, *Faculty Advisor* (2005 – 2009)
 Community Outreach, *Reptiles & Amphibians of the Tucson Basin*, Tucson Community Center (fall 2004)
 High School Outreach, *Intro. to Herpetology*, Amerischools College Preparatory Academy, Tucson, AZ
 - lectures and UA campus lab specimen instruction to two groups (spring 2004)
 Middle School Outreach, *Introduction to Herpetology*, Amerischools Middle Academy, Tucson, AZ
 - lectures and UA campus lab specimen instruction to four groups (spring 2002, 2003)

Recent manuscript reviews for *The American Naturalist*, Cambridge University Press, *Journal of Experimental Biology*, *Journal of Herpetology*, *Evolution*, *Animal Behaviour*

Field and employment experience examples: Saguaro National Park, Big Bend National Park, Costa Rica, Mexico, Zimbabwe, Botswana, South Africa, *Research Corporation Technologies*, UA *Laboratory of Tree-Ring Research*