

## Karen A. Ober

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### PRESENT POSITION

Professor and Chair, Department of Biology, College of the Holy Cross (appointed 2019)  
Associate Professor, Department of Biology, College of the Holy Cross (2011 - 2019)  
Assistant Professor, Department of Biology, College of the Holy Cross (2004 - 2011)

### EDUCATION

Ph.D. Interdisciplinary Program in Insect Science. University of Arizona, Tucson (2001)  
B.S. Biology. University of Michigan, Ann Arbor (1994)

### FELLOWSHIPS AND AWARDS

Holy Cross Creative & Collaborative Pedagogy award: *Change through Time: evolutionary thinking across disciplines* 2020-2021  
Holy Cross Faculty Fellowship Fall 2016  
Holy Cross Robert L. Ardizzone Faculty Excellence Fellowship 2008  
Holy Cross Charles and Rosanna Batchelor Foundation Grant 2006  
Analysis of Biological Diversification NSF Research Training Grant Graduate Fellowship, University of Arizona 2001  
Analysis of Biological Diversification NSF Research Training Grant Graduate Fellowship, University of Arizona 1999  
Department of Entomology Carruth Fellowship, University of Arizona 1998  
Graduate College Fellowship, University of Arizona 1996 - 1997  
Analysis of Biological Diversification NSF Research Training Grant Graduate Fellowship, University of Arizona 1996 - 1997  
President's Prize Honorable Mention for the Entomological Society of America Student Poster Presentation. Annual Meeting 1996  
Flinn Foundation Biology 21 Fellowship, University of Arizona 1995 - 1996  
Class Honors 1993 - 1994, University of Michigan

### GRANTS

College of the Holy Cross Research and Publication Grant "DNA Barcoding and Species Limits of the Pseudanophtalmus Robustus Species Group" 2021 (\$3000)  
Cave Conservancy of the Virginias "Undescribed biodiversity of Virginia cave beetles" 2017 (\$41,803)  
College of the Holy Cross Research and Publication Grant "The evolution and geographic distribution of cave beetles in Kentucky and Tennessee" 2017 (\$2850)  
College of the Holy Cross Research and Publication Grant "New species of cave beetles from Appalachia" 2016 (\$1590)

- College of the Holy Cross Faculty Development Grant from the Center for Teaching “Curating and Cataloging the Holy Cross Entomology Teaching Collection” 2016 (\$880)
- College of the Holy Cross Research and Publication Grant “Evolutionary relationships of 12 new species of cave beetles from Appalachia” 2016 (\$2800)
- College of the Holy Cross Research and Publication Grant “The evolution of troglobitic beetles” 2014 (\$2000)
- College of the Holy Cross Research and Publication Grant “The evolution of troglobitic beetles” 2013 (\$3000)
- College of the Holy Cross Faculty Development Grant from the Center for Teaching “New Course Development for Seminar in Ecology and Evolutionary Biology – Applied Evolution” 2013 (\$980)
- College of the Holy Cross Research and Publication Grant “Genetic divergence in *Scaphinotus petersi* ground beetles” 2009 (\$2480)
- College of the Holy Cross Research and Publication Grant “*Scaphinotus petersi* (Coleoptera: Carabidae) in Arizona Sky Islands” 2008 (\$2760)
- College of the Holy Cross Research and Publication Grant “Biogeography of the ground beetle *Scaphinotus petersi* (Coleoptera: Carabidae) in Arizona Sky Islands” 2006 (\$1100)
- National Science Foundation Division of Biological Infrastructure Major Research Instrumentation “Acquisition of a Spectral Confocal Microscope for Research and Training in Biology,” Co-PI 2005 (\$206,165)
- College of the Holy Cross Research and Publication Grant “Biogeography of the ground beetle *Scaphinotus petersi* (Coleoptera: Carabidae) in Arizona Sky Islands” 2005 (\$1800)
- College of the Holy Cross Research and Publication Grant “Evolutionary history and biocomplexity in host-parasitoid relationships of poison arrow beetles in South Africa” 2004 (\$2000)
- NSF Division of Environmental Biology Doctoral Dissertation Improvement Grant “The Evolution of Arboreal Carabid Beetles” 2000 (\$8,266)
- Center for Insect Science Research Grant, University of Arizona 2000 (\$2,000)
- Graduate and Professional Student Travel Grant, University of Arizona 2000 (\$700)
- Analysis of Biological Diversification NSF Research Training Grant Small Grant, “The Evolution of Arboreal Carabid Beetles” University of Arizona 1999 (\$1,500)
- Graduate Student Final Project Fund, “Examination of Morphological Adaptation in Arboreal Carabid Beetles” University of Arizona 1998 (\$1,200)
- Harvard Travellers Club Permanent Fund Grant for Travel 1998 (\$900)
- Sigma Xi, Scientific Research Society Grant in Aid of Research for “The Molecular Phylogeny of Lebiomorpha” 1997 (\$700)
- Analysis of Biological Diversification NSF Research Training Grant Small Grants for “A Phylogenetic Reconstruction of Lebiomorpha from 28S rDNA Sequence” University of Arizona 1997 (\$700)

**PUBLICATIONS** (Peer Reviewed Articles unless otherwise indicated)

**Ober, K.**, Niemiller, M., Philips, K. (in press). Cave trechine (Coleoptera: Carabidae) diversity and biogeography in North America. In “Cave Life - Drivers of Diversity and Diversification” ( J. Judson Wynne, Ed.) Johns Hopkins University Publishers.

