

Curriculum vitae:

BEN EWEN-CAMPEN

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EDUCATION AND WORK EXPERIENCE

- **2008-Present: HARVARD UNIVERSITY, DEPT. ORGANISMIC AND EVOLUTIONARY BIOLOGY.**
PhD Student. *Advisor:* Cassandra Extavour. *Interests:* Evolutionary Developmental Biology.
- **2007: MBL EMBRYOLOGY SUMMER COURSE:** Woods Hole, MA. Course directors: N. Patel and L. Niswander.
- **2006-2007: RESEARCH ASSISTANT:** University of Montana, Missoula. Advisors: D. Emlen and L. Fishman.
- **2002-2006: SWARTHMORE COLLEGE.** Graduated with High Honors and Phi Beta Kappa.
Major: Biology. Minor: English Literature.

PUBLICATIONS

- The molecular machinery of germ line specification. **Ewen-Campen B**, Schwager EE, and Extavour, CG. *Molecular Reproduction and Development* 77(1): 3-18 (2010).
- On the origin and evolutionary diversification of beetle horns. Emlen DJ, Corley Lavine L, and **Ewen-Campen B**. *PNAS* 104: suppl 1: 8661-8668 (2007).
- *The aerodynamics of flying carpets.* Gilbert SF, Chandra A, Cohen N, **Ewen-Campen B**, LaSalle K, Lewis K, Mizutani M, and Wu C. In: "The Panda's Black Box." Ed. Comfort NC. John Hopkins University Press (2007).

PUBLISHED ABSTRACTS AND ORAL PRESENTATIONS

- "Evolution of arthropod germ line specification mechanisms." **Invited Seminar.** Institute for Developmental Biology, University of Cologne, Germany: *Molecular Basis of Evolutionary Innovations.* Sept 2009.
- "Germ line specification in the milkweed bug, *Oncopeltus fasciatus*." **Poster presentation.** 16th International Society for Developmental Biologists Congress. **Sept. 2009.**
- "Oocyte patterning in non-model insects: creating transcriptomes of the ovaries and embryos of two insect species using 454 sequencing." **Poster presentation.** 16th International Society for Developmental Biologists Congress. **Sept. 2009.** Also presented at Arthropod Genomics Symposium. **June 2009.**

AWARDS

- National Science Foundation Predoctoral Fellowship. **Awarded Spring 2009.**
- James Mills Peirce Fellowship (Harvard University). **Awarded Fall 2008.**
- Zeiss MicroImages Contest 2007, Honorable Mention. Image taken during MBL course, viewable at: www.zeiss.de/image-contest
- Horned beetle photographs included in New York Times profile of Dr. Emlen's research: http://www.nytimes.com/slideshow/2009/03/23/science/032409-Armor_index.html

RESEARCH EXPERIENCE – *Laboratory*

- **GERMLINE SPECIFICATION IN THE MILKWEED BUG (*Oncopeltus fasciatus*).** *C Extavour, Harvard.* I study germ cell specification during the early embryogenesis of *O. fasciatus*. These embryos are initially patterned in ovaries which differ markedly from those of *D. melanogaster*, raising many questions regarding the conservation and divergence in the early development between these species. This project combines gene expression analysis, high-throughput sequencing, live imaging, and functional knockdown studies. **Fall 2008-Present.**
- **HORNED BEETLE EVO-DEVO.** *D Emlen, U. Montana.* We studied the developmental mechanisms underlying horn growth and dimorphisms within and between beetle species. Our work focused on the relationships between nutrition-dependent insulin signaling, larval gene patterning events, and the varying allometric relationships between body size and

the size of different appendages. **Fall 2006-Winter 2007.**

- **SUPPRESSION OF RECOMBINATION IN *MIMULUS* HYBRIDS** *L. Fishman, U. Montana*. We used high-throughput genotyping methods to examine the role that chromosomal inversions play in the suppression of recombination in the hybrids between two closely related *Mimulus* species, a project that will aid in the creation of a QTL map for these species. **Fall 2006-2007.**
- **GENETIC RELATEDNESS OF JAPANESE KNOTWEED IN AN EASTERN FOREST** *J.-L. Machado, Swarthmore*. We conducted an experiment using RAPD analysis to examine the relative importance of clonal growth versus sexual reproduction in a local population of Japanese Knotweed (*Fallopia japonica*), a highly invasive plant. **Spring 2006.**
- **NEURAL CREST ORIGIN OF ALLIGATOR “VENTRAL RIBS”** *S. Gilbert, Swarthmore*. We used HNK-1 antibody staining of sectioned alligator embryos to provide evidence that the gastralia (“ventral ribs”) are derived from neural crest cells. This project was related to a larger project in Gilbert’s lab to explore the neural crest origin of the ventral portion of the turtle shell. **Spring 2005.**
- **VISCOSITY AND SEA ANEMONE “BLEACHING”** *R. Merz, Swarthmore*. We designed an experiment to separate the effects of temperature changes and viscosity changes on the breakdown of the symbiosis between *Aiptasia pallida* and its photosynthetic symbiont, a process analogous to coral bleaching. **Fall 2004.**

RESEARCH EXPERIENCE – Field

- **POPULATION, HABITAT USE AND BREEDING BIOLOGY OF SMITH'S LONGSPURS** *Arctic National Wildlife Refuge, Alaska*. I helped estimate population density and habitat requirements for Smith’s Longspurs in one of the most remote wilderness areas of ANWR. Smith’s Longspurs are considered a species of concern, and are one of the most poorly understood bird species in North America. **Summer 2008.**
- **SHOREBIRD BREEDING BIOLOGY**, *Arctic National Wildlife Refuge, Alaska*. Working for S. Kendall of Fish & Wildlife, we lived in a remote, fly-in only camp on the coastal plane of Alaska to examine the reproductive biology of shore-birds in a pristine wilderness area versus those in near-by areas experiencing oil drilling and human development. **Summer 2006.**
- **NEST STRUCTURE AND FUNCTION** *J. Hagelin, Swarthmore College and Alaska Bird Observatory (ABO)*. I received Swarthmore’s Lande Field Grant to work with ABO for two years on the first major study of the Arctic Warbler in North America. I did my senior thesis research on the nest insulation and reproductive success of these birds, and I was the first person to document Arctic Warbler nest-building behavior in North America. **Summers 2004 and 2005.**

TEACHING EXPERIENCE

- **RESEARCH MENTOR** – I supervised the research of a visiting undergraduate student from the University of Puerto Rico as part of the Student Research Opportunities at Harvard program. **Summer 2009.**
- **LABORATORY TEACHING ASSISTANT** – Cellular and Molecular Biology, Swarthmore College. **Fall 2005.**
- **WRITING ASSOCIATE (PEER EDITOR)** – I worked individually with 8-14 Swarthmore students each semester to help improve their academic writing. **Fall 2004-Spring 2006.**