

RYAN M. BEBEJ

University of Michigan
Department of Ecology and Evolutionary Biology
Museum of Paleontology

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EDUCATION AND PROFESSIONAL POSITIONS

- 2011-present Olivet Nazarene University (Bourbonnais, IL)
Assistant Professor of Biological Sciences
- 2005-2011 University of Michigan (Ann Arbor, MI)
Ph.D., Ecology and Evolutionary Biology (EEB)
Advisors: Dr. Philip D. Gingerich, Dr. Philip Myers
- 2001-2005 Calvin College (Grand Rapids, MI)
B.S., Biology (with honors)
Advisors: Dr. David P. Warners, Dr. Ralph F. Stearley

RESEARCH INTERESTS

Evolution of cetaceans and other secondarily aquatic mammals
Aquatic locomotion and evolution of swimming mode
Evolutionary transitions between aquatic and terrestrial environments
Evolution and paleontology of mammals
Comparative anatomy and functional morphology

AWARDS AND FELLOWSHIPS

- 2011 Ermine Cowles Case Student Award for Outstanding Scholarship and Attainment in Research (awarded by the University of Michigan Museum of Paleontology; \$200 honorarium)
- 2009 EEB Research Allowance (\$100 for research expenses)
- 2009 EEB Travel Grant (\$100 for travel to 2009 Society of Vertebrate Paleontology annual meeting)
- 2009 Rackham Travel Grant (\$850 for travel to 2009 Society of Vertebrate Paleontology annual meeting)
- 2009 Peter Olaus Okkelberg Award (awarded by the University of Michigan Museum of Zoology; \$600 for research expenses)
- 2009 Rackham Outstanding Graduate Student Instructor Award (\$1000 award)
- 2008 EEB Travel Grant (\$100 for travel to 2008 Society of Vertebrate Paleontology annual meeting)
- 2008 Rackham Travel Grant (\$600 for travel to 2008 Society of Vertebrate Paleontology annual meeting)
- 2007-2010 Center for Faith and Scholarship Graduate Fellow (\$500 annual stipend)
- 2007 EEB Research Allowance (\$100 for research expenses)
- 2007 EEB Travel Grant (\$100 for travel to 2007 Society of Vertebrate Paleontology annual meeting)

- 2007 Rackham Travel Grant (\$500 for travel to 2007 Society of Vertebrate Paleontology annual meeting)
- 2007 Society of Vertebrate Paleontology Student Member Travel Grant (\$300 for travel to 2007 Society of Vertebrate Paleontology annual meeting)
- 2006 EEB Block Grant (\$650 for research expenses)
- 2006 American Scientific Affiliation Student Scholarship (\$100 for registration for 2006 American Scientific Affiliation annual meeting)
- 2006 EEB Research Allowance (\$100 for research expenses)
- 2006-2011 Au Sable Graduate Fellow (\$200 annually for books)
- 2005 Bernard J. Ten Broek Excellence in Biological Research Award (awarded by Calvin College Biology Department)
- 2003-2005 John and Lillian Van Oosten Science Scholarship (2-time recipient; awarded by Calvin College Science Division)
- 2001-2005 Calvin College Presidential Scholarship (4-time recipient)
- 2001-2005 Ronald Lee Sterner Scholarship (4-time recipient; awarded by Covenant Children's Home)
- 2001-2005 Elks Most Valuable Student Scholarship (4-year scholarship; awarded by the Elks National Foundation)
- 2001-2005 Princeton Memorial Scholarship (4-time recipient; awarded by Princeton High School, Princeton, IL)