- Niemiller, M., Zigler, K., **Ober, K.**, Carter, E., Engel, A., Moni, G., Philips, K., Stephen, C. 2017. Rediscovery and conservation status of six extreme short-range endemic *Pseudanophthalmus* cave beetles (Carabidae: Trechini) in the Interior Low Plateau and Appalachians karst regions of Tennessee, USA. *Insect Conservation and Diversity* 10(6): 495-501. Impact factor 1.84 ISI Ranking 2017: 14/96 (Entomology)
- Hoekman, D., LeVan, K.E., Ball G., Browne, R.A., Davidson, R., Erwin, T., Knisley, B., LaBonte, J., Lundgren, J., Maddison, D., Moore, W., Niemelä, J., **Ober, K.**, Pearson, D., Spence, J., Will, K., Work, T. 2017. Science Design for Ground Beetle Abundance and Diversity Sampling within the National Ecological Observatory Network. *Ecosphere* 8(4): e01744. Impact Factor: 2.49 ISI Ranking 2016: 53/153 (Ecology)
- Niemiller, M., Zigler K., **Ober, K.** 2015. Conservation Status of Seven *Pseudanophthalmus* Cave Beetles and a Cave Crayfish *Orconectes Incomptus* for Possible Federal Listing. Report to the US Fish and Wildlife Service and Tennessee Wildlife Resource Agency. 52 pages. Technical government report - not peer reviewed
- Ober, K.A.** and Connolly, C.T.\* 2015. Geometric morphometric and phylogenetic analyses of Arizona Sky Island populations of *Scaphinotus petersi* Roeschke (Coleoptera: Carabidae). *Zoological Journal of the Linnean Society*. 175:107-118. Impact factor 2.658 ISI Ranking 2016: 16/166 (Zoology)
- Mitchell, S.G. and **Ober, K.A.** 2013. Evolution of *Scaphinotus petersi* (Coleoptera: Carabidae) and the role of climate and geography in the Arizona Sky Islands. *Quaternary Research* 79 (2): 274-283. Impact factor 2.678
- Ober, K.**, Matthews, B. \*, Fierrieri, A. \*, Kuhn, S. \* 2011. The evolution and age of *Scaphinotus petersi* Roeschke on Arizona Sky Islands. *Zookeys* 147:183-197. Impact factor 1.133
- Maddison, D.R. and **Ober, K.A.** 2011. Phylogeny of minute carabid beetles and their relatives based upon DNA sequence data (Coleoptera: Carabidae: Trechitae). *Zookeys* 147:229-260. Impact factor 1.133
- Ober K.A.** 2011. Rapid diversification and evolution in ground beetles. *American Entomologist* 57(1):47-49. Not peer reviewed
- Ober, K.A. and T.N. Heider\*. 2010 Phylogenetic diversification patterns and divergence times in ground beetles (Coleoptera: Carabidae: Harpalinae) *BMC Evolutionary Biology* 10:262. Impact factor 4.3
- Maddison, D. R., Moore, W., Baker, M. D., Ellis, T.M., Ober, K.A., Cannone, J.J., and Gutell, R.R. 2009. Monophyly of terrestrial adaphagan beetles as indicated by three nuclear genes (Coleoptera: Carabidae and Trachypachidae). *Zoologica Scripta* 38:43-62. Impact factor 2.7
- Ober, K.A. and Maddison, D.R. 2008. Phylogenetic relationships of tribes within Harpalinae (Coleoptera: Carabidae) as inferred from 28S ribosomal DNA and the *wingless* gene. *Journal of Insect Science* 8(63):1-32. Impact factor 0.947
- Kjer, K., Gillespie, J., Ober, K. 2007. Opinions on multiple sequence alignment, and an empirical comparison of repeatability and accuracy between POY and structural alignment. *Systematic Biology* 56(1):133-146. Impact factor 8.8
- Ober, K. and Jockusch, E. 2006. The roles of *wingless* and *decapentaplegic* in axis and appendage development in the red flour beetle, *Tribolium castaneum*. *Developmental Biology* 294(2): 391-405. Impact factor 4.9

- Kjer, K. M., J. J. Gillespie, K. A. Ober. 2006. Structural homology in ribosomal RNA, and a deliberation on POY. *Arthropod Systematics & Phylogeny* 64(2):71-76.
- Jockusch, E. and Ober, K. 2004. Hypothesis Testing in Evolutionary Developmental Biology: A Case Study from Insect Wings. *Journal of Heredity* 95:382-396. Impact factor 2.1
- Ober, K. 2003. Arboreality and morphological evolution in ground beetles (Carabidae: Harpalinae): testing the taxon pulse model. *Evolution* 57:1343-1358. Impact factor 5.4
- Ober, K. 2002. Phylogenetic relationships of the carabid subfamily Harpalinae based on molecular sequence data. *Molecular Phylogenetics and Evolution* 24: 227-247. Impact factor 3.4
- Ober, K. 2001. *The Evolution of Arboreal Carabid Beetles*. Ph.D. Dissertation. University of Arizona, Tucson, AZ.
- Jockusch, E. and Ober, K. 2000. Phylogenetic analysis of the *Wnt* gene family and discovery of an arthropod *Wnt-10* orthologue. *Journal of Experimental Zoology Molecular and Developmental Evolution* 288:105-119. Impact factor 2.4
- Maddison, D., Baker, M., Ober, K. 1999. Phylogeny of Carabid Beetles as Inferred from 18S Ribosomal DNA (Coleoptera: Carabidae) *Systematic Entomology* 24:1-36. Impact factor 2.6, Cited >70 times
- Maddison, D., Baker, M., Ober, K. 1998. A Preliminary Phylogenetic Analysis of 18s Ribosomal DNA of Carabid Beetles (Coleoptera: Carabidae). In "Phylogeny and Classification of Caraboidea (Coleoptera: Adephaga). Proceedings of a Symposium (28 August, 1996, Florence Italy) XX International Congress of Entomology" (G.E. Ball, A. Casale and A.V. Taglianti, Eds.), pp.229-250.
- McCabe, R., Usmen, R., Ober, K., Gandhi, H. 1995. The Effects of Alumina Phase Structure on the Dispersion of Rhodium/Alumina Catalysts. *Journal of Catalysis* 151: 385-393. Impact factor 4.5
- \*indicates Holy Cross undergraduate co-author

#### INVITED SEMINARS

- "An Inordinate Fondness for Beetles" Department of Biology Schaffer Family Series Seminar and Darwin Day celebration, College of the Holy Cross, Worcester, MA. February 2018
- "Evolution below the surface." Biology Department Seminar, Clark University, Worcester, MA. November 2016.
- "Evolution of *Scaphinotus petersi* and the role of climate and geography in the Arizona Sky Islands" Department of Biology Schaeffer Family Seminar Series, College of the Holy Cross February 2013
- "Evolution of *Scaphinotus petersi* and the role of climate and geography in the Arizona Sky Islands" Entomology Department Seminar, Cornell University, Ithaca, NY. November 2011
- "Beetle evolution research at a small liberal arts college." K.A. Ober. **Keynote speaker.** Graduate Student Research Symposium. Department of Ecology and Evolutionary Biology, University of Connecticut. March 2011.
- "Phylogenetic diversification patterns and divergence times in ground beetles." K.A. Ober. Invited Symposium speaker. Entomological Society of America National Meeting. San Diego, CA. December 2010.

- "Phylogeography of *Scaphinotus petersi* on Arizona Sky Islands." Bellfest: A Festschrift Tribute to the Scientific Work of Ross and Joyce Bell, Burlington, VT. June 2010.
- "An Inordinate Fondness for Beetles: Darwin and Discovery" Last Lecture Series, College of the Holy Cross March 2009.
- "Molecular evidence of a rapid radiation and divergence times in carabid beetles" K.A. Ober and T.H. Heider\*. Invited Symposium Speaker. XXIII International Congress of Entomology Symposium on Ancient rapid radiations in insects: strategies and prospects for resolution. Durban, South Africa. July 2008.
- "The Evolution of Arboreal Carabid Beetles." K. A. Ober. Invited speaker for the Connecticut Entomological Society. Storrs, CT. February 2007.
- "The evolution of arboreal ground beetles" K. A. Ober. Keynote Speaker. Coleopterists Society National Meeting / Entomological Society of America National Meeting. Indianapolis, IN. December 2006.
- "Evolution of the roles of developmental genes in axis and appendage patterning in insects" Entomology Department Seminar, Texas A & M University, College Station, TX. February 2006.
- "Evolution of the roles of developmental genes in axis and appendage patterning in insects" Ecology and Evolutionary Biology Department Seminar, Rice University, Houston, TX. February 2006.
- "Evolution of the roles of developmental genes in axis and appendage patterning in insects" Biology Department Seminar for Darwin Day, College of the Holy Cross, Worcester, MA. February 2006.
- "The evolution of arboreal ground beetles" Invited Symposium Speaker. Entomological Society of America National Meeting Symposium on Diversity of Trophic Relationships in the Carabidae. Ft. Lauderdale, FL. December 2005.
- "An Inordinate Fondness for Beetles: Coleoptera Evolution and Diversity" Lecture Series on Natural History and Evolution at Worcester State College, Worcester, MA. October 2005.
- "The evolution of arboreal ground beetles" Invited lecturer, New York Entomological Society, American Museum of Natural History, New York, NY. May 2005.
- "The evolution of arboreal ground beetles" Biology Departmental Seminar, Clark University, Worcester, MA. April 2005.
- "Poison Arrow Beetles of South Africa" Biology Department Seminar for Darwin Day, College of the Holy Cross, Worcester, MA. February 2005.
- "Comparative Developmental Data and the Origin of Insect Wings" K.A. Ober. Invited speaker for Entomology Department Seminar. University of Massachusetts Amherst. Amherst, MA. November 2003.
- "The Evolution of Arboreal Carabid Beetles." K. A. Ober. Invited speaker for the Connecticut Entomological Society. Storrs, CT. May 2002.
- "The Evolution of Arboreal Carabid Beetles." K. A. Ober. Invited speaker for Spring Seminar Series. Department of Ecology and Evolutionary Biology, University of Connecticut. Storrs, CT. February 2002.
- "The Evolution of Arboreal Carabid Beetles." K. A. Ober. Invited speaker for Fall Hexapodium for the Center for Insect Science. Tempe, AZ. October 2001.