TEACHING EXPERIENCE

- 2011 Spring Temporary postdoctoral instructor – Biology 173: Introductory Biology Laboratory, Dr. Marcus Ammerlaan (University of Michigan)
- 2009 Winter Graduate student instructor – Ecology and Evolutionary Biology 451: Biology of Mammals, Dr. Philip Myers (University of Michigan)
- 2008 Fall Graduate student instructor – Biology 252: Chordate Anatomy and Phylogeny, Dr. Ronald Nussbaum (University of Michigan)
- 2008 Spring Graduate student instructor – Biology 173: Introductory Biology Laboratory, Dr. Marcus Ammerlaan (University of Michigan)
- 2008 Winter Graduate student instructor – Biology 173: Introductory Biology Laboratory, Dr. Marcus Ammerlaan (University of Michigan)
- 2007 Fall Graduate student instructor – Biology 252: Chordate Anatomy and Phylogeny, Dr. William Fink (University of Michigan)
- 2007 Winter Graduate student instructor – Biology 162: Introductory Biology, Dr. Marcus Ammerlaan (University of Michigan)
- 2006 Winter Graduate student instructor – Biology 162: Introductory Biology, Dr. Marcus Ammerlaan (University of Michigan)
- 2005 Fall Graduate student instructor – Biology 162: Introductory Biology, Dr. Marcus Ammerlaan (University of Michigan)
- 2005 Spring Undergraduate laboratory assistant – Biology 323: Comparative Vertebrate Anatomy, Dr. Peter Tigchelaar (Calvin College)
- 2004 Fall Undergraduate laboratory assistant – Biology 205: Human Anatomy, Dr. Peter Tigchelaar (Calvin College)
- 2004 Spring Undergraduate laboratory assistant – Biology 323: Comparative Vertebrate Anatomy, Dr. Peter Tigchelaar (Calvin College)

2003 Fall Undergraduate laboratory assistant – Biology 205: Human Anatomy, Dr. Adriana Ribeiro (Calvin College)

OTHER WORK AND RESEARCH EXPERIENCE

2009-2011 Museum assistant, University of Michigan Museum of Paleontology, under the supervision of Dr. Philip Gingerich

2009 Field assistant on University of Michigan-Egyptian Environmental Affairs Agency expedition in Wadi Al-Hitan, Egypt, under the supervision of Dr. Philip Gingerich and Dr. Iyad Zalmout (November 2, 2009-December 8, 2009)

2005-2011 Graduate student research under the advising of Dr. Philip Gingerich on the evolution of Eocene archaeocete cetaceans

2004-2005 Independent research with Dr. Ralph Stearley documenting and investigating potential causes of vertebral asymmetry in the Ada Bible Church mastodon

2004 Research assistant for Dr. David Warners and Dr. Randall Van Dragt in conducting a botanical inventory of Vergennes Township (Kent County, Michigan)

PUBLICATIONS

2011 Wood, A.R., **R.M. Bebej**, C.L. Manz, D.L. Begun, and P.D. Gingerich. Postcranial functional morphology of *Hyracotherium* (Equidae, Perissodactyla) and locomotion in the earliest horses. *Journal of Mammalian Evolution* 18: 1-32. DOI: 10.1007/s10914-010-9145-7

2009 **Bebej, R.M.** Swimming mode inferred from skeletal proportions in the fossil pinnipeds *Enaliarctos* and *Allodesmus* (Mammalia, Carnivora). *Journal of Mammalian Evolution* 16: 77-97. DOI: 10.1007/s10914-008-9099-1

2005 Van Dragt, R.G., D.P. Warners, **R.M. Bebej**, and J. Timmer. Natural areas inventory of Vergennes Township (Kent County, Michigan). Technical Report to the Open Space Citizens Committee, Vergennes Township, Kent County: 1-178.

CONFERENCE PRESENTATIONS

2009 **Bebej, R.M.** Possible sexual dimorphism in Remingtonocetidae (Mammalia, Cetacea, Archaeoceti) from the Domanda Formation of Pakistan. 69th Annual Meeting of the Society of Vertebrate Paleontology and 57th Symposium of Vertebrate Palaeontology and Comparative Anatomy, University of Bristol, Bristol, UK (September 26, 2009). Published abstract: *Journal of Vertebrate Paleontology, SVP Program and Abstracts Book*: 60A. [Poster]

2009 Manz, C.L., **R.M. Bebej**, and P.D. Gingerich. Multivariate analysis and morphological description of the cervical column of *Maiacetus inuus*: implications for head and neck movement in a protocetid cetacean from Pakistan. 69th Annual Meeting of the Society of Vertebrate Paleontology and 57th Symposium of Vertebrate Palaeontology and Comparative Anatomy, University of Bristol, Bristol, UK (September 26, 2009). Published abstract: *Journal of Vertebrate Paleontology, SVP Program and Abstracts Book*: 142A. [Poster]