\* indicates Holy Cross undergraduate co-author

## MEETING PRESENTATIONS

- "Evolution of *Scaphinotus petersi* on the Madrean Sky Islands of Southeastern Arizona." K. Ober and C. Connolly\* Paper presented at the International Symposium of Carabidology in Athens, GA, September 2016.
- "Phylogeography of troglobitic beetles in Appalachia." K. Ober. Paper presented at the XXV International Congress of Entomology in Orlando, FL, September 2016.
- "Conservation of rare and endemic carabid cave beetles (Carabidae: *Pseudanopthalmus*) in Tennessee." Matthew L. Niemiller, Kirk S. Zigler, Karen Ober, Charles D.R. Stephen, Evin T. Carter. Co-author of paper presented at the National Speleological Society Convention in Waynesville, MO, July 2015.
- "Phylogeography of Appalachian cave beetles." K. Ober. Paper presented at the Society of Systematic Biology annual meeting in Ann Arbor, MI, May 2015.
- "Morphometric analysis of *Scaphinotus petersi* populations in Arizona Sky Islands." C. Connolly\* and K.A. Ober. Co-author of paper presented at the Entomological Society of America meetings in Knoxville, TN, November 2012. Won second place in President's Prize for best student poster.
- "Role of climate and topography in the evolution of *Scaphinotus petersi* in the Sky Islands of Coronado National Forest, Arizona." S. Mitchell and K. A. Ober. Co-author of paper presented at Geological Society of America meetings. Charlotte NC, November 2012.
- "Phylogenetic diversification patterns and divergence times in ground beetles" K.A. Ober and T.N. Heider\*. Paper presented at the Society for the Study of Evolution/Society of Systematic Biologists Meeting. Portland, OR, June 2010.
- "Topography and biogeographic changes of montane forests in the "Sky Islands" of southeastern Arizona and the associated genetic divergence of *Scaphinotus petersi* during the Quaternary" Mitchell, S.G. and K.A. Ober. Co-author of paper presented at Geological Society of America meetings. Denver, CO, October 2007.
- "An Empirical Comparison of Repeatability and Accuracy Between POY and Structural Alignment" Kjer, Karl M, Joe J Gillespie, Karen A Ober. Co-author of paper presented at Systematic Biology Society meetings. Stony Brook, NY June 2006.
- "Opinions on multiple sequence alignment, and an empirical comparison of repeatability and accuracy between optimization and structural alignments" K.Kjer, J. Gillespie, and K. Ober. Co-author of paper presented at 2nd Dresden Meeting on Insect Phylogeny: The Phylogenetic Relationships among the Insect Orders. Zoological Museum Dresden (Museum für Tierkunde Dresden), Dresden, Germany, September 2005.
- "Conserved Appendage Morphology Results from Divergence in Appendage Developmental Networks." K.A. Ober and E. Jockusch. Paper presented at Society for Integrative and Comparative Biology annual meeting. San Diego, CA. January 2005.
- "Conserved Appendage Morphology Results from Divergence in Appendage Developmental Networks." K.A. Ober and E. Jockusch. Paper presented at Evolution of Developmental Diversity meeting. Cold Spring Harbor, NY. April 2004.
- "A Developmental Perspective on the Evolution of Insect Appendages" E.L. Jockusch and K.A. Ober. Co-author of paper presented at the American Genetics Association Annual meeting and Centennial Celebration. Storrs, CT. July 2003.

- “What do developmental data contribute to the debate on the origin of insect wings? Expansion and reassessment of the comparative molecular data” K.A. Ober and E.L. Jockusch. Poster presented at the Society for the Study of Evolution/Society of Systematic Biologists Meeting. Chico, CA. June 2003.
- “Monophyly of Geodephaga beetles as indicated by three nuclear genes” W. Moore, D.R. Maddison, M.D. Baker T.M. Ellis and K.A. Ober. Co-author on poster presented and the Society for the Study of Evolution/Society of Systematic Biologists Meeting. Chico, CA. June 2003.
- “Gene expression during embryogenesis and wing allocation in *Tribolium*” K.A. Ober and E.L. Jockusch. Poster presented at Northeast Regional Meeting of the Society for Developmental Biology. Woods Hole, MA. April 2003.
- “Phylogenetic relationships of the lebiomorph assemblage and the rapid radiation of the subfamily Harpalinae (Coleoptera: Carabidae)” K. A. Ober and D. Maddison. Paper presented at the Society for the Study of Evolution/Society of Systematic Biologists Meeting. Champaign, IL. June 2002.
- “Phylogeny of the subfamily Harpalinae (Coleoptera: Carabidae) inferred from two nuclear genes” K.A. Ober and D.R. Maddison. Paper presented at the Entomological Society of America Meeting. San Diego, CA. December 2001.
- “The Evolution of Arboreal Carabid Beetles.” K. A. Ober. Paper presented at the Society for the Study of Evolution/Society of Systematic Biologists Meeting. Knoxville, TN June 2001.
- “Phylogenetic relationships of the carabid (Coleoptera) subfamily Harpalinae based on molecular sequence data” K. A. Ober and D. R. Maddison. Poster presented at the XXI International Congress of Entomology. Iguassu Falls, Brazil. August 2000.
- “Phylogeny Of The Beetle Suborder Adephaga And Family Carabidae, As Inferred Using Ribosomal DNA And The Wingless Gene” D. R. Maddison, M. D. Baker and K. A. Ober. Co-author of paper presented at the XXI International Congress of Entomology. Iguassu Falls, Brazil. August 2000.
- “Phylogenetic relationships of the carabid (Coleoptera) subfamily Harpalinae based on molecular sequence data” K. A. Ober. Paper presented at the Society for the Study of Evolution/Society of Systematic Biologists Meeting. Bloomington, IN. June 2000.
- “Phylogeny of the major lineages of carabid beetles as inferred using 18S ribosomal DNA” Maddison, D., M. Baker, and K. Ober. Co-author of paper presented at the Entomological Society of America Annual Meeting. Nashville, TN. December 1997.
- “Molecular phylogeny of the Adephaga” Baker, M., D. Maddison, and K. Ober. Co-author of paper presented at the Entomological Society of America Annual Meeting. Nashville, TN. December 1997.
- “Molecular phylogeny of carabid beetles” Ober, K., D. Maddison, M. Baker. Poster presented at the Entomological Society of America Annual Meeting. Louisville, KY. December 1996.
- “Phylogeny of carabid tribes as inferred from molecular sequence data (Coleoptera)” Maddison, D., M. Baker, K. Ober. Co-author of paper presented at the 20th International Congress of Entomology. Firenze, Italy. August 1996.
- “Combination and consensus in gastropod phylogeny” Collins, T., R. Bieler, K. Ober, W. Brown. Co-author of paper presented at the American Malacology Union Meeting. Chicago, IL. June 1996.

“Molecular phylogeny of adaphagan beetles with an emphasis on carabid diversification” Ober, K. and D. Maddison. Poster presented at the Flinn Foundation Biomedical Research Enrichment Symposium. Phoenix, AZ. May 1996.

\*indicates Holy Cross undergraduate co-author

#### UNDERGRADUATE RESEARCH STUDENTS

Frank Spano (2021-2022) Project: Biogeography of *Pseudanopthalmus robustus* group

Erin Kinney (Fall 2019) Project: New species of cave beetles

Angelin Lucas (Summer 2019) Project: Insect Biodiversity and Curation of Entomology Collections

Victoria Attaya (Summer 2018) Project: Hygienic honey bee behavior

John Sbarbaro (Fall 2017- Spring 2018) Project: Biogeography of *Pseudanopthalmus robustus* group

Gabriel Gabro (Summer 2017) Project: Molecular phylogeography of cave beetles

Thomas Kalantzakos (Fall 2016- Spring 2018) Project: Opsin molecular evolution in blind beetles

Anthony Criscitiello (Summer 2016- Spring 2017) Project: Changes in larval pheromones in physiologically stressed honey bees

Mary Patrice Hamilton (Summer 2016) Project: Self-medication in honey bees

Cailee Dean (Fall 2014 – Spring 2015) Project: Climate change and evolution in Sky Island beetles

Andrew Sullivan (Summer 2014 – Spring 2015) Project: Molecular phylogeography of cave beetles

Alex Carlson (Fall 2013- Spring 2015) Project: Molecular phylogeography of cave beetles

Lucas Casagrande (Summer 2013) Project: Molecular phylogeography of cave beetles

Sean Carey (Summer 2013) Project: Population structure of Sky Island *Scaphinotus petersi*

Michael McGuire (Summer 2013) Project: *Tribolium sna* expression and function

Ryan Judy (Fall 2012 – Spring 2013) Project : Population structure of Sky Island *Scaphinotus petersi*

Craig Connolly (Fall 2010 – Spring 2011) Project: Morphometrics in Sky Island *Scaphinotus petersi*

Michael Pratt (Spring 2009 – Spring 2010) Project: Population structure of Sky Island *Scaphinotus petersi*

Monique Gallant (Summer 2009) Project: Embryonic fate mapping in *Tribolium castaneum*

Michael Tedaldi (Spring 2009) Project: Slave-making ants, *Ectatomma ruidum*, microsatellites

Andrea Everheart (Summer 2008) Project: Central Massachusetts Insect Biodiversity

Caitlin Griffin (Fall 2007 - Spring 2008) Project: *Tribolium sna* expression and function

Thomas Heider (Summer 2007 – Fall 2007) Project: Uncovering molecular signatures of rapid evolutionary radiations

Brian Hedrickson (Summer 2007 – Spring 2009) Project: *Tribolium gbb* embryonic expression and function

Abigail Ferrierri (Summer 2006 – Spring 2007) Project: Population structure of Sky Island *Scaphinotus petersi*

Brian Matthews (Spring 2005 – Spring 2007) Project: Molecular systematics of carabid beetles

Sonia Kuhn (Summer 2005 – Spring 2006) Project: Population structure of Sky Island

*Scaphinotus petersi*

Krunal Patel (Spring 2005 – Spring 2006) Project: Body axis and appendage development in *Tribolium castaneum*

**HONORS AND CAPSTONE THESES**

Frank Spano '22 Honors Thesis: Biogeography of *Pseudanophthalmus robustus* group (2021-2022)

Thomas Kalantzakos '18 Biochemistry Thesis: Molecular evolution and divergence times in cave beetles (Fall 2017 – Spring 2018)

John Sbarbaro '18 Biochemistry Thesis: Biogeography of *Pseudanophthalmus robustus* group (Fall 2017 – Spring 2018)

Anthony Criscitiello '17 Biology/Biochemistry Thesis and Honors Thesis: *Pheromonal Response to Stress in Larval Honeybees (Apis mellifera) and Possible Floral Origins of Volatile Pheromone Components* (June 2016 – May 2017)

Brian Hendrickson '09 Biology/Biochemistry Capstone and Honors Thesis: *Expression and Function of glass bottom boat in the red flour beetle* (June 2007 – May 2009)

Emily Meyer '08 Biology/Women and Gender Studies Capstone: *Human Evolution and Racism* (Spring 2008)

Krunal Patel '06 Biology Honors Thesis: *Developmental gene function in insect appendage and axis formation using RNA interference* (January 2005 – May 2006)

Christian Levenick '05 CISS Biology/German Studies Capstone (co-advisor with Sylvia Schmitz Burghard): *The Plague of the Grapevine: Influence of the Historical "Reblaus" Invasion into Europe* (Spring 2005)

**GRADUATE RESEARCH STUDENTS**

Jedidiah Nixon Masters student in Biology at Western Kentucky University, Bowling Green KY. Committee member and thesis examiner (2018 – 2020): *Systematics of Kentucky cave trechines*

Ph.D Dissertation examiner for Emily Fountain Lincoln University Christchurch New Zealand (Fall 2012): *Time travelling weevils: unraveling the evolutionary past of Hadramphus using historical and modern DNA*

Brian Seitzman Ph.D. student at Clark University, Worcester, MA. Dissertation committee member (2008 – 2010): *Correlated evolution of fungus loving beetles*

**RECENT TEACHING DEVELOPMENT**

Holy Cross Creativity and Re-imagining Pedagogical Practices Retreat, June 2017

Holy Cross Center for Teaching Peer Teaching Program

2016 BIOL283 with Professor Mondoux

2015 BIOL114 with Professor Landis

Project Kaleidoscope (PKAL) and AAC&U Conference Transforming STEM Education: Inquiry, Innovation, Inclusion and Evidence 2013, San Diego, CA

Center for Teaching January Workshop: Metacognition and Learning Strategies, January 2015

Center for Teaching August Workshop: Understanding and Improving College Student Motivation: Strategies to Enhance Your Teaching, August 2014

Center for Teaching August Faculty Workshop: Making the Case: Integrating Case Studies in our Liberal Arts Classrooms, August 2013

Faculty Evaluation of Teaching Performance Workshop: Use and Misuse of Student Rating, March 2013

#### **TEACHING EXPERIENCE AT THE COLLEGE OF THE HOLY CROSS**

Introductory Biology 2 – Zoology (BIOL 163, 1.25 Credits) Required course for Biology majors. Half semester course is devoted to Invertebrate Zoology.

Applied Evolution (BIOL 383, 1 credit). Seminar in Ecology/Evolutionary Biology. Fulfills Ecology/Evolutionary Biology elective for Biology majors.

Evolution (BIOL 238, 1 credit). Fulfills Ecology/Evolutionary Biology elective for Biology majors.

Entomology (BIOL 220, 1.25 credits). Fulfills Biodiversity elective for Biology majors. This is a lecture and laboratory course.

Principles in Biology: Evolution (BIOL 114, 1 credit). This course fulfills natural science common area requirement for non-Biology majors.

Montserrat: Human Impact on Evolution (MONT 107N, 1 credit). Seminar course for first year students

Montserrat: The Evolving Natural World (MONT 106N, 1 credit)

Seminar course for first year students

Undergraduate or Honors Research (BIOL/ENVS 401/402 or 407/408 1.25 credits). This course is for undergraduates doing laboratory research projects or Honors theses.

How We Shape Nature (FYPR 110, 1 credit)

Seminar course for students in First Year Program

Shaped by Evolution (FYPR 109, 1 credit)

Seminar course for students in First Year Program

#### **PRIOR RESEARCH EXPERIENCE**

Research Associate in the laboratory of Dr. Elizabeth Jockusch, Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, CT (2001-2004)

Graduate Student Researcher for Dr. David Maddison, Department of Entomology, University of Arizona, Tucson, AZ (1995-2001)

Laboratory technician in the laboratory of Dr. Gary Fisher, Department of Dermatology, University of Michigan School of Medicine, Ann Arbor, MI (1995)

Laboratory technician in the laboratory of Dr. David Mindell, Museum of Zoology, University of Michigan, Ann Arbor, MI (1994-1995)

Undergraduate research under the supervision of Dr. Wes Brown and Dr. Tim Collins, Department of Biology, University of Michigan, Ann Arbor, MI (1994)

#### **FIELD EXPERIENCE**

2008 Southeastern Arizona (2 weeks)

2006 Southeastern Arizona (1.5 weeks)

2005 Southeastern Arizona (2 weeks)

2004-2005 South Africa (3.5 weeks)

2000 Peninsular and Borneo Malaysia (4 weeks)

1998 Amazonian Ecuador (2 weeks)  
1997 Costa Rica and Panama (10 weeks)  
1995-2005 Extensive collecting throughout the USA

#### **PROFESSIONAL SERVICE AND ACTIVITIES**

Consultant for Virginia Department of Conservation and Recreation Virginia Karst Program biological inventory and monitoring of cave obligate fauna (2015 – 2021)  
National Ecological Observatory Network (NEON) ground beetle sampling design technical working group member (2012 – 2015)  
Coleoptera editor (Carabidae and Adephaga) for *Zootaxa* (2011- 2018) (~14 papers per year)  
Consultant and Reviewer for *The Tangled Bank: An Introduction to Evolutionary Biology* 2<sup>nd</sup> ed. by Carl Zimmer, Roberts & Co. Publishers (2013)  
Chair of Phylogenetics and Diversification Section at Society for the Study of Evolution/Society of Systematic Biologists Annual Meeting. Portland, OR. June 2010  
Judge, Hamilton Award for Student Presentation, Society for the Study of Evolution (2010)  
Expert scholar media consultant “Beetle regulated area spreads in Central Mass.” NECN Boston MA and WCTR Worcester MA. September 2009  
Consultant and Reviewer for *The Entangled Bank: An Introduction to Evolutionary Biology* by Carl Zimmer, Roberts & Co. Publishers (2008-2009)  
Consultant for Wachusett Mountain State Reservation Biomonitoring and Research project on invertebrate biodiversity (2008)  
Film Script Science Adviser for *Helmand’s Beetle* and *Kill Jar* 2008 productions  
Judge, Student Presentation Award, Entomological Society of America (2005, 2006)  
Expert scholar media consultant for Metro West Daily News article on Evolution and Intelligent Design (June 2005)  
Member, *Systematic Biology* editorial board (2003-2007)  
Ad hoc reviewer for *Coleopterist Bulletin*, *BioMed Central Evolutionary Biology*, *Zootaxa*, *Zoological Scripta*, *Zoologica Scripta*, *Biological Journal of the Linnean Society*, *Evolution*, *Journal of Molecular Evolution*, *Annals of the Entomological Society of America*, *Systematic Biology*, *Cladistics*, *Journal of Insect Science*, *Journal of Arid Environments*, *Bulletin of Entomological Research*, *Psyche*, *Zookeys*, *PLOS One*  
Grant reviewer: Ad hoc reviewer for NSF DEB (2004–2013)

#### **COLLEGE SERVICE**

Holy Cross Alumni Association Board of Directors faculty member (2017-2018)  
Ad hoc Committee on the Evaluation of Teaching CEF subcommittee Chair (2017-2018)  
Ad hoc Committee on the Evaluation of Teaching CEF subcommittee member (2018-2019)  
Committee on Tenure and Promotion member (2015-2017)  
Biology Department AAC representative (2014–2015)  
Faculty Assembly Parliamentarian (2014-2015)  
New Faculty Mentor (2014-2018)  
Faculty Teaching Peer Mentor (2015)  
Faculty presenter at Alumni Association Continuing Education Classroom Revisited ’14 Darwinian Medicine and Applied Evolution (April 5, 2014)

Committee on Faculty Affairs Chair (2013-2014)  
Committee on Faculty Affairs member (2012-2014)  
Faculty Mentor in the Mentor Program for ALANA, Passport, and International Students (2012-2015, 2017-2018)  
Holy Cross Odyssey Orientation presenter (August 2005-2015)  
Ad Hoc Committee member on Parental Leave Policy (2009-2010)  
Biology Department point person for MAST (Math and Science Teaching) discussion group (2009-2010)  
Committee on Nominations and Elections Chair (2009 –2010)  
Biology Department AAC Representative (J2008 –2010)  
Expert panelist for College Honors seminar “The Language Instinct” Dinner and a Movie (March 2009)  
Committee on Nominations and Elections member(2008 –2009)  
Roundtable Discussion member – Darwin, Evolution and the Creative Process for *Zoologia Fantastica* exhibition (January 2008)  
Faculty Mentor in the Mentor Program for ALANA, Passport, and International Students (2007 –2008)  
Biology Department representative to the Integrated Science Complex Construction Group (2007 – 2008)  
Holy Cross Passport academic advisor (July 2007)  
Member of Haberman Chemistry/Physics Building Committee (2005 –2007)  
Member of Committee on Graduate Studies and Fellowships (2005 –2008)  
Johns Hopkins Center for Talented Youth workshop presenter – “An inordinate fondness for beetles” (April 2005)  
*Science, Math, and Sex* panelist for Holy Cross CAB Life 101 (March 2005)  
Co-organizer, along with Bill Shea, of CREC lecture on “Creationism and Evolution” by Dr. Ken Miller at Holy Cross (February 2005)  
Co-organizer of 2005 Undergraduate Summer Research Symposium (USRS) (September 2005)  
Served as a summer Gateways academic advisor for advising sessions (June 2005, 2007, 2008)  
“Hogwarts at Holy Cross” presenter – *Care of Magical Creatures* (November 2004)

#### **DEPARTMENTAL SERVICE**

Biology Department Chair (January 2019 – June 2022)  
Biology Department Curriculum Committee (2019-2020)  
CNTT search committee Chair (February - June 2019) resulting the in the successful hire of Dr. Kirsten Hagstrom  
Ecology and Evolutionary Biology visiting professor search committee Chair (Spring 2018) resulting the in the successful hires of Dr. Sean Williams and Dr. Gretchen Snyder  
Biology Department assessment committiee member (September 2017-2018)  
Teacher Education Program liasion for Biology Department (2012-2020)  
Genetics search committee member (Fall 2012) resulting in successful hire of Dr. Geoff Findlay  
Biology Department curriculum committee member (September 2012-2015, 2016-2017)  
Chair of Biology Department curriculum committee (September 2009-2010)  
Biology departmental meeting recorder (January 2008 – September 2009)

Biology Collections committee member (September 2005 – 2007)

Biology Society Co-coordinator (September 2005 – September 2006)

Member of Immunology Search Committee (Fall 2004) resulting in successful hire of Dr. Ann Sheehey

Departmental representative at Family Weekend Open House (October 2004, November 2009)

Biology departmental meeting recorder (September 2004 – September 2005)

#### **MEDIA RECOGNITION**

“Bugs and Bones: The inaugural Ardizzone awards enable pioneering faculty field work”  
Rebecca Smith. Holy Cross Magazine. Summer 2008.

“On the job. Karen A. Ober Assistant professor of biology, College of the Holy Cross,” Worcester Telegram & Gazette (Worcester, MA). October 22, 2007.

“Holy Cross Geologist and Biologist to Share Their Work at a National Forum.” Holy Cross Website Press Release. October 09, 2007.

#### **PROFESSIONAL AFFILIATIONS**

Entomological Society of America

Connecticut Entomological Society

Coleopterists Society

Society of Systematic Biologists

Society for the Study of Evolution