- 2008 **Bebej, R.M.** Lumbar spine of *Remingtonocetus* (Mammalia, Cetacea, Archaeoceti) and implications for aquatic locomotion. 68th Annual Meeting of the Society of Vertebrate Paleontology, Cleveland Museum of Natural History and Case Western Reserve University, Cleveland, OH (October 18, 2008). Published abstract: *Journal of Vertebrate Paleontology* 28(3 supp.): 49A. [Poster]
- 2008 Wood, A.R., **R.M. Bebej**, C.L. Manz, and P.D. Gingerich. New insights into the locomotory capabilities of the early Eocene equid *Hyracotherium*. 68th Annual Meeting of the Society of Vertebrate Paleontology, Cleveland Museum of Natural History and Case Western Reserve University, Cleveland, OH (October 18, 2008). Published abstract: *Journal of Vertebrate Paleontology* 28(3 supp.): 162A.
- 2008 **Bebej, R.M.** Inferring swimming mode from skeletal proportions in early pinnipeds (Mammalia, Carnivora). Early Career Scientists Symposium, University of Michigan, Ann Arbor, MI (March 15, 2008). [Poster]
- 2007 **Bebej, R.M.**, M. Ul-Haq, I.S. Zalmout, and P.D. Gingerich. Functional interpretation of the neck in Eocene *Remingtonocetus* from Pakistan (Mammalia, Cetacea, Archaeoceti). 67th Annual Meeting of the Society of Vertebrate Paleontology, University of Texas, Austin, TX (October 20, 2007). Published abstract: *Journal of Vertebrate Paleontology* 27(3 supp.): 45A.
- 2005 **Bebej, R.M.**, and R.F. Stearley. Deformation in the spine of the Ada Bible Church mastodon. Michigan Academy of Science, Arts, and Letters Annual Meetings, Eastern Michigan University, Ypsilanti, MI (March 4, 2005). Published abstract: *Michigan Academician* 36(4): 62.

INVITED PRESENTATIONS

- 2011 Functional Morphology of the Vertebral Column in *Remingtonocetus* (Mammalia, Cetacea) and the Evolution of Aquatic Locomotion in Early Archaeocetes. Ph.D. defense (April 21, 2011).
- 2010 An evolutionary case study: The origin of whales. Guest lecture presented to the Biology I class at Olivet Nazarene University (December 8, 2010).
- 2010 The origin of whales: The most peculiar and aberrant of mammals. Guest lecture presented to the Introduction to Animal Diversity class at the University of Michigan (November 10, 2010).
- 2010 Getting started: GSIs teaching undergraduates. Presented at the University of Michigan Center for Research on Learning and Teaching Graduate Student Instructor Teaching Orientation (August 30, 2010).
- 2010 Mobility vs. stability: A multivariate analysis of lumbar proportions. Presented in the University of Michigan Paleontology Seminar (February 26, 2010).
- 2009 Getting started: GSIs teaching undergraduates. Presented at the University of Michigan Center for Research on Learning and Teaching Graduate Student Instructor Teaching Orientation (August 31, 2009).
- 2009 Evolution of swimming mode in seals and sea lions. Presented in the Calvin College Biology Departmental Seminar (May 8, 2009).
- 2009 Order Cetacea. Guest lecture presented to the Biology of Mammals class at the University of Michigan (February 19, 2009).

- 2008 The origin and early evolution of cetaceans. Presented to a visiting Paleontology class from Calvin College at the University of Michigan Museum of Paleontology (April 19, 2008).
- 2008 Swimming with seals and sea lions: Locomotor evolution in pinnipeds based on revised interpretations of fossil taxa. Presented in the University of Michigan Paleontology Seminar (April 4, 2008).
- 2008 The fossil record of early whales and their adaptation to life in water. Presented in a meeting of ScATs, a science and theology discussion group in Ann Arbor, MI (February 21, 2008).
- 2008 Evidence for evolution: The origin of whales. Presented to an adult education class at Ann Arbor Christian Reformed Church (February 10, 2008).
- 2008 The origin and evolution of cetaceans. Presented to a visiting Evolutionary Biology class from Calvin College at the University of Michigan Museum of Paleontology (January 18, 2008).
- 2008 Extinctions and endangered species. Guest lecture presented to the Environmental Ethics class at the Au Sable Institute of Environmental Studies, Mancelona, MI (January 15, 2008).
- 2008 Speciation and extinction patterns. Guest lecture presented to the Environmental Ethics class at the Au Sable Institute of Environmental Studies, Mancelona, MI (January 14, 2008).
- 2007 Taking a dip in the Tethys: The evolution of swimming in Eocene Cetacea. Presented in the University of Michigan Paleontology Seminar (March 23, 2007).
- 2006 Post-cranial remains of the Remingtonocetidae (Mammalia, Cetacea) and their implications for the early evolution of whales. Presented in the University of Michigan EEB Lunch Seminar (November 7, 2006).
- 2006 A review of the middle Eocene family Remingtonocetidae (Mammalia, Cetacea). Presented in the University of Michigan Paleontology Seminar (April 14, 2006).
- 2005 Spinal asymmetry in the Ada Bible Church mastodon. Presented in the Calvin College Geography, Geology, and Environmental Sciences Departmental Seminar.
- 2004 Botanical inventory of Vergennes Township. Presented with J. Timmer in the Calvin College Biology Departmental Seminar.

WEB ARTICLES

- 2009 **Bebej, R.M.** My journey from opposing evolution to studying it. *An Evangelical Dialogue on Evolution*. ([Link](#))
- 2006 **Bebej, R.M.**, and P. Myers. 2006. *Inia geoffrensis*. *University of Michigan Museum of Zoology, Animal Diversity Web*. ([Link](#))

PROFESSIONAL AFFILIATIONS

- 2008-present Society for Study of Mammalian Evolution
- 2006-present Society of Vertebrate Paleontology
- 2006-present American Scientific Affiliation

SERVICE AND OUTREACH ACTIVITIES

- 2010 Member of EEB evolutionary biology planning committee (University of Michigan)
- 2010 Member of Rackham Outstanding Graduate Student Instructor Award selection committee (University of Michigan)
- 2009 Tour guide for behind-the-scenes tours of the Museum of Paleontology (University of Michigan)
- 2009-2011 Practice teaching facilitator at the Center for Research on Learning and Teaching Graduate Student Instructor Teaching Orientation (University of Michigan) – 3 semesters
- 2009 Table host for Science Café discussion on religion and science (University of Michigan)
- 2008-2010 Member of the EEB curriculum committee (University of Michigan)
- 2008-2011 'Big sib' to first year EEB graduate students (University of Michigan)
- 2008 Hosted visiting undergraduate student that was seeking experience in fossil preparation techniques at the Museum of Paleontology (University of Michigan)
- 2008 Ruthven Museum tour guide for a visiting undergraduate Paleontology class (University of Michigan)
- 2008 Led a discussion on evolution for a science/theology discussion group (Ann Arbor, MI)
- 2008 Led a discussion on evolution for an adult education class at Ann Arbor Christian Reformed Church (Ann Arbor, MI)
- 2008 Organizer of graduate student lunch with annual Case Lecture speaker (University of Michigan)
- 2008 Ruthven Museum tour guide for a visiting undergraduate Evolutionary Biology class (University of Michigan)
- 2007-2009 Senior graduate student instructor observer that evaluated and provided feedback to first-time instructors (University of Michigan) – 6 semesters
- 2007 Judge for Scarlett Middle School science fair (Ann Arbor, MI)
- 2006 Ruthven Museum tour guide for a visiting undergraduate Paleontology class (University of Michigan)
- 2005-2007 Provided evaluations of biology professors up for tenure or promotion (Calvin College)
- 2004 Member of student committee that interviewed potential faculty hires (Calvin College)
- 2004 Member of student panel that answered questions from faculty regarding curriculum changes (Calvin College)

SKILLS AND PROFICIENCIES

- Experience constructing, modifying, and animating 3D models of mammalian skeletal elements using Creaform Handyscan and NextEngine Desktop 3D scanners, Geomagic Studio, 3D Studio Max, Visual-Safe MAD, and Amira (when working with CT-scan data)
- Experience with mechanical preparation, molding, and casting of mammalian fossil remains in the University of Michigan Museum of Paleontology Fossil Preparation Laboratory (Ann Arbor, MI)

Extensive research utilizing modern and fossil mammalian skeletal remains in the collections of the University of Michigan Museums of Zoology and Paleontology (Ann Arbor, MI), American Museum of Natural History (New York, NY), and National Museum of Natural History (Washington, DC)

Proficient with many software packages, including Microsoft Office, Endnote, Adobe Photoshop, Adobe Illustrator, and SPSS statistical